This book collects academic works focusing on scientific and technical discourse and on the ways in which this type of discourse appears in or is shaped by multimedia products. The originality of this book is to be seen in the variety of approaches used and of the specialised languages investigated in relation to multimodal and multimedia genres. Contributions will particularly focus on new multimodal or multimedia forms of specialised discourse (in institutional, academic, technical, scientific, social or popular settings), linguistic features of specialised discourse in multimodal or multimedia genres, the popularisation of specialised knowledge in multimodal or multimedia genres, the impact of multimodality and multimediality on the construction of scientific and technical discourse, the impact of multimodality/multimediality in the practice and teaching of language, the impact of multimodality/multimediality in the practice and teaching of translation, new multimedia modes of knowledge dissemination, the translation/adaptation of scientific discourse in multimedia products. This volume contributes to the theory and practice of multimodal studies and translation, with a specific focus on specialized discourse.

Chapters by:

Franca Poppi, Annalisa Sezzi
Francesca Coccetta
Giuliana Diani
Daniela Cesiri
Stefania Consonni
Rosita Maglie, Chiara Abbatantuono
Jekaterina Nikitina
Gianmarco Vignozzi
Veronica Bonsignori, Gloria Cappelli
Davide Palmisano
Sandra Petroni
Olga Denti
Annalisa Sandrelli
Pin-ling Chang
Luca Valleriani
Rosa Rabadán, Camino Gutiérrez-Lanza
Maria Bortoluzzi, Ilaria Boato, Giorgia Salvador, Ivana Marenzi
Anthony Baldry, Deirdre Kantz, Anna Loiacono, Ivana Marenzi, Davide Taibi,
Francesca Tursi

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INTRODUCTION

ELENA MANCA, FRANCESCA BIANCHI
UNIVERSITÀ DEL SALENTO

This volume collects new and original academic works focusing on scientific and technical discourse and on the ways in which this type of discourse appears in or is shaped by multimedia products. Its chapters include a selection of papers presented at the international conference titled "Specialised Discourse and Multimedia: Linguistic Features and Translation Issues", held in Lecce in February 2019.[1]

The originality of this book is to be seen in the variety of approaches used and of the specialised languages investigated in relation to multimodal and multimedia genres. Contributions focus on new multimodal or multimedia forms of specialised discourse (in institutional, academic, technical, scientific, social or popular settings), on the linguistic features of specialised discourse in multimodal or multimedia genres, on the popularisation of specialised knowledge in multimodal or multimedia genres, as well as on the impact of multimodality and multimediality on the construction of scientific and technical discourse, in the practice and teaching of language and of translation.

The articles included in this volume have been grouped into six parts according to the main theme dealt with and to the type of discourse investigated, namely 1. Popularisation of scientific and technical knowledge, 2. Medical Discourse, 3. Tourism Discourse, 4. Business Discourse, 5. Translation and Multimedia, 6. Specialised Discourse in the Teaching and Learning Practice.

The **first part** of the volume includes four articles on the popularisation of scientific and technical knowledge.

Franca Poppi and Annalisa Sezzi contribute to this volume with a paper on the popularisation of nanotechnology in online reports and brochures in

[1] Other selected papers from the same conference are published in the special issue of Lingue e Linguaggi titled *Discorso specialistico e multimedialità. Caratteristiche linguistiche e problematiche traduttive*, edited by Gian Luigi De Rosa and Antonella De Laurentiis (Volume 35).

English issued by European and American institutions and environmental organizations. Their aim is to investigate the discursive practices used to disseminate nanotechnological knowledge to the public. The corpus they assembled for analysis, called NanoCorp, includes two subcorpora: the first is composed of four brochures and a report issued by the European Commission, the American Chamber of Commerce to the European Union, and the UK Royal Academy of Science and Royal Academy of Engineering. The four brochures and the report focus on what nanotechnology is and what it can offer to European citizens; the second sub-corpus includes four reports of two NGOs: The Friends of the Earth, and ECT, both aiming at making the general public aware of the need, on the part of governments, to develop clear and mandatory regulations on the use of nanomaterials. The NanoCorp was annotated for the discourse features of popularisation elaborated by Calsamiglia and van Dijk (2004), to which they added questions (Hyland 2002) and citations (Calsamiglia, Ferrero 2003). The results of the analysis show that the popularizing strategies of definition and denomination are the most used in both subcorpora. EU documents, in particular, use a more plain and informal language, with strategies such as exemplification, analogies and questions. Conversely, the documents by NGOs heavily rely on citations for disseminating nanotechnology and create a symphony of scientific voices. The two subcorpora are, thus, an example of the different strategies that can be adopted to increase people's knowledge and raise their consciousness.

Francesca Coccetta's paper addresses a new academic genre, the video abstract, that is to say a four-to-five minute video presentation of a research article. Video abstracts can be found on journal websites or on a blog or a researcher's personal website. The analysis carried out by Coccetta focuses, in particular, on the interplay between the videotrack and the soundtrack in video abstracts. The material used for analysis is constituted of 15 video abstracts which accompany written research abstracts published in a five-year span, form 2013 to 2017, in three international journals specialized in medicine, biology and chemistry. These videoabstracts embody different video formats and are addressed to a wide audience ranging from subject specialists to non-specialists. The method of analysis mainly draws on Baldry and Thibault's framework for film genre analysis (Thibault 2000; Baldry 2004; Baldry, Thibault 2006) which considers texts as organized according to a system of hierarchical and interactive levels. The research is also grounded in Hasan's Generic Structure Potential (1978, 1984, 1985, 2004) to account for the range of obligatory and optional structural elements open to a text type. The results of the analysis described in this paper suggest that videoabstracts are constituted by the phases Introduction, Results and Discussion, while the Methods phase may be omitted. The Promotion phase is also frequent in the Vas, while other phases which occur very frequently are the Opening and Closing phases, and the Journal Identity phase. This work also describes the added value of VAs, whose features contribute, through an interplay of visual and verbal elements, to a better comprehension of results and to a new way of describing scientific research, based on attitudinal language, which is not typical of written research abstracts.

Diani's paper similarly deals with the interplay of visual and verbal elements in the popularization of specific concepts, but she focuses on multimedia resources for children, such as websites, which aim to educate and entertain at the same time. The websites considered for analysis are *BAM! Body and Mind* and *Health for Kids*. The first of the two websites has been developed by the U.S. Centers for Disease Control and Prevention and aims to provide children, aged from 9 to 12, with information about all aspects of health, such as diseases, food and nutrition, physical activity, safety, life, and the body. The second website, *Health for Kids*, is a UK online website targeting children in the 4-11 group, designed to teach them how to look after their health. The two websites are characterised by a different degree of emphasis on verbal and visual elements: while in *BAM* the verbal mode is prominent, in *Health for Kids*, the overall organisation of the website is visual. This seems to be in line with the different age groups targeted by the two websites: *Health for Kids* includes the 4-9 age-group, an age when children have not yet fully developed their reading skills, while BAM is designed for older children who are able to read informative texts. The relations between verbal and visual modes on the websites under investigation are analysed adopting van Leeuwen's (2005) multimodal model of image-text relations and Maier *et al.*'s (2007, p. 467) typology on types of realisations of the verbal and the visual modes. The author carried out an analysis of one single section of the two websites, the "Diseases/Illness" section. In the website *BAM*, it is common to find: visually and verbally depicted fictional characters, typically children, who speak, act and guide the readers through the concepts described; metaphors, contributing to make abstract and complex concepts more familiar and easier to grasp; an interrelation between visual and verbal modes, presenting information in a more entertaining way and making it more easily accessible. In *Health for Kids*, images frequently occupy most of the page, information is presented in an entertaining way, and text is kept to brief descriptions. Difficult concepts are popularised through a question-answer mode. This interactive feature, typical of children's websites, is also visible in animated characters addressing the virtual reader by means of the pronoun 'you' and by quizzes and games which test the children's knowledge about health and food in an entertaining and stimulating way. This chapter, therefore, provides an overview of the popularizing strategies used in multimedia resources addressed to a young audience and also describes how different age groups imply a different frequency of usage of these strategies. The results of this analysis could inform the creation of multimedia products for children.

Daniela Cesiri's contribution also focuses on popularisation in multimedia products addressed to a young audience but, in particular, on the famous animated TV series *Dinosaur Train* which aims to disseminate specialist knowledge in the field of Palaentology to pre-school children. The analysis aims to identify the interplay between verbal and visual resources and to compare an episode where familiar species of dinosaurs are described against an episode in which unfamiliar dinosaurs are presented, in order to detect the knowledge dissemination strategies used. The author's analyses show that both episodes are divided into identical phases, which confirms the idea of a genre structure typical of the series. Following the methodology by Baldry and Thibault (2006), Cesiri carries out a visual analysis of each of the six phases around which each episode is structured. Interestingly, some differences are identified in the structure and in the visual elements used in the live-action segments in which Dr. Scott Sampson, a paleontologist, describes, to a group of children who surround him, the characteristics of the species of dinosaurs targeted in the given episode. When unfamiliar or recently discovered dinosaurs are described, new visual elements are added, such as the name of the dinosaur written in a coloured font in the background; furthermore, a different type of interaction takes place between Dr. Sampson, the children and the viewers. The live-action segments are also verbally analysed to identify the most common popularizing strategies used, which are: figurative language and comparison; and use of general terminology and of juxtaposition, the latter mainly used in the description of unfamiliar dinosaurs.

Stefania Consonni's paper analyses LEGO's and IKEA's building instructions from the perspective of multisemiotic qualitative data visualization practices. By combining the approaches of Systemic Functional Grammar (Halliday 2002, 2004), Social Semiotics (Kress, van Leeuwen 1996; van Leeuwen 2005) and Cognitive Discourse Analysis (McKay 1999; Taylor, Tenbrink 2013; Tenbrink, Taylor 2015) the multisemiotic strategies used in LEGO's and IKEA's building instructions are analysed on the ideational and interpersonal level (Halliday 2002, 2004); the aim is to explore the procedural and cognitive features of visualization strategies in lay, asymmetric contexts, such as the entertainment and home environment industry. LEGO's and IKEA's building instructions are typically characterised by purely graphic and visual resources, such as arrows, lines, pictures and sketches, and do not resort to verbal language. The functions performed by the two types of building instructions work on the ideational and interpersonal level: numbers, pictures and graphics show users what they are building, and accomplish an instructional task. Two types of representative processes realise these functions: narrative and relational. Narrative processes can be found in LEGO's instructions where arrows are vectors marking directionality and describing the unfolding of events and actions, that is to say transactional processes. Conversely, reactional, mental and verbal processes are mainly used in IKEA's building instructions. Relational processes are present in both types of instructions and are mainly instantiated by analytical processes. The author also provides a verbal transcoding of the processes identified in the instructions, thus showing how the same concepts can be conveyed through different modes. The author draws the conclusion that the genre of building instructions is not meant to expand or revise knowledge, but to make it accessible to lay audiences, by breaking down complex ideas into step-by-step procedures that can be visualized and imitated. Furthermore, the author suggests that there seems to be an increasing tendency in today's knowledge dissemination practices and processes towards the spatialized syncretism of figurative and graphical language, as can be observed in LEGO's and IKEA's instructions.

The **second part** of this volume includes three papers and addresses the relationship between multimodality, multimedia and medical discourse.

The first one is authored by Rosita Maglie and Chiara Abbatantuono, who focus on the modes of communication adopted by sexual health experts to counteract misinformation, stereotypes and stigma still revolving around human sexuality. The data used for analysis is constituted of posts retrieved from the weekly newspaper column of Kinsey Confidential, the website of a sexuality information centre. The weekly column considered for analysis disseminate expert information and advice through audios, as well as textual, visual and graphic material, thus providing an interesting multimodal communicative environment. The methodological approach of this work combines Multimodal Discourse Analysis with Corpus Linguistics. The aim of this study is to identify the kinds of specialized discourse that have been adapted to this new form of knowledge dissemination and how this new form of knowledge dissemination popularizes specialized discourse with a view to social change. Quantitative analysis is performed and reveals a similar frequency of function and lexical words both in the Question and in the Answer posts. However, some differences are found with respect to semantic preference and discourse prosody. The images used have three main functions: providing a graphic representation of the topic discussed; supplying new relevant information; and depicting a specific element of the discourse. They are mainly symbolic and metaphoric, and participants do not usually gaze the viewer, thus representing more an offer than a demand. Images are mainly used by experts to complement, in mutual enrichment, their verbal answers, and provide additional or different keys for understanding the sociocultural background of contemporary sexual knowledge and behavior. With this paper, the authors show how quantitative and qualitative evidence from the combined analysis of linguistic and semiotic resources contribute to describe the features of communication in the field of care delivery for social change, and how lay and professional power may counteract popular values and beliefs.

The second paper of the Medical Discourse part is authored by Jekaterina Nikitina. The study focuses on the multimodal potential of conference presentations aiming at disseminating specialised knowledge on human genome editing. The material used for analysis is taken from a specialised website presenting papers, conference proceedings, PowerPoint presentations and videos from the International Summit on Human Gene Editing, held in Washington D.C in December 2015. The Summit organizers relied on different semiotic codes for the dissemination of knowledge on human gene editing, although audiovisual video recordings are the most used. The aim of the analysis conducted by Nikitina is to assess how different semiotic codes interact in the resulting multimodal artefact, and how video recording of conference presentations contributes to the dissemination of scientific knowledge on human gene editing in slides and papers. The methodology used is based on genre theories (Swales 1990, 2004) to describe the multimodal artefact of a conference paper presentation and their social and communicative purposes (van Leeuwen 2005; Baldry, Thibault 2005; Bateman et al. 2017), on the framework of social semiotics and systemic functional linguistics (Halliday 1994 [1985]) and on multimodal theories (Kress, van Leeuwen 2006; Jewitt 2014). The concept of ‘semiotic spanning’ (Ventola 2002), referring to the switching of modes between the various moves, is used here to analyse how the unfolding of a video-recorded PowerPoint presentation provides adaptive choices for integrating different modes. Furthermore, the concept of ‘canvas’ (Bateman *et al*. 2017, p. 87), referred to material regularities is used to analyse the interaction between various modes within the canvas of conference presentation. The initial move, identified in conference presentation only, is the ‘thanks and acknowledgements’ move which conveys important information in terms of interpersonal meaning. The second move is ‘contextualisation’ which is used to put one’s talk against the general context of the Summit, foregrounding relevant links to other talks and legitimizing one’s work. It is achieved through different modes which in many cases are activated simultaneously:

spoken mode (linguistic and paralinguistic), written mode (written on the slide or paralinguistic), non-verbal mode (body language, voice modulation, and visual support). Paper delivery is the central core of conference presentations and exploit different semiotic codes and spatio-temporal organization of data. A prevalence of pictorial representations of knowledge can be clearly observed. In conclusion, the author shows that the video recording of conference presentations is the "most inclusive canvas" (Bateman *et al*. 2017, p. 214) to represent and spread knowledge on gene editing, with the canvases of slides and papers embedded in it. Furthermore, interpersonal information was mainly present in videos and not in commissioned papers, the latter being characterized by a reduced disseminating and popularizing potential. These results point to a new form of knowledge dissemination, where audiovisual communication seems to improve accessibility to contents on the part of a heterogeneous audience.

The third paper in this part of the volume describes Gianmarco Vignozzi's studies on oral communication in medical contexts in the popular TV medical drama *Grey's Anatomy*. In particular, medical spoken language is analysed in four communicative events, which are: the arrival of the patient in the emergency room; the discussion of the case with the patient; the discussion of the case among doctors; the medical procedure in the operating room. For this reason, medical spoken discourse is investigated both in expert-to-expert and expert-to-non-expert conversations. The data used for analysis includes the transcriptions and the videos of all the episodes of the 10th series of Grey's Anatomy. The first step in the analysis is qualitative, with the aim of singling out the types of conversational medical situations considered. Then, a categorisation and an analysis of the English text is performed to identify most recurrent spoken traits, and the characteristics of oral medical discourse are identified. Furthermore, specialised vocabulary, speech acts, and register variation traits are also investigated and described. Peer-to-peer communication, particularly in the discussion of clinical cases, results to be lexically dense and highly informative with many specialized terms, abbreviations, clipped forms, long complete sentences, and elliptical statements. Conversely, in medical procedures, specialized directives with an instructional function are very frequent, alongside descriptions and explanations of specialised contents which may be considered as popularising sequences aimed at helping the TV audience better follow the technical passages shown. In doctor-patient discussions, distinguishing features are mitigating devices and popularising sequences. Turns by doctors tend to feature long and complete sentences, as they are not talking in a situation of emergency; instead, it is a moment in which descriptive clarity and empathy are more crucial than brevity and conciseness. In the medical context which describes the arrival at the ER, what can be frequently observed are syntactic and morphological reductions leading to a very elliptical and condensed exchange of medical details. In conclusion, Vignozzi's study provides a detailed and interesting description of a wide repertoire of medical contexts which portray medical interactional exchanges both between medical professionals and between doctors and patients. These descriptions, besides indicating the features of spoken specialized English in TV series, may be very useful for developing or teaching a course of medical English.

The **third part** of this volume is devoted to tourism discourse in multimedia contexts and includes two papers.

Veronica Bonsignori and Gloria Cappelli investigate the way in which multimodal strategies are used in guided tours, documentaries and docu-tours to help real or potential tourists make sense of possibly unfamiliar culture- or domain-specific concepts. The material used for analysis includes 34 clips that were selected and cut from 20 audiovisual documents of three different genres, namely 2 guided tours, 13 docu-tours and 5 documentaries. The methodological approach consists in an initial phase in which the selected clips are carefully watched and transcribed, a second phase in which the verbal component is analysed with the aim of identifying culture-specific expressions and specialised vocabulary, and a third phase in which the popularization strategies employed for accessibility are retrieved and classified. Finally, a multimodal analysis with the annotator software ELAN (Wittenburg et al. 2006) is carried out, which allows for the integration of verbal and nonverbal cues such as images, gestures, gaze direction, graphic aids, and sounds. The analysis shows that multimodality is central in the process of making complex concepts available to the public. Verbal and non-verbal strategies (the latter with a higher frequency) are used by documentarists and tour guides alike when specific terminology and cultural references are present. However, the authors show that the above mentioned features are used differently in the three genres considered for analysis. For example, verbal strategies are preferred in guided toursand verbal and non-verbal strategies overlap in docu-tours, where speakers offer a verbal explanation of unfamiliar concepts while images echo their words as in a documentary. Images are almost equally common in documentaries and docu-tours, while labels, graphic aids and sound effects are only present in the former. Popularization strategies are more common in guided tours and docu-tours and less frequent in documentaries, the latter featuring only description and denomination. What is interesting is that the docu-tour presents the features of a hybrid genre where accessibility is achieved through the, sometimes, redundant overlap of multiple verbal and nonverbal strategies. This study provides useful insights into multimodality, tourism genres and popularization strategies, with interesting applications in the teaching of English for tourism but also in the design of ad hoc material for professional purposes.

Davide Palmisano analyses websites advertising Italy-, Germany-, and Austria-based farmhouse holidays to tourists from German-speaking and Italian-speaking countries and investigates them from a multimodal and cross-cultural perspective. The methodological approach used relies on Halliday's Systemic Functional Grammar (1978, 1985), on Kress and Van Leeuwen's Visual Grammar (2006), and on Manca's framework of Cultural Communication Grammar (2016). The data considered for analysis includes websites of Italian, Austrian and German farmhouses providing holiday accommodation to German-speaking and Italian-speaking tourists. The analysis starts with the identification of the standard layout of the homepages of the three groups of websites which appears to have different features in terms of number of pictures and of text available. Furthermore, a detailed analysis of pictures reveals interesting differences in the participants most frequently depicted. For example, in Italian websites human subjects are rarely depicted, while in Austrian websites pictures mainly feature human participants such as families enjoying the green areas of the farmhouses or children playing. Different levels of interaction can also be identified in the three groups of websites. In Italian homepages there is a clear predominance of elliptical and declarative sentences whose main function is that of informing and describing. For this reason, interaction is very limited if not absent. Conversely, in the Austrian and German websites, verbal communication is mainly developed through imperatives, infinitives, and direct questions to the reader. This difference is reflected in the verbal language used and in the different frequency of occurrence of nouns referring to human participants and to natural elements. Results confirm previous research on the Italian and the English languages of tourism and provide new and interesting insights into the German language of tourism.

The **fourth part** of this volume includes two papers focusing on business discourse in multimedia digital products.

Sandra Petroni's paper aims to show how the specialized discourses of corporation, marketing and branding are translated, or rather transducted (Kress 1997), into corporate 'About Us' pages. These pages can be considered as a multimodal digital artefact characterized by a co-deployment of different semiotic resources. The methodological approach used for analysis combines genre analysis theories (Swales 2004), Visual Grammar (Kress, Van Leeuwen 2001, 2006), Djonov and Knox's (2015) social semiotic framework and the Usability conventions and guidelines which have to be followed for the composition of digital products (Pollach 2005). The analysis takes into account ten corporate 'About Us' pages, in order to identify their relevance in the construction of the corporate identity and reputation, and to classify and define these pages as a genre or a micro-genre. Companies have been chosen by selecting LinkedIn top 10 companies in 2018. The analysis of the 'About Us' pages starts by considering the three metafunctions of Djonov and Knox's (2015) meta framework), that is to say representational, orientational and organizational, and focuses on elements of the pages such as composition and schematic structure, taglines, level of interactivity, summary, fact sheet, information section, length of pages, presence of visual and writings, discursive strategies such as agentic value, factual statements, numbers as evidence, size and scope, agents of change, and leadership. Results suggest that 'About Us' pages potentially are the place where the corporate identity and reputation are constructed, but but some companies seem to undervalue their importance. Semiotic modes appear to be used coherently and cohesively across the page, even though the author was not able to identify any well-defined schematic structure in terms of information value. Furthermore, results also suggest that these pages are characterized by some conventions which may make them recognisable models. They could be considered as genre hubs, since they contain and connect different corporate genres. This study interestingly contributes to define the potential of semiotically complex digital artefacts and provides a comprehensive methodology which allows linguists to gain better insight into the meaning-making process unfolding in hypermodal texts.

Olga Denti's contribution to this volume focuses on how financial information is provided multimodally in both specialized and non-specialised newspapers. The corpora assembled for analysis include articles from The Financial Times (FT.com, Europe), published online in a time range going from 2008 to 2019, and from The Times (thetimes.co.uk), published in the years 2011-2019. The articles have been selected around the keyword bail*-in, due to its highly specialised semantic load in the financial field. A series of frameworks for multimodal analysis are applied in order to describe how verbal and visual elements are arranged and organised in a webpage, and to identify the relationship existing between these two elements in the process of defining each other's meaning. The analysis starts with the identification of the modalities of information presentation, the modes of expression and their combinations, the synergic relationship between image and text, and their meaning multiplication. In particular, the analysis focuses on layout, hyperlinks, clusters, pictures and captions, graphs, and verbal structures such as headlines. Furthermore, functional aspects, professional background, and the relationships between the participants in the communicative event and the function of the text in context are also investigated. Results suggest that the two newspapers make different use of multimodal resources: an example is the much more frequent presence of graphs and hyperlinks in the Financial Times than in the Times. This may be probably due to the level of expertise and specialisation expected of their respective readers. In the Times, topics seem to be explained with an informative aim and not to increase the reader’s knowledge on financial topics. Findings also reveal an interesting relationship between use of multimodality and accessibility to topics on the part of non-expert users, which is surely worth investigating further.

The **fifth part** of the volume addresses translation in multimedia and multimodal contexts.

Annalisa Sandrelli focuses on the most frequent translation strategies used in the dubbing of legal dramas, and, specifically, in the Italian dubbing of ‘The Good Wife’, a very popular American legal series. The methodology used draws on Ranzato’s (2010, 2016) classification of cultural elements in audiovisual products, which includes source-culture, intercultural, third-culture, and target culture references, and on a classification of the translation strategies for legal references in audiovisuals elaborated by combining theories by Ranzato (2016), Cao (2007), and Venuti (2008). Furthermore, the methodology is complemented with interviews to the series translator, the dialogue adapters, and the dubbing director. The material selected for analysis includes eight episodes, videos and transcriptions, of the popular legal series ‘The Good Wife’. Cultural elements in the corpus are first classified, and then the translation strategies applied to them are identified. The prevalent translation approach identified is domestication, with functional equivalence and periphrasis being the two most frequent strategies used in the corpus; all the other strategies, including neologisms, loans and substitutions, are used very sparingly. However, there is also a significant presence of calques (formal equivalence), which have a foreignising effect and remind the audience of the origin of the series. The study contributes to the identification of critical issues in translation in general and, more specifically, in audiovisual translation. It may also contribute to the improvement of translation practices, which, combining domestication and foreignization, help make dubbed legal dramas a source of entertainment as well as of better awareness of the source culture systems and institutions.

The relationship between translation, multimodality, and ideology is discussed in Pin-ling Chang’s paper focusing on the translation into English of Xi Jinping’s report to the 19th National Congress of the Communist Party of China. The study deals, in particular, with the English translation elaborated with the help of the foreign English expert, an unusual figure, if we consider that the variety 'China English' is the one officially adopted in China also to resist Anglo-American cultural hegemony. Furthermore, a multimodal analysis of China's official media coverage of the foreign language experts involved in the translations of Xi's report is also carried out. In the analysis, the author compares the translated report against a book titled *Keywords to Understand China* (Vol. 1), which was the result of joint efforts of China International Publishing Group and China Academy of Translation, under the patronage of the Chinese government. Results of this comparison show that one third of the culture-loaded items included in the book are used without changes in the report, thus suggesting a type of obligatory translation legacy. The videos and the photos used by media for the coverage of the contribution of foreign experts in the translation of the report are analysed according to Kress and van Leeuwen' framework (2006). In the pictures as well as in the interview, the English expert – who does not interact with viewers – represents the stereotype of the English woman. Furthermore, the way she is presented suggests that she is an expert and the distance between the represented participant and the interactive participants signifies "respect for an authority" on English translation. Having an expert for each language in which the report is translated may be interpreted as a compromise between traditional culture and Western values, and the desire to participate in a globalization which is not exclusive to the West.

Luca Valleriani's paper aims at exploring social and regional language varieties of English and how they are deeply connected to cultural stereotypes in the animated Disney film *Zootopia*. Furthermore, the Italian dubbed version of this film is also investigated in order to identify the strategies chosen to render a similarly varied sociolinguistic environment in Italian, with particular attention to the correspondence between language and stereotype. The two most striking American accents that can be found in the film are Southern American English and African American Vernacular English. The former is stereotypically related to ignorance and lack of education, while the latter to lower classes and criminals. Interestingly, stereotypes are also present in the Italian dubbed version, where the Neapolitan accent is associated with negative connotations such as robbery and smuggling and the Sicilian accent is used to translate the Italian American accent, particularly when characters are mobsters. Although the aim of the film is to denounce racism related to geographical origin, race, education, language and physical appearance, the stereotypical use of accents, although adopted to trigger humour, seems to be in contrast with the general aim of the film. The Italian adaptation clearly tends towards domestication and similarly adopts stereotypical accents to define characters and their social contexts. As Valleriani points out, although creative and entertaining, this domestication strategy undoubtedly enhances regional prejudice through language, undermining the aim of teaching children not to judge people drawing on appearance, ethnic origin or sex.

Specialised translation and astronomy discourse are the topics dealt with by Rosa Rabadán Álvarez and Camino Gutiérrez Lanza. Specifically, their aim is to identify the features of the language of astronomy across different genres in English and Spanish, including audiovisual texts, and to identify those linguistic areas which may be more problematic for undergraduate students training to become specialized translators. The material selected for analysis includes the ASTROfest corpus, which contains three small subcorpora: a comparable corpus of English texts including scientific abstracts, web and magazine articles of popular science, and multimodal transcripts of web audiovisual materials; a parallel corpus of English texts and their translations into Spanish; a Spanish comparable corpus featuring popular science and multimodal transcription of audiovisual texts. These three corpora are differently analysed: monolingual En_ASTROfest is queried to produce a list of the most salient genre-specific, language-dependent problematic areas in the STs. En_ASTROfest materials are PoS tagged with TreeTagger, and the SketchEngine system is used to implement queries that include wordlist, keyword, multiword, and combinations of PoS tags and their positions to the right and the left. The English-Spanish parallel corpus is used to identify genre-specific, language-dependent problematic areas causing translation errors, and undesirable outcomes. Results from analysis of the first subcorpus shed light on the specific features of scientific language, such as absence of polysemy and ambiguity, nominalization and characterization chains, passive constructions, hedging by means of tentative reporting verbs, present tenses and -ing forms, among the others. Some of these features are shared by the different genres constituting the subcorpora, others are not. The most frequent errors depending on the linguistic features of the STs include: word-for-word translation and poor choice of phraseology; wrong word order, and, as a consequence, poor syntax; wrong use of cohesion markers; wrong translation of hedging and intensifiers; wrong tense sequence. Errors dependent on culture-based features are: word-for-word translation; and lack of identification of intertextual cultural references. Furthermore in audiovisual texts word-for-word translation generates errors and affect the acceptability of the TT. All the errors have been put together in a checklist which has been proposed to students during their training, and the results of this testing show a great deal of improvement on the part of the students. The checklist, therefore, proves a valid tool to be used in the translator training process.

The **sixth part** of the volume includes two papers which propose new online digital tools aimed at improving language learning in university courses.

Maria Bortoluzzi, Ilaria Boato, Giorgia Salvador and Ivana Marenzi address the topic of online collaborative interaction and present an open access tool that can be used to enhance collaborative and individual actions of language awareness and critical multimodal awareness for groups of undergraduate and postgraduate university students of English as a foreign language. The aim of their contribution is to check how students' online reflective learning dialogue can contribute to the critical analysis of multimodal texts and how collaboration can enhance learning autonomy. The digital community environment used for interaction is LearnWeb/CELL (Communicating in English for Language Learning) which includes a website annotation tool, called Hypothes.is, which can only be accessed by students and teachers. The validity of these tools from a pedagogical and language-learning perspective was tested on two groups of students attending two English language courses at the University of Udine: a group of undergraduate students and a group of postgraduate students. All the students were divided into small groups of 2 or 3. Undergraduate students were invited to select one online text per group, while postgraduate students to select one online text per student. As part of their tasks, the students had to use the online tools to annotate texts and identify crucial aspects related to representation of identities and fact-checking. The relevance to be given to specific aspects and the students' hypotheses were discussed with the other members of the community in a specific digital area. Students' learning dialogue was classified into three types, namely online block-annotation, online reported learning dialogue, and face-to-face learning dialogue. The analyses and reflections of the students constituted a useful resource for other students who decided not to participate in the project or belonging to different academic years. Furthermore, this series of learning actions and learning discourse promoted communication in the target language at different levels of competence, and with different registers (technical written annotations, informal oral dialogue, formal oral class presentation), thus enhancing autonomous learning.

Finally, the paper by Anthony Baldry, Deirdre Kantz, Anna Loiacono, Ivana Marenzi, Davide Taibi and Francesca Tursi describes the MWSWeb project, an ongoing project for the development of technical resources for the construction, annotation and analysis of multimedia corpora to be used in the teaching of English for Medical Purposes (EMP), for the benefit of medical students and students training as healthcare workers. The project entailed two stages: the construction of the House Corpus, including the entire House

M.D. series, now completed, and the construction of corpora from YouTube videos. The House Corpus was constructed by language students, who – while performing tasks of transcription, annotation and analysis of the video material – exercised their discourse analysis skills and increased their awareness of the nature and functions of multimedia corpora. At the same time, annotation and analysis of the corpus by the students made it possible to the researchers to develop new search and concordance features that take into account specific scenes, locations, character types, voice prosody, and hand movement, and display them with the corresponding transcripts. In the second stage of the project – which is still in progress – language students are applying the annotation system developed for the House Corpus to YouTube videos about medical topics and are extending the system's categories to reflect a wider range of video genres having varied contents, contexts, audiences and purposes. The annotated corpora were used by EMP teachers for supporting the students in learning about the importance and use of colour-coding in medical procedures and the phraseology typically used in English to express and describe the suffering that pain causes, but also as input material at exams revolving around topics such as risk management in medical settings and the relationship between anaesthetics and the human body in its conscious, semi-conscious and unconscious states. The project and the three case studies described in the paper clearly show the role played by non-verbal semiotic resources in meaning-making and how the actual use of resources in teaching/learning settings is a fundamental step to inform the development of further tools and analytical processes.

We would like to thank all the authors for contributing to this volume and to this special issue of Lingue e Linguaggi with their high-quality, innovative and interesting works and for their dedication and patience.

In addition, we would like to thank those members of the Scientific Committee who have contributed to the making of this volume and whose work has increased the quality of the articles even more.

We are sure that this issue will be very useful for future research on specialized discourse, multimodality and multimediality.

PART 1 POPULARISATION OF SCIENTIFIC AND TECHNICAL KNOWLEDGE

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"TINY NEW INGREDIENTS ARE A BIG CONCERN" The popularization of nanotechonologies in environmental organizations' and institutions' publications

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Abstract – The chapter sets out to explore how nanotechnology is popularised in online reports and brochures in English issued by European and American institutions[1] and environmental organizations. Nanotechnologies, by manipulating matter at a nanoscale, have a great impact on several disciplines and find applications in sectors such as medicine, engineering, electronics, food, and renewable resources. Given the repercussions on humans' daily life, many information campaigns have been launched in order to disseminate nanotechnological knowledge to lay people. Different forms and media have been exploited as in other knowledge dissemination processes, with the new media and Web 2.0 playing an important role (Garzone 2007). If knowledge dissemination has been often seen in terms of a "recontextualization" (Calsamiglia, Van Dijk 2004) and a "translation" (Gotti 2013) of specialized information from experts to non-experts as opposed to specialized discourse (Ciapuscio 2003; Calsamiglia, van Dijk 2004; Minelli de Oliveira, Pagano 2006; Kermas, Christiansen 2013; Bongo, Caliendo 2014; Garzone 2014; Gotti 2014; Bathia *et al*. 2015; Salvi, Bowker 2015), it is nonetheless true that this transfer of information often goes beyond the aim of making exclusive knowledge more comprehensible to the generic public. As a matter of fact, popularized discourse frequently aims "to inform, raise awareness and cause the reader to take action" (Gotti 2014, p. 29). A striking example is for instance health discourse (Cummings 2004, 2005, 2009; Hall 2006). Therefore, this chapter intends to analyse how specialized concepts pertaining to the domain of nanotechnology are popularized in online institutions' and environmental organizations' reports and brochures in English and in Italian. With the former emphasizing the advantages and the latter the risks of nanoscience, a common point they share is, however, their concern with the diffusion of nano knowledge and its related vocabulary. More specifically, the analysis, based on Calsamiglia and van Dijk's classification of five "types of explanation" (2004, p. 372), will identify the discursive strategies adopted.

Keywords: nanotechnologies; popularisation; discourse analysis.

[1] The term here refers to formal and official institutions.

1. Communicating Nanotechnologies

The website of the National Nanotechnology Initiative (NNI 2020) defines nanotechnologies as

> the understanding and control of matter at dimensions between approximately 1 and 100 nanometers, where unique phenomena enable novel applications. Encompassing nanoscale science, engineering, and technology, nanotechnology involves imaging, measuring, modelling, and manipulating matter at this length scale.

Then, nanotechnologies, by manipulating matter at a nanoscale, exert great influence on several disciplines and have applications in varied sectors such as medicine, engineering, electronics, food, cosmetics, and renewable resources, ranging from computer microchips to sunscreens. They have thereby strong repercussions on humans' daily life.

This impact on society and the rapid developments of nanoscience have ignited the need for an international public involvement "in discussion, decisions and policy associated with nano" (Schönborn *et al.* 2015, p. 346) since its very inception, in order not to repeat the same mistakes made with biotechnology. The antecedent errors linked to GMOs and cloning have arisen from an "incapacity in adequately controlling the media exposure of scientists and experts, and, above all, in a limited consideration by members of the scientific community and policy makers of public perception mechanisms and social impacts of research" (Lorenzet 2012, p. 2). The consequence was a wide-reaching backlash against genetically modified food.

The call for tackling ethical and social issues interrelated with nanotechnologies and their applications is associated with their societal effects, the most impelling one being nanotoxicity, and the consequent necessity to ward off the threat of a "grey goo" scenario around the communication of nanotechnology (Lorenzet 2012). Indeed, the first utopian visions, according to which nanoscience is able to solve significant global problems such as world hunger (see Gordijin 2006; Lorenzet 2012; Fries 2018), have now their counterpart in a more dystopian and catastrophic view, based on Drexler's *Engines of Creation* (1986). Herein, the author, by foreseeing self-replicating nanomachines (nanobots) devouring the biosphere, evokes the so-called "grey goo" apocalyptic scenario (Drexler 1986). Drexler intends it as a demand for assessing both the advantages and the risks of molecular assembly, offering also action plans for a responsible development.

Within this context, professionals, scholars, and policy makers underline the necessity of promoting people's "nano-literacy" so that they can "navigate some of the important science-based issues related to their everyday lives and society" (Laherto 2010, p. 161). However, as Boholm and Larsson (2019) explain, many studies emphasize how the general public has a very scarce knowledge of nanotechnology (among others, Castellini *et al.* 2007; Vandermoere *et al.* 2010; Delgado *et al.* 2011; Lin, *et al.* 2013). Independently from geographical provenance (yet, a survey comparing European and American public perceptions shows that people in the US are more optimistic due to pro-technology cultural values – Gaskell *et al.* 2005), this unfamiliarity makes people oscillate from enthusiasm, indifference, and general unstable and heterogeneous positive or negative attitudes (for example, Kim *et al.* 2014), based on personal values, approaches, and perspectives (Duncan 2011; Cormick, Hunter 2014). Obviously, a key role is played by the ways in which nanotechnology, its benefits and risks, are framed by the media (Satterfield *et al.* 2009; Satterfield *et al.* 2012). As a whole, "[d]uring the period of 2000 to 2010, surveys conducted on nanotechnology actually showed that the public, both in Europe and the United States, has not been very aware of nanotechnology, that for the majority of the public, the benefits outweigh the risks and that nanotechnologies are generally considered useful, good, and positive" (Lorenzet 2012, p. 3; see also Fisk *et al.* 2014). Similarly, nine years later, Boholm and Larsson (2019) specify that "[n]anotechnology is generally not an issue that spurs public engagement. Only a minority of citizens takes an active interest in nanotechnology and how it should be governed in society" (2019, p. 4).

This minority is primarily worried about environmental issues. Hazards and possibilities of nanotechnologies are assessed in a different way according to their area of application (Boholm, Larsson 2019, p. 5). For example, a study carried out in the US highlights that when nanotechnologies are employed for "important" applications such as improving water quality, for medicine, or for "alleviating distress in developing countries" (Macoubrie 2006, p. 236), people are usually supportive. At the same time, when they are employed for "trivial" applications (Macoubrie 2006, p. 236) such as cosmetics or in the food sector (see, for example, Siegrist *et al.* 2007), people tend not to justify or approve of their use. Especially, non-experts are concentrated on a transparent labeling of nanoproducts (Siegrist 2010). Brown and Kuzma's research (2013) shows how the consumers believe they have the right to be informed of possible risks, so as to choose the food accordingly: "A label is viewed as effective when the information on the label is understandable and leads to abilities for consumers to make an informed decision concerning consumption or purchasing" (Brown, Kuzma 2013, p. 534).

By reviewing the literature on the dissemination of knowledge about nanotechnologies in the fields of science communication, risk communication, and in the studies on societal responses, Boholm and Larsson (2019) identify three main problems to which scholars have sought to find solutions.

The first one is the public: as laypeople lack knowledge and are limitedly engaged in the public discussion and policy process, the solutions suggested are education and a multiparty dialogue between all the stakeholders involved in order to favour participation. Moreover, different ethnicities, races, languages, religions, and also cognitive styles characterize the public, thus communication should be tailored to various audiences. It should also become more transparent in order to develop people's trust.

The second problem concerns societal organizations. The great influence of mass media on the public, the fragmentation and ambiguity of the representations they provide, as well as of the policy and regulations on nanotechnologies, can be faced with an appropriate media management, with a strengthening action of guidelines and regulations, and with more clarity and consistency in the communication, even in terminological terms. In general, "there is a striking disagreement on how messages should be formulated and what should be emphasized" (Boholm, Larsson 2019, p. 12).

The third problem is nanotechnology itself. Because of its intrinsic characteristics, nanotechnologies are not seen as entailing dreadful risks, differently from nuclear power. Thus, they do not attract public attention. By the same token, nanomaterials are invisible to the human eye, and nanoscience is consequently perceived as an obscure and distant issue. Furthermore, the applications of nanotechnologies are so varied that attitudes change depending on the application at stake. Not to mention the epistemic uncertainty surrounding nanotechnology, regarding, for example, the definition and size of nanomaterial itself. The solution put forward is to improve knowledge of nanotechnology, and especially risk assessment and life cycle analysis.

As it can be drawn from this brief introduction, popularisation of nanotechnology is the heart of the matter. Many information campaigns have been launched with the purpose of disseminating nanotechnological knowledge to lay people. Different forms and media have been used as in other knowledge dissemination processes, with the new media and Web 2.0 playing a key role (Garzone 2007). However, if there is a substantial body of research into communication of nanotechnology in different fields, there are few studies on their popularisation among non-experts from the point of view of discourse analysis, particularly from the perspective of the disseminating strategies adopted (see Lazzeretti, Poppi 2020).

Knowledge dissemination is frequently referred to as a "recontextualization" (Calsamiglia, Van Dijk 2004) or a "translation" (Gotti 2013) of scientific information from experts to non-experts. Thus, it is important to look at the way nanotechnological knowledge is recontextualized or translated for laypeople. It is nonetheless true that this transfer of information often goes beyond the purpose of making specialist knowledge more understandable to the general public. As a matter of fact, some popularising texts aim "to inform, raise awareness and cause the reader to take action" (Gotti 2014, p. 29), like, for example, some of the materials published on nanotechnologies.

Against this background, the present paper has the objective of investigating the discursive practices aimed at disseminating nanotechnological knowledge to the public in a selection of online materials published by the EU and other British and American institutions and NGOs. Specifically, the investigation is focussed on the introductory sections of their brochures and reports seen as a sort of springboard for supporting the institutions and NGOs’ different views on the risks and benefits of nanotechnologies. The next sections describe the corpus and the methodology used. Then, the results of the analysis are presented, followed by some concluding remarks.

2. The NanoCorp

The corpus (*NanoCorp*) consists of online European and American brochures and reports published between 2004 and 2017, thus also covering the period from 2006 to 2008 when the debate was “on the request of more research on potential risks related to the development of nanotechnology and on regulation of nanotechnology products” (Lorenzet 2012, p. 4).

As it can be seen from Table 1, the first sub-corpus consists of four brochures and a report issued by three different institutions - the *European Commission*, the *American Chamber of Commerce to the European Union*, and the *UK Royal Academy of Science and Royal Academy of Engineering*. While the Report of the *UK Royal Academy and Royal Academy of Engineering* makes recommendations about regulations to minimise possible risks, the brochures by the *European Commission* and by the *American Chamber of Commerce to the European Union* aim at illustrating what nanotechnology is and what it can offer to European citizens.

The second sub-corpus includes four reports of NGOs: *The Friends of the Earth*, an international organization that “strives for a more healthy and just world, pushing for “the reforms that are needed, not merely the ones that are politically easy” (https://foe.org/about-us/), and *ETC* - an Action Group on Erosion, Technology and Concentration, addressing “the socioeconomic and ecological issues surrounding new technologies that could have an impact on the world’s poorest and most vulnerable people” (https://www.etcgroup.org/content/mission-etc-group).

Both NGOs want to make the general public aware of the fact that governments, especially the US, have to develop clear mandatory regulations and safety assessments for nanomaterials used in some of their applications, such as food or other consumer products. Despite their different goals and positions, all these publications contribute to the diffusion of nanotechnological knowledge. The present analysis centres on their introductory sections, which are normally the most informative parts of the texts, preluding to the different positions –

beneficial, moderated or unfavourable – which will be more explicitly supported in the other sections. Captions accompanying pictures have been excluded, as the multimodal analysis of image-text relations and their contribution to popularisation of nanotechnologies in the genres under scrutiny is beyond the scope of this paper.

1. INSTITUTIONS SUBCORPUS				2. NGOs SUBCORPUS		
	Date of publication	No. of tokens			Date of publication	No. of tokens
"NanotechnologyInnovation for tomorrow's world" *European Commission*	2004	2,473		"A Tiny Primer on Nanoscale Technologies ...and The Little Bang Theory" *ETC Group Erosion, Technology and Concentration*	2005	666
"Nanoscience and nanotechnologies: opportunities and uncertainties" *UK Royal Academy of Science and Royal Academy of Engineering*	2004	1,289		"Out of the laboratory and onto our plates: Nanotechnology in food & agriculture" *Friends of the Earth*	2008	2,371
"Nanotechnologies: Principles, Applications, Implications and Hands-on Activities" *European Commission*	2013	1,504		"Tiny Ingredients, Big Risks" *Friends of the Earth*	2014	2,344
"Tiny particles with big benefits" *Am Cham EU*	2017	1,181		"Nanoparticles in baby formula: Tiny new ingredients are a big concern" *Friends of the Earth*	2016	910
	TOT.	6,447			TOT.	6,291

Table 1.
Composition of *NanoCorp*.

The corpus is quite small (12,738 tokens), literally a nano-corpus. Given its specialized nature, its size does not pose any particular problem (see, for example, Flowerdew 2002). Then, within each subcorpus, the number of tokens of each text varies, as can be seen from Table 1. This imbalance will be considered when analysing the distribution of the popularising strategies.

3. Popularising Strategies

The *NanoCorp* was annotated for the discourse features of popularisation described hereinafter. As science communication is a complex phenomenon, different approaches have been combined (see Sezzi, Bondi 2019). Calsamiglia and van Dijk's classification of six "types of explanation" (2004, p. 372) is the starting point:

1. *Denomination* or *Designation* is the strategy thanks to which new terms or objects are introduced indicating their specialized denominations (Calsamiglia, van Dijk 2004, p. 381); as Garzone (2006, pp. 91-92) details, "[T]his strategy is often integrated into a sentence dealing with something else, often making recourse to expressions like "called", "known as", "meaning…", etc. or also "so called", "technically called", "in other words" etc.";
2. *Definition* cannot be separated from denomination. It implies the explanation of unknown words through the description of the characteristics or components of the object referred to (Calsamiglia, van Dijk 2004, p. 375); Garzone (2006, p. 92) adds that it is the "conceptual delimitation of a term by a brief description of some general and specific properties of the thing the term is referring to";
3. *Reformulation* or *paraphrase* is often introduced by appositions, parentheses, dashes, quotes and metalinguistic expressions. Garzone (2006, p. 94) describes it as "a discourse fragment that is easier to understand than the original discourse fragment, and that has more or less the same meaning";
4. *Exemplification* relates to specific examples used to explain general phenomena, "such as mentioning Alzheimer's as one of the diseases that might be better understood now that the human genome has been sequenced" (Calsamiglia, van Dijk 2004, p. 383);
5. G*eneralization* is the opposite process of exemplification, that is, general conclusions are drawn from specific examples (Calsamiglia, van Dijk 2004, p. 383). It is a "proposition that extends the validity of a proposition to all or most members of a set" (Garzone 2006, pp. 96-97);
6. *Analogy* or *association* (Calsamiglia, van Dijk 2004, p. 376) deals with a comparison with objects cognitively familiar to or easier to understand for non-specialists, by means of similes or metaphors.

Other strategies of popularisation are questions (Hyland 2002, 2004, p. 21; 2005). Through questions, relevant information is presented in the form of their respective answers (Gotti 2014, p. 29). Not only do these engagement markers position the readers as learners of a unilateral transmission of knowledge (Hyland 2002, p. 535) but they also anticipate possible questions and objections in order to forestall readers' criticism while leading them through an argument (Hyland

2004, p. 17). Consequently, the analysis takes *wh*-questions and *yes/no* questions into consideration too.

Lastly, citations, and generally reported discourse, are here considered as popularising strategies. They are used to guide the audience into their understanding process, underlining the credibility and the authoritativeness of the information delivered (Gotti 2014). In particular, the present study adopts the classification of citation styles by Calsamiglia and Ferrero (2003, p. 155):

1. Direct citation: where the words of writer 2 (D2) are separated from the discourse of writer 1 (D1).[2] There are two different enunciations with two deictic centers, "connected through juxtaposition and they are signalled by graphic markers such as (:)". This fracture between D1 and D2 influences tense, space, time adverbs, and person reference words;
2. Indirect citation: there is only the main discourse of W1, D1. As a consequence, there is only one deictic centre, which consists of "a subordinate clause introduced by a conjunction, and the correspondent agreement of tenses";
3. Integrated citation: "it has the form of indirect citation but with segments – of greater or lesser extension – signalled as being cited directly/literally with clear graphic or typographic marking, mainly with quotation marks and marked fonts (boldface or italics)";
4. Inserted citation: D2 is inserted in the main discourse (D1) through markers such as "according to X". In particular, they "have the function of assigning explicit words to a particular agent (literal or non-literal, depending on the use of graphic signs of quotation) without any communicative verb".

These categories are extended with Semino and Short's notion of Narrator's Representation of Speech Act –NRSA(p) (Semino, Short 2004, p. 52), which designates the summary or report of the speech act without a separate reported clause (either when the topic is not indicated or when it is presented– as the letter p in brackets signals).

[2] "D1 refers to main discourse by writer 1 (W1); D2, to quoted discourse by writer 2 (W2)" (Calsamiglia, Ferrero 2003, p. 171).

4. Methodology

The annotation of *NanoCorp* was carried out with the UAM corpus tool (O’Donnell 2008a, 2008b). It is a free software for manual and semi-automatic annotation of corpora that allows two types of annotation: users can assign features to entire texts and they can assign features to segments within every single text, referring to their own coding scheme. Then, the annotators set up their annotation “project” (as can be seen in Figure 1).

The first step in the definition of our *NanoCorp* was the uploading of the text files. Afterwards, the corpus was annotated at a document-level by dividing the individual texts according to the categories of “Institutions” and “NGOs”.

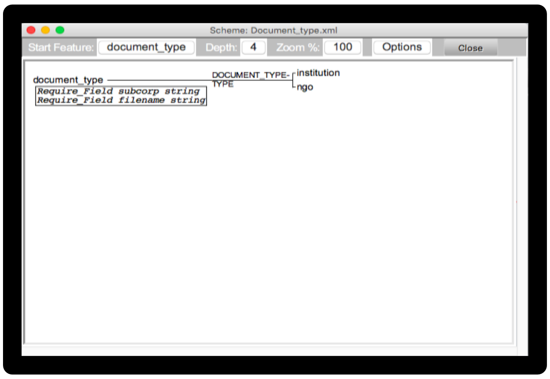

Figure 1
Document-level annotation scheme.

The second step consisted in the creation of a segment-level annotation scheme with all of Calsamiglia and van Dijk’s popularising strategies, Hyland’s types of questions, and different forms of speech and thought representation, so as to compare their use and frequency (Fig. 2), and identify the preferred strategies in each subcorpus.

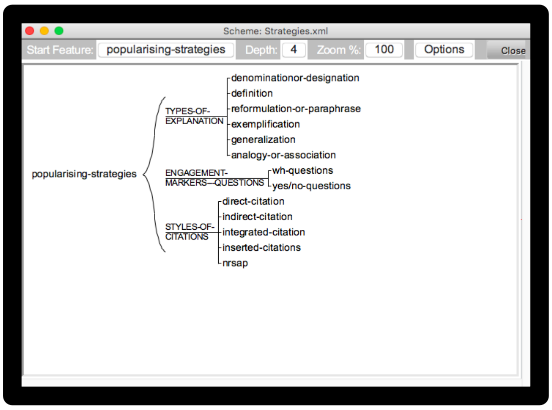

Figure 2.
Segment-level annotation scheme.

Finally, the texts of the *NanoCorp* were manually annotated thanks to a project window that enables users to underline the text segments and to assign them tags. Users can assign multiple tags to each segment.

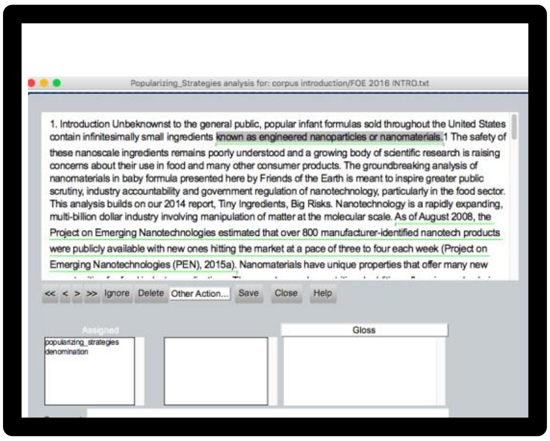

Figure 3
Tags assignment.

The corpus tool automatically performs a chi-square test. Thus, it highlights the statistical significance of the popularising strategies when comparing the two subcorpora. The strategies that are statistically noteworthy are marked with one or multiple "+" plus signs: only one plus sign ("+") indicates a weak significance, two plus signs ("++") indicate medium significance, and three plus signs ("+++") signal a high significance.

5. Results

As far as results are concerned, the system shows a description for each file of the popularising strategies adopted with their frequency (Table 2 and Table 3).

As can be seen from Table 2, about half of the total number of strategies are accounted for by the *Friends of the Earth*'s 2008 report,[3] whose introduction is the most verbose of the entire corpus. This long introductory part, characterized by an abundant use of definitions, might be explained by the fact that in 2008 the debate on nanotechnologies was particularly focused on the necessity to take the risks into consideration and to outline clear regulations (Lorenzet 2012), which had to be grounded on agreed and shared definitions. Moreover, in that period "[a]mong other initiatives, a call from the U.S. Food and Drug Administration for more regulation and safety in the nanotech production sectors followed the

3 This variation in the composition of the NGOs subcorpus- with the *Friends of the Earth*'s 2008 report playing a major role – will be considered in the analysis.

involvement of think tanks and NGOs such as the Canadian ETC group, that called for a moratorium on nanotech products" (Lorenzet 2012, p. 5). Indeed, as clarified by Gotti, since "scientific or technological innovations also have political implications, their presentation in popular forms may pose a challenge to traditional views and established behavior. Rather than 'explaining' science, this new type of popularisation sets out to explain the social meaning of such events […]" (Gotti 2014, p. 27), thus trying to raise laypeople's awareness.

Features Total Units	ETC Group 2005		FOE 2008		FOE 2014		FOE 2016		Total	
POPULARISING STRATEGIES	N=16		N=61		N=34		N=13		N=124	100%
denomination	2	12.50%	8	13.11%	4	11.76 %	2	15.38%	16	12.90 %
definition	3	18.75%	15	24.59%	14	41.18 %	0	0.00%	32	25.81 %
reformulation	4	25.00%	1	1.64%	0	0.00%	0	0.00%	5	4.03%
analogy	0	0.00%	0	0.00%	0	0.00%	1	7.69%	1	0.81%
generalization	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
exemplification	4	25.00%	7	11.48%	7	20.59 %	1	7.69%	19	15.32 %
wh/how questions	1	6.25%	1	1.64%	2	5.88%	0	0.00%	4	3.23%
yes/no questions	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
direct citation	1	6.25%	1	1.64%	1	2.94	0	0.00%	3	2.42%
indirect citation	1	6.25%	8	13.11%	5	14.71 %	5	38.46%	19	15.32 %
integrated citation	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
NRSA(p)	0	0.00%	20	32.79%	0	0.00%	3	23.08%	23	18.55
inserted citation	0	0.00%	0	0.00%	1	2.94%	1	7.69%	2	1.61%

Table 2.
Distribution of the popularising strategies in the NGO subcorpus

However, these requests were not considered extremely urgent by the public opinion. Indeed, a progressive decrease in the public interest from 2004 to 2012 is registered as people's attention was mainly catalyzed by climate change. For example, "while the media tried to push the interest in nanotechnology, especially during the years between 2006 and 2008, both at a global level and in Italy, the public demonstrated being progressively detached from preoccupations regarding potential risks related to nanotechnology development" (Lorenzet 2012, p. 5).

The texts issued by the institutions are more levelled, as can be seen in Table 3.

Features Total Units	Royal Academy 2004		EC 2004		EC 2013		AmCham 2017		Total	
Popularising strategies	N=22		N=27		N=31		N=19		N=99	99.99 %
denomination	5	22.73 %	9	33.33%	2	6.45%	3	15.79 %	19	19.19 %
definition	6	27.27 %	2	7.41%	8	25.81 %	5	26.32 %	21	21.21 %
reformulation	2	9.09%	1	3.70%	1	3.23%	0	0.00%	4	4.04%
analogy	0	0.00%	4	14.81%	0	0.00%	1	5.26%	5	5.05%
generalization	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
exemplification	4	18.18 %	4	14.81%	13	41.94 %	5	26.32 %	26	26.26 %
wh/how questions	1	4.55%	2	7.41%	4	12.90 %	2	10.53 %	9	9.09%
yes/no questions	0	0.00%	2	7.41%	1	3.23%	0	0.00%	3	3.03%
direct citation	0	0.00%	1	3.70%	2	6.45%	0	0.00%	3	3.03%
indirect citation	1	4.55%	2	7.41%	0	0.00%	3	15.79 %	6	6.06%
integrated citation	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
NRSA(p)	3	13.64 %	0	0.00%	0	0.00%	0	0.00%	3	3.03%
inserted citation	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%

Table 3
Distribution of the popularising strategies in the ONG sub-corpus.

As summarised in Table 4, the types of popularising strategies used in each text range from 6 to 9. In the texts by *Friends of the Earth* (2016) and by the *American Chamber of Commerce to the European Union* (2017), six typologies of strategies are used. These texts are the more recent ones. Probably some of the concepts and notions are taken for granted so that there is no need to exploit the potential of all the strategies. On the other hand, the texts by the *European Commission* issued in 2004 and the one by *Friends of the Earth* issued in 2008 show the use of many strategies, respectively 9 and 8 out of 13. These two reports date back to the period indicated by Lorenzet (2012) as the one in which non-experts, and people in general, lacked interest in the issue.

More specifically, the EC brochure emphasizes the potentialities of nanotechnology. It states in the foreword that its aim "is to illustrate what nanotechnology is and what it can offer to the European citizens." Conversely, the report by FOE stresses the importance of laws for regulating nanotechnologies especially in food, as previously indicated·

	Den.	Def.	Ref.	Anla.	Gen.	Exem.	Wh	Yes / no	Dir. cit	Ind. cit	Int.cit	NRSA (p)	Ins. Cit.	TOT. Out of 13
AmCham 2017	X	X	0	X	0	X	X	0	0	X	0	0	0	6/13
FOE 2016	X	0	0	X	0	X	0	0	0	X	0	X	X	6/13
Royal Academy 2004	X	X	X	0	0	X	X	0	0	X	0	X	0	7/13
EC 2013	X	X	X	0	0	X	X	X	X	0	0	0	0	7/13
FOE 2014	X	X	0	0	0	X	X	0	X	X	0	0	X	7/13
ETC 2005	X	X	X	0	0	X	X	0	X	X	0	0	0	7/13
FOE 2008	X	X	X	0	0	X	X	0	X	X	0	X	0	8/13
EC 2004	X	X	X	X	0	X	X	X	X	X	0	0	0	9/13

Table 4
Types of strategies used in each text.

However, the most interesting data emerge from the comparison of the two sub-corpora, whose statistical significance is emphasized by the output provided by the software (Table 5).

	Institutions subcorpus		NGOs subcorpus			
Feature Total Unit	N 99	%	N 124	Percentage	ChiSquare value	Significance
POPULARISING STRATEGIES	N=99		N=124			
- denomination	19	19.19	16	12.90%	1.645	
- definition	21	21.21	32	25.81%	0.641	
- reformulation	4	4.04	5	4.03%	0.000	
- analogy	5	5.05	1	0.81%	3.787	+
- generalization	0	0.00	0	0.00%	0.000	
-exemplification	26	26.26%	19	15.32%	4.090	++
-wh/how questions	9	9.09%	4	3.23%	3.449	+
-yes/no questions	3	3.03%	0	0.00%	3.809	+
-direct citation	3	3.03%	3	2.42%	0.078	
-indirect citation	6	6.06%	19	15.32%	4.744	++
-integrated citation	0	0.00%	0	0.00%	0.000	
-NRSA(p)	3	3.03%	23	18.55%	12.871	+++
- inserted citation	0	0.00%	2	1.61	1.611	
Total	99	99.99	124	100%		

Table 5
Distribution of the popularising strategies in the two subcorpora.

As Table 5 shows, both institutions and NGOs make extensive use of *denominations* and *definitions*. As a matter of fact, the concepts and processes related to nanotechnologies are introduced in both subcorpora with their respective specific terminology, like in example (1) in which nanotechnology is defined, or in example (2) in which the technical name of the phenomena connected to nanomaterial is given. Example (3) is even more detailed when dealing with scientific terminology, specifying also the acronym that identifies the nano-compounds. Example (4) and (5) demonstrate the close interrelation between the strategies of *denomination* and *definition*. In the two cases the explanation of the term "nano" is offered, immediately followed by its definition.

(1) Nano-scale technology is a suite of techniques used to manipulate matter at the scale of atoms and molecules. (*ECT* 2005)

(2) Nanoscience is not just the science of the small, but the science in which materials with small dimension show new physical phenomena, collectively called quantum effects, which are size-dependent and dramatically different from the properties of macroscale materials. (*EC* 2013)

(3) In other monitoring applications, nano-structured compounds known as metal-organic frameworks (MOFs) not only enable advanced chemical detection, but can also purify the air of harmful organic compounds that may contribute to the so-called "Sick Building Syndrome" found in poorly ventilated buildings. (*AmCham* 2007)

(4) "Nano" is derived from the Greek word for dwarf. One nanometre is one billionth of a metre. (*AmCham* 2007)

(5) The prefix "nano" is derived from the Greek word for dwarf. One nanometre (nm) is equal to one-billionth of a metre, 10–9 m. (*Royal Academy* 2004)

If the concern for precision and technicality can be observed in all the documents of the corpus, slight differences emerge in the use of *analogy*, highlighted with one plus sign as one of the statistically significant strategies. Five instances are in fact found in the subcorpus of the institutions, while only one in the NGOs' subcorpus. This is particularly true for the brochure entitled "Nanotechnology Innovation for tomorrow's world" published by the European Commission in 2004, where the potentiality of these new technologies is accentuated. Examples (6), (7), and (8) establish similes between the structure of different organisms or materials and the organization of objects or situations that non-experts know very well, like, for example, chairs (see example (6)). Through these comparisons, the infinitesimal small and unintelligible world of nanotechnologies becomes more familiar and closer to a layman's everyday life.

(6) The sponge owes its name to the structure of the inner skeleton of its mantle. This consists of a tissue of fine silica needles, perforated like the wickerwork of a wooden chair. (*EC* 2004)

(7) [..] the crystal had to consist of a t o m s, arranged in an ordered structure, like the yarn in umbrella material, or a pile of oranges in a market. (*EC* 2004)

(8) It gathers the xray radiation from distant objects with 58 wastepaper basket-sized reflectors nestling inside each other like the layers of an onion and coated with gold vapour. (*EC* 2004)

Another popularising strategy characterizing institutions is the use of questions, both wh/how questions and yes/no questions, as shown in Table 4. However, their frequency is comparable to the one of the NGO's subcorpus.

(9) 'Nano' means small, very small; But why is this special? (*EC* 2013)
(10) So what are nanotechnology, nanomaterials and the nanoscale? (*AmCham* 2007)
(11) How do these sometimes very visually-attractive diatoms come into existence? (*EC* 2004)

Questions are normally the preambles for definitions and explanations and characterize "public-good popularising texts" and "well-written" documents (Gotti 2014, p. 29), They engage and position the readers as learners by anticipating their possible questions in a sort of fictional classroom dialogue while also hampering criticism or objections.

The texts issued by institutions also diverge slightly from those of NGOs because they rely more on *exemplification*. Particularly, as demonstrated by examples (12), (13), and (14), this strategy is mainly used when it comes to the applications of nanotechnology (from cosmetics to ceramics) with the double aim of rendering certain notions more comprehensible and simultaneously emphasizing their usefulness in people's ordinary life.

(12) Some applications are well known, <u>such as sunscreen</u>, but nano is so much more than that. (*AmCham* 2007)
(13) The use of these tools is not restricted to engineering, but has been adopted across a range of disciplines. AFM, for example, is routinely used to study biological molecules <u>such as proteins</u>.
(14) Nanotechnology is based upon pure nature: yet the capabilities of living nature are restricted, it cannot work at either high temperatures<u>, such as those needed for ceramics,</u> or with metallic conductors.

However, the most important dissimilarity between the two sub-corpora is the use of *citations* referring to the scientific literature on nanotechnologies in the texts published by NGOs. Thus, popularisation is herein supported by the "authoritativeness and seriousness" (Gotti 2014, p. 29) of the studies cited and by the research of other NGOs. The difference mainly concerns indirect citations and NRSA(p), as table 5 shows, which are marked with two and three plus signs. Yet, all the citation formulae are adopted, except for integrated citations:

(15) In 2004, the ETC Group reported that researchers at Chiang Mai University in Thailand had been able to alter rice colour from purple to green. They reported that ultimately the Thai researchers hoped to use their technique to develop Jasmine rice varieties that can be grown all year long, with shorter stems and improved grain colour (ETC Group 2004). (*FOE* 2008)

(16) […] In vitro studies show a significant percentage of the nanosilicon remains undissolved and that "the presence of undissolved nanosilicon particles in the gut in vivo is considered likely" (Dekker *et al.*, 2013; SRU, 2011). (*FOE* 2016)
(17) Nanoparticles have a very large surface area which typically results in greater chemical reactivity, biological activity and catalytic behaviour compared to larger particles of the same chemical composition (Garnett, Kallinteri 2006; Limbach *et al.* 2007; Nel *et al.* 2006). (*FOE* 2016)
(18) In the words of the forum delegates, "food sovereignty puts those who produce, distribute and need wholesome, local food at the heart of food, agricultural, livestock and fisheries systems and policies, rather than the demands of markets and corporations..." (Nyéléni 2007 – Forum for Food Sovereignty 2007). (*FOE* 2014)
(19) "Our thirty-year goal is to have such exquisite control over the genetics of living systems that instead of growing a tree, cutting it down, and building a table out of it, we will ultimately be able to grow the table." – Rodney Brooks, director of Artificial Intelligence Laboratory, MIT (*ETC* 2005)

This interrelation of voices subsumed by these citations is "symphonic" (Bondi, Yu 2018) rather than "polyphonic" (see, for example, Dahl, Fløttum 2014 on climate change) as they are aligned, embracing the same stance and reinforcing the NGOs' opinions.

With regard to the NRSA(p) found in example 17, it is typical of the FOE's 2008 report: 20 out of the 23 instances are to be found in this text. As a matter of fact, the introduction of this text is built on the succession of explanations based on the scientific literature that support the opinion of nanotechnologies as extremely risky, like in the example (20):

(20) To put it simply: small particle size equates to new particle properties, which can also introduce new risks. Nanoparticles have a very large surface area which typically results in greater chemical reactivity, biological activity and catalytic behaviour compared to larger particles of the same chemical composition (Garnett and Kallinteri 2006; Limbach et al. 2007; Nel et al. 2006). Nanomaterials also have far greater access to our body (known as bioavailability) than larger particles, resulting in greater uptake into individual cells, tissues and organs. Materials which measure less than 300nm can be taken up by individual cells (Garnett and Kallinteri 2006). (*FOE* 2008)

6. Concluding Remarks

Most laypeople have a limited knowledge on nanotechnologies, as the literature in the fields of science communication, risk communication, and societal responses highlights. Institutions and NGOs have tried to partly fill this gap through the publication of online reports and brochures, made available to the general public at large. While disseminating nanoknowledge, they are also bringing the applications or the risks of nanotechnologies to the fore, supporting their own points of view on these problematic issues. However, despite the crucial role of popularisation in this process of knowledge dissemination, there are few studies on the popularising strategies adopted. The present paper analysed the strategies of popularisation in eight brochures and reports published by European and American institutions and NGOs during a decade, focusing in particular on the introductory sections.

The preliminary results confirm the research conducted by Lazzeretti and Poppi (2020) who observe that these types of texts are very precise with regard to the terminology used. As a matter of fact, our study shows how *definitions* and *denominations* prevail in both the subcorpora of institutions and NGOs. Lazzeretti and Poppi (2020) also underline how the EU documents use a more plain and informal language. This is corroborated by our results. The recourse to *exemplifications*, *analogies*, but also *questions* does not only attempt to overcome the complexity of the topic by making it look more familiar, but also to directly engage and position the readers as learners in a more educational perspective.

On the other hand, the introductory sections of the documents by NGOs heavily rely on citations for disseminating nanoknowledge. Similarly to what occurs in journal articles on climate change, they are instances of "argumentation par autorité ('argumentation by authority'), i.e. quotes by authoritative sources used to support one's own argument" (Dahl, Fløttum 2014, p. 415). They pervade also the more informative parts of the texts, all built upon a symphony of scientific voices. One limit of the study is the length of one specific text, the FOE's 2008 report, with respect to all the other texts of the NGOs' subcorpus. Nonetheless, the analysis tries to see it in the context of the particular period in which it was published and in relation to the other texts.

In conclusion, it can be affirmed that, despite the different goals, knowledge dissemination appears to be the main objective of the publications by institutions and NGOs. Many popularising strategies are employed in order to both increase people's knowledge and raise their consciousness, which turn the documents into multifaceted texts.

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A CORPUS-BASED APPROACH TO THE ANALYSIS OF THE VIDEO ABSTRACT GENRE
A phase-based model

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Abstract – Academics constantly strive to gain greater visibility for their research, in particular through digital platforms that allow their research to be communicated to a wider public. Alongside old and well-established academic genres (e.g. the Research Article, the Abstract, and the Conference Presentation), new genres have emerged including the Blog, the TED Talk Lecture, and the Video Abstract. While the first two of these genres have received considerable attention in the discourse analysis community, research into the Video Abstract genre has only recently been undertaken despite the fact that scientific publishers (e.g. Taylor & Francis, Elsevier and SAGE) urge authors to present their articles in this way in order to enhance article visibility and improve the chances of an article being cited. The present study, grounded in ESP genre analysis and multimodal discourse analysis, investigates the strategies used in video abstracts by researchers to share their research using a small corpus of video abstracts taken from international journals of three different academic fields, namely Medicine, Biology, and Chemistry. In particular, the study attempts to understand the changes brought about by the shift from the written to the video channel of communication *vis-à-vis* the dissemination of research findings.

Keywords: specialised discourse; video abstracts; phasal analysis; generic structure potential; corpus-based approach to discourse analysis.

1. Introduction

Driven by the pressures of gaining visibility, academics have exploited the affordances provided by digital platforms to communicate their research to a wider public. Hence, alongside old and well-established academic genres (e.g. the Research Article, the Abstract, and the Conference Presentation), new genres have emerged including the Blog (e.g. Mauranen 2013; Mewburn, Thompson 2013; Luzón 2017), the TED Talk Lecture (e.g. Scotto di Carlo 2014; Caliendo, Compagnone 2017; Mattiello 2017), and the Video Abstract (henceforth: VA). Spicer (2014) defines the VA as a short four-to-five-minute video presentation of a research article (henceforth: RA) where the researcher makes use of images, audio, video clips, and text to describe the background to their study, the methods used, the results obtained, and the study's potential implications. VAs accompany traditional abstracts in journal websites, but can also be uploaded on a blog or a researcher's personal website, as well as shared on video-sharing websites such as *YouTube* and *Vimeo* in order to reach a wider public. While considerable attention has been paid by the discourse analysis community to the Blog and the TED Talk Lecture, research into the VA is still in its infancy as shown by the few studies carried out so far (Plastina 2017; Coccetta 2020; Liu 2020). This is despite the fact that for some time now major scientific publishers such as Taylor & Francis, Elsevier and SAGE have encouraged their authors to present their articles through this genre. In their view, the VA is designed to enhance an article's visibility and to improve the chances of being cited as confirmed by Zong *et al.*'s (2019) recent study as to articles published in *The New Journal of Physics*.

The present study, which is grounded in ESP genre analysis (Swales 1990, 2004), multimodal discourse analysis (O' Halloran 2005; Baldry, Thibault 2006), and genre analysis (Hasan 1978, 1984, 1985, 2004), systematically explores the way in which the affordances provided by the interplay between the videotrack and the soundtrack are exploited in VAs. This has been undertaken in an attempt to understand the changes in the generic structure brought about by the shift in the dissemination of research findings from the written to the video mode of communication. To this end, a small corpus of VAs taken from international journals of three different academic fields, namely Medicine, Biology, and Chemistry, was investigated. In its account of this research, the paper is divided as follows: the *State of the Art of Video Abstracts Section* provides a brief overview of studies into the VA genre; the *Materials Section* introduces the VAs under analysis, while the *Methods Section* presents the theoretical frameworks adopted. The *Analysis and Results Section* describes the subphases and phases identified in the VAs and their realization. The *Discussion Section* discusses the way in which subphases and phases operate in these VAs and reflects on the added value of the VA.

2. State of the art of the video abstract

The first VA was published in 2009 (Berkowitz 2013), yet after a decade, research into this genre is still very limited in the field of discourse analysis as shown by the few studies carried so far (Plastina 2017; Coccetta 2020; Liu 2020) which have mainly focused on the VA's rhetorical structure.

Plastina (2017) analyses the rhetorical structure of a corpus of 30 written abstracts (henceforth: WAs) and their video counterparts taken from three online medical journals applying Swales' (1990, 2004) move analysis framework. She observes that both the WAs and VAs in her corpus follow the five-move structure (i.e. *Introduction*, *Purpose*, *Method*, *Product* and

Conclusion) described by Hyland (2004), but in the VAs new constituent steps are used in different moves serving rhetorical functions not found in the WA. A case in point is *Stating professional identity* which provides information about the author. Plastina's work represents a first step towards the understanding of the VA, yet it seems to privilege the linguistic component as the move analysis is applied to the transcriptions of the VAs' soundtrack.

In a similar vein, Liu (2020) adopts Swales' model to analyze 12 VAs published on *Cell Press*. He observes that the VAs consist of distinct core moves and optional moves. The former include: 1) Claiming authorship; 2) Describing a research niche; 3) Specifying a research focus or intent; 4) Delineating a research process, a procedure, or a technique; 5) Illustrating main findings; 6) Concluding the research; and 7) Presenting the title. The latter include: 1) Acknowledging research contributors, institutional or funding support, or media production support; 2) Showing research significance, implications, or future directions; 3) Providing instructions; and 4) Entertaining viewers. Liu (2020, p. 440) concludes that the VA should not be considered the same as the WA but "as an emerging genre, characterized by an innate bond with the genre family of the RA and by a propensity for independence and recognition". In addition, he cautions against the use of move analysis as it:

> does not appear as useful as expected for exploring the structure and quality of the information flow incorporated in VAs […] [nor] for exploring the sociocultural and political contingencies that have been shaping the VAs' structure. (Liu 2020, p. 441)

In her pilot study, Coccetta (2020) investigates the structure of five Medical VAs taken from *The BMJ* and their respective WAs using Baldry and Thibault's framework for video genre analysis (Thibault 2000; Baldry 2004; Baldry, Thibault 2006) which takes into consideration both the VAs' soundtrack and the videotrack. To understand the differences between the VAs and the WAs, she examines their duration in seconds. As regards the WAs, she obtained their duration with the software tool Text2Speech.org[1] which converts a written digital text into an mp3 file. She observes that with respect to their written counterparts, one VA is shorter, two are almost twice the length, and two are almost the same length, thus suggesting that some VAs provide something the WAs do not. In line with the studies referred to above, her analysis shows that the VAs tend to replicate the generic structure of their WAs, but also include other subphases/moves, some of them taken from other academic genres such as the Conference Presentation and the RA. This seems to suggest the VA is a hybrid genre undergoing the phenomenon of

[1] https://www.text2speech.org (18.11.2020).

interdiscursivity (Bhatia 2017, Chapter 3) whereby it has appropriated some established conventions (i.e. structural elements) and semiotic resources (e.g. tables, figures and animations) typical of these academic genres.

These studies are very limited in terms of the number of VAs analysed with the result that their conclusions on VAs' rhetorical structure are far from being definite. Yet, they have paved the way for future corpus-based studies. In particular, Liu (2020) and Coccetta (2020) have raised the question of the methodological framework for the analysis of VAs, specifically the appropriateness of the move model developed for written genres.

3. Materials

This study analyses 15 VAs which accompany RAs published in three international journals in the fields of Medicine, Biology, and Chemistry. The journals taken into consideration are *The BMJ*,[2] *Cell*,[3] and the *European Journal of Inorganic Chemistry*[4] (henceforth: *EurJIC*). These journals are ranked in the first quartile of the SCImago[5] scientific journal rankings. In keeping with Coccetta (2020), the present study is designed to take into consideration just one VA per year for each journal in the 2013-2017 period. Hence for each journal, five VAs, listed in Annexe 1, were randomly selected with the exception of the *EurJIC*, for which only VAs taken from the 2016-2017 period were considered as, at the time when the study was conducted (February 2019), no VAs seemed to have been published by this journal for RAs written before 2016. As illustrated in Table 1, the VAs embody different video formats[6] and are addressed to a wide audience ranging from subject specialists to non-specialists.[7]

[2] https://www.bmj.com (18.11.2020).
[3] https://www.cell.com/cell/home (18.11.2020).
[4] https://onlinelibrary.wiley.com/journal/10990682c (18.11.2020).
[5] https://www.scimagojr.com (18.11.2020).
[6] The type of video format was defined on the basis of the guidelines provided by *Pediatrics* (https://pediatrics.aappublications.org/content/video-abstract-guidelines, 10.02.2020).
[7] Space does not allow further characterization of these distinctions, an issue to be addressed in a subsequent article.

VA no.	Target audience	Journal	Date	Format
1	Specialists	The BMJ	2013	"Slice of life"
2	Specialists	The BMJ	2014	Main points and data slides
3	Specialists	The BMJ	2015	"Slice of life"
4	Specialists	The BMJ	2016	Main points and data slides
5	Non-specialists	The BMJ	2017	Video infographic
6	Specialists	Cell	2013	Mixed format
7	Specialists	Cell	2014	Mixed format
8	Specialists	Cell	2015	Mixed format
9	Semi-specialists	Cell	2016	3D scientific animation
10	Non-specialists	Cell	2017	whiteboard animation
11	Semi-specialists; non-specialists	EurJIC	2016	Video infographic
12	Semi-specialists; non-specialists	EurJIC	2016	Video infographic
13	Semi-specialists; non-specialists	EurJIC	2016	Video infographic
14	Semi-specialists; non-specialists	EurJIC	2017	Video infographic
15	Semi-specialists; non-specialists	The BMJ	2017	Video infographic

Table 1
Overview of the VAs under analysis.

4. Methods

To analyse the VAs, this study draws on Baldry and Thibault's framework for film genre analysis (Thibault 2000; Baldry 2004; Baldry, Thibault 2006) which holds that texts are organized as a system of hierarchical and interacting levels. In other words, a specific text will consist of a number of units on different scales which mutually interact with each other and in so doing play their part in the creation of the text's overall meaning. They also point out that "[i]n theory, the system of scalar levels could continue indefinitely in any given direction, though, in practice, there are always limits on the number of levels that the analyst needs to work with" (Baldry, Thibault 2006, p. 144). For film texts, they propose the following levels, arranged in ascending order of size (smaller to larger): *visual transitivity frame*, *shot*, *subphase*, *phase*, *macrophase*, and *whole text*. In their view, the *phase* is "[t]he basic unit of textual sequencing", defined as "a set of copatterned semiotic selections that are co-deployed in a consistent way over a given stretch of text" (Baldry, Thibault 2006, p. 47; see also Gregory 2002; Malcolm 2010). Typically, a *phase* consists of *subphases* which relate to specific aspects of the phase they belong to. Baldry and Thibault (2006) illustrate the workings of this model in relation to a set of TV advertisements.

For the analysis of VAs, the current study focuses on two units of analysis, namely the *subphase* and the *phase*, but considers the *subphase* as the pivotal unit of analysis, that is, the meaning-making block performing crucial communicative functions in VAs. For example, in the case of the VAs under analysis, the *Experimental Procedures* subphase provides precise details of all the procedures carried out in a research project, while the *Findings* subphase provides information about that project's results. Indeed, the current study aligns the concept of *subphase* with that of *move* in Swales' (1990, 2004) model, but considers the former appropriate for the analysis of VAs as it sees the various semiotic modalities (e.g. written discourse, oral discourse, figures and action) deployed in a video text as functioning together to make meaning. In passing, we may recall that Swales (1990, 2004) uses the term *move* to indicate a "discoursal or rhetorical unit that performs a coherent communicative function in a written or spoken discourse" (Swales 2004, p. 228) and, by contrast with the notion of *subphase*, does not explicitly consider the co-deployment of different semiotic modalities in a given text.

This research is also grounded in Hasan's (1978, 1984, 1985, 2004) research into genre analysis, particularly the concept of *Generic Structure Potential* (henceforth: GSP), which was introduced to account for consistency in structure across the instances of a given text type (Halliday, Matthiessen 2014). In particular, GSP specifies the range of obligatory and optional structural elements open to a text type which represent what Halliday (1988) defines as the *recognition criteria* for the text type in question. This is illustrated in Hasan's work on service encounters (Hasan 1985) and nursery tales (Hasan 1984), where she identifies the potential items of text structures associated with these text types and specifies the obligatory and optional items. She also considers their syntagmatic ordering and observes that some items occur in a fixed place in the sequence while others can move along the sequence. For example, in nursery tales, she identifies three obligatory items arranged in the following fixed order: Initiating Event ^ Sequent Event ^ Final Event. The Initiating Event is the event which triggers the whole story and is followed by a series of events (i.e. Sequent Event) which culminate in the Final Event which ends the tale. Optional items are the Placement, the Finale and the Moral. The Placement provides the time, place, persons and their habitual activity, and, if present, is always placed before the Initiating Event. The Finale and Moral, which respectively provide the final part of the tale and the lesson that the tale tells, are always placed after the Final Event but their order can be swapped.

In this study, it is argued that the identification of the various subphases and phases in the texts under analysis should give a very preliminary idea of the GSP of the VA genre, which, however, should be further investigated with a larger corpus of texts. In the furtherance of this underlying goal, the VAs were divided into subphases; subsequently, subphases were grouped into phases in order to understand whether the VAs display consistency in structure.

An example of subphase and phase analysis with respect to VA #10 is provided in Table 2. Besides subphases and phases, the starting and end point for each subphase was also recorded in the analysis, in order to gain some insight into the distribution of subphases in relation to the VA's overall duration.

Starting Point	End Point	Subphases	Phases
00:00	00:03	Research Question(s)	Abstract
00:03	00:13	State of Knowledge	Abstract
00:13	00:21	Gap	Abstract
00:21	00:27	Findings	Abstract
00:27	00:31	Experimental Design	Abstract
00:31	00:37	Findings	Abstract
00:37	00:44	Opening Theme	Opening
00:44	00:55	Objective(s)	Introduction
00:55	01:04	State of Knowledge	Introduction
01:04	01:15	Hypothes(i/e)s	Introduction
01:15	01:27	Experimental Design Justification	Methods
01:27	01:35	State of Knowledge	Methods
01:35	01:39	Materials	Methods
01:39	01:59	Experimental Design Justification	Methods
01:59	02:20	Materials	Methods
02:20	02:26	Recap	Results
02:26	03:19	Findings	Results
03:19	03:38	Transferability	Discussion
03:38	03:42	Closing Theme	Closing

Table 2
Example of subphase and phase analysis of VAs.

5. Analysis and Results

The analysis of the VAs has led to the identification of an inventory of subphases, or to use Hasan's (2004, p. 23) words, "a specification of the possibilities of structural shapes open to [the VA] variety". As shown in Table 3, subphases can be grouped into four general categories. As their name suggests, 'research-dissemination' subphases are connected with the dissemination of research, including indicating the research question or a hypothesis investigated in the study. They provide information about the experimental design of the study and the justification for its application, as well as the extent to which research findings are likely to be applied to settings other than those in which they were originally tested. Similar to descriptive metadata in library catalogues, 'descriptive subphases' provide information to identify the VA and/or the RA that the VA accompanies by, such as the name of the researcher(s), their academic position and affiliation, the name of the journal where the VA's RA was published and the RA's DOI. With 'socializing subphases' the researchers directly address the viewers to establish some contact with them. The last category, 'other subphases', includes subphases that do not fall into any of the previous categories and deal with formal aspects such as credits, copyright and legal considerations.

Subphase category	**Subphases**
Research-dissemination subphases	Claiming Centrality, Experimental Design, Experimental Design Justification, Experimental Procedures, Findings, Future Research, Gap, Hypothes(i/e)s, Interpretation, Materials, Objective(s), Participants, Present Research, Previous Research, Research Question(s), Review Process, State of Knowledge, Topic Announcement, Transferability
Descriptive subphases	Journal Identification, Journal Website, RA Author(s), RA DOI, RA Reference, RA Title, Researcher(s) Academic Position, Researcher(s) Affiliation, Researcher(s) Identification, Text Genre, Video Abstract Producer, VA Title
Socializing subphases	Acknowledgements, Encouraging Contact, Encouraging Further Reading, Greeting, Thanking
Other subphases	Closing Theme, Credits, Opening Theme, Sponsor, Terms and Conditions

Table 3
Subphases identified in the VAs.

As video texts, VAs naturally consist of a soundtrack and a videotrack with the result that subphases can be realized either in the former, or in the latter, or in both simultaneously. Many examples of subphases that prioritise the soundtrack can be found such as the *Experimental Procedures* subphase in VA #1 where the researcher talks directly to the camera and describes what they did:

> For some years we focused on the adverse outcomes in pregnancy, particularly preeclampsia, preterm birth and small babies, but we've chosen to take a different approach and to look at which factors are associated with subsequent normal outcome.

By contrast, Table 4 shows that in VA #3 the *RA Reference* subphase is realized visually using written discourse while in the soundtrack the researcher announces the research topic.

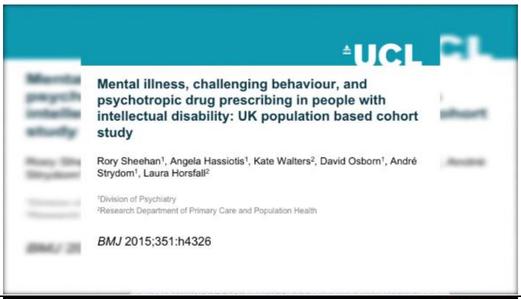
Time	Videotrack	Soundtrack
00:14 → 00:21		**Subphase: Topic Announcement** ON-SCREEN MALE SPEAKER: Together with colleagues, I have conducted a study investigating mental illness, challenging behaviour
00:21 → 00:24	**Subphase: RA Reference**  	*cont.* **Subphase: Topic Announcement** OFF-SCREEN MALE SPEAKER: and psychotropic drug use in people with intellectual disability.
00:24 → 00:26		**Subphase: State of Knowledge** OFF-SCREEN MALE SPEAKER: People with intellectual disability
00:24 → 00:55		*cont.* **Subphase: State of Knowledge** OFF-SCREEN MALE SPEAKER: have impairment of intellectual functioning along with difficulties in one or more life skills. […]

Table 4
A subphase analysis of an extract from VA #3.

Finally, Table 5 provides an example of a subphase simultaneously realized in the soundtrack and in the videotrack, specifically the *Findings* subphase. The example is taken from VA #7. Here, when on-screen, the researcher describes the findings of their research using oral discourse only (33-41 sec); subsequently, however, (41-38 sec) a microscope image accompanies oral discourse which shows what the researchers observed during their studies.

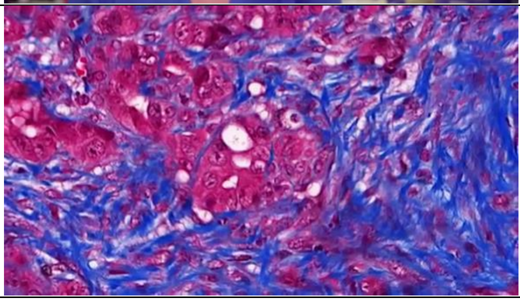
Time	Videotrack	Soundtrack
00:33 → 00:41		ON-SCREEN FEMALE SPEAKER: We discovered vitamin D and synthetic vitamin D analogues that were able to crank down this wound healing response and found that
00:41 → 00:48		OFF-SCREEN FEMALE SPEAKER: by treating with vitamin D analogue plus chemotherapy we were able to augment the effects compared to chemotherapy alone.

Table 5
A subphase analysis of an extract from VA #7.

Let us now consider the way in which the subphases combine with each other to form phases, and in particular the phase types they realize. Table 6 shows the various phases arranged in alphabetical order and their distribution in the VAs under analysis.

What emerges from the data is the typical presence of the *Introduction*, *Results* and *Discussion* phases, while the *Methods* phase may be omitted. The *Promotion* phase is also frequent in the VAs. Other phases occur very frequently, such as the *Opening* and *Closing* phases, and the *Journal Identity* phase. However, Table 6 shows the frequency is highest in *EurJIC* VAs, which were produced by the Research Square company[8] and sponsored by ChemPubSoc Europe[9] in what appears to be a specific marketing strategy[10].

[8] https://www.researchsquare.com (09.07.2019).
[9] https://www.chemistryviews.org/details/society/134d1eb2456/ChemPubSoc_Europe.html (09.07.2019).
[10] https://www.chemistryviews.org/view/0/videoabstracts.html (09.07.2019).

Journal and VA no.	**The BMJ**					**Cell**					**EurJIC**				
Phases	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**
Abstract	✗	✗	✗	✗	✗	✓	✗	✓	✗	✓	✗	✓	✗	✗	✓
Acknowledgements	✗	✗	✓	✗	✗	✓	✗	✗	✗	✗	✗	✗	✗	✗	✗
Closing	✗	✓	✗	✗	✗	✗	✗	✗	✓	✓	✓	✓	✓	✓	✓
Credits	✓	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗
Discussion	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Introduction	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Journal Identity	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✓	✓	✓	✓	✗
Methods	✓	✓	✓	✓	✓	✓	✗	✓	✗	✓	✓	✓	✓	✓	✓
Opening	✗	✓	✗	✗	✗	✗	✓	✗	✗	✓	✓	✓	✓	✓	✓
Promotion	✓	✓	✓	✓	✗	✗	✓	✓	✗	✗	✓	✓	✓	✓	✓
RA Identity	✗	✗	✓	✗	✗	✓	✗	✓	✓	✗	✗	✗	✗	✗	✗
Research Question	✗	✗	✗	✗	✓	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗
Researcher(s) Identity	✓	✓	✓	✓	✗	✓	✓	✓	✗	✗	✗	✗	✗	✗	✗
Results	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Socializing	✗	✓	✓	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗
VA Identity	✗	✗	✗	✗	✗	✗	✓	✗	✗	✗	✗	✗	✗	✗	✗

Table 6.
Phases identified in the VAs and their distribution.

As far as their order in the VA is concerned, due to the small size of the corpus, it is difficult to identify any recurrent pattern. For example, in VA #10, whose phasal analysis is shown in Table 2, the following linear order is observed: Abstract ^ Introduction ^ Methods ^ Results ^ Discussion, as in RAs. While this pattern is replicated in other VAs, this is not the case in VA #4, which has the following generic structure: Introduction ^ Methods ^ Results ^ Discussion ^ Results ^ Discussion, where the Results ^ Discussion sequence occurs twice.

6. Discussion

6.1. The workings of subphases and phases in the VAs

The analysis of the VAs provides some insights into the way in which subphases and phases operate in the texts. As indicated in previous studies concerned with video text analysis (e.g. Thibault 2000; Baldry 2004), subphases interact with each other and form phases. As an example, we can cite the analysis of VA #10 shown in Table 2. In this VA, the *Experimental Design Justification* subphase, the *State of Knowledge* subphase and the *Materials* subphase combine to form the *Methods* phase, i.e. a textual block which provides information about how and why research experiments were carried out, so that other researchers can replicate them. However, what emerges from the study is that subphases can be recursive. For example, in VA #10 the *Findings* subphase occurs twice, in the *Abstract* phase and in the *Results* phase. This suggests that paradigmatic and syntagmatic relations co-exist in predictable ways in VAs, which the analyst needs to identify. In other words, those who create VAs tend to choose from an inventory of subphases (i.e. "the structural shapes" identified in the *Analysis and Results Section*) but can also arrange them sequentially in original combinations. For example, in the *Abstract* phase of VA #10, subphases are arranged, somewhat unusually but innovatively, as follows: Research Question(s) ^ State of Knowledge ^ Gap ^ Findings ^ Experimental Design ^ Findings. While this example highlights the recursive potential of structural units, the current study also confirms the default conception that structural units are arranged sequentially in texts (e.g. Hasan 1978, 1984, 1985, 2004; Swales 1990, 2004). A case in point is the *Researcher(s) Identity* phase in VA #2, where the researcher provides her name, academic position and affiliation in the syntagmatic sequence as shown in Table 7.

Starting Point	**End Point**	**Subphase**	**Phase**	**Oral discourse**
00:06	00:07	Researcher(s) Identification	Researcher(s) Identity	ON-SCREEN FEMALE SPEAKER: My name is Nienke de Glas
00:07	00:11	Researcher(s) Academic Position	Researcher(s) Identity	ON-SCREEN FEMALE SPEAKER: I'm a medical doctor and I'm doing a PhD on breast cancer in older women
00:11	00:14	Researcher(s) Affiliation	Researcher(s) Identity	ON-SCREEN FEMALE SPEAKER: at the Leiden University Medical Centre in the Netherlands.

Table 7
Example of sequential arrangements of subphases.

However, the study also reveals that subphases can be merged as part of the same sequence, that is, they can be superimposed. This is illustrated in VA #3 (see Table 8).

<table>
<tr><th>Time</th><th>Videotrack</th><th>Soundtrack</th></tr>
<tr><td>00:08
→
00:09</td><td></td><td>Subphase: Researcher(s) Identification

ON-SCREEN MALE SPEAKER: My name is Rory Sheehan</td></tr>
<tr><td>00:09
→
00:11</td><td rowspan="2">Subphase: Researcher(s) Identification
Subphase: Researcher(s) Affiliation


</td><td>Subphase: Researcher(s) Academic Position

OFF-SCREEN MALE SPEAKER: and I'm a psychiatrist and medical researcher</td></tr>
<tr><td>00:11
→
00:13</td><td>Subphase: Researcher(s) Affiliation

OFF-SCREEN MALE SPEAKER: at University College London.</td></tr>
</table>

Table 8
Example of subphase superimposition.

Here the *Researcher(s) Identity* phase is realized not just through oral discourse in the soundtrack, as in the case of VA #2, but also visually through written discourse displayed on screen as an overlay. In other words, the VA fully exploits the soundtrack and videotrack affordances of the video format. This provides further evidence into the workings of subphases and phases in video texts that, in particular, adds data about subphase and phase superimposition to the findings presented in previous studies of phase types that describe characteristic patterns of subphase inclusion and, of course, omission (Baldry 2004).

The study also shows that phases tend to share some characteristics typical of subphases. In particular, as pointed out with regard to VA #4, phases can be recursive. They tend to be arranged sequentially but can also co-occur as illustrated in VA #7, where the *Researcher(s) Identity* phase is instantiated visually in the videotrack with a grey rectangle over which the *Researcher(s) Identification, Researcher(s) Academic Position,* and *Researcher(s) Affiliation* subphases are superimposed. In other words, potentially we have a new phase type made up of three subphsases which are recognizably subphase types. Further investigation will reveal the prevalence of this kind of transformation of subphase types into phase types.

6.2. Subphase and phase distribution in the VAs

We can now consider some striking aspects of the distribution of subphases and phases employed in the VAs. What emerges from the analysis is the fact that the *Transferability* subphase occurs 14 times out of 15 thus suggesting that it is an important component of the VA genre. In this subphase, researchers comment on the extent to which their research findings are likely to be applied to settings other than those in which they were originally tested and the extent to which their research can impact other disciplines. We can give three examples:

> The major impact here will be a … a resource, ah, for eukaryotic cell biologists to be able to go to our website in our database and understand where the proteins that they're interested in are localized and how they change is response to various perturbations. (VA #8)

> These findings are just the start of a whole new area of research. Now that scientists are able to make ants with genetic mutations they can make all kinds of weird ants to figure out even more about their life underground. They can also use the Orco mutants they have right now to study how pheromones are processed in the ant brain. (VA #10)

> While it may be not for everyone, this unique approach to low gravity experiments offer scientists a new tool for controlling the properties of an increasing important family of advanced materials. (VA #11)

In addition, through the *Transferability* subphase researchers highlight the extent to which their research can affect different sectors in society. This is illustrated in the following examples where the findings of the studies carried out might benefit people suffering from obesity and Type 2 diabetes (VA #6), and cancer (VA #7), but also might be of interest to people who are concerned with their skin (VA #15):

> Modulation of KSR2-mediated effects may be a novel therapeutic strategy for patients with obesity and type 2 diabetes. (VA # 6)

> This is a new way to attack cancers. It opens up an entirely new opportunity for treatment. (VA #7)

> A mixture of silicon and titanium dioxide, these special particles could be a key ingredient in boosting the performance of everything from sunscreen and anti-aging creams to solar cells and pollution fighting materials. (VA #15)

It can be argued that the reference to serious issues such as cancer, but also to lighter ones such as anti-aging creams is not by chance. According to Carrada (2005), addressing the audience's interests, needs, expectations as well as fears is one of the key points in science communication. He observes that the more relevant and appealing to the audience's interests a subject is, the more visibility it will acquire, and visibility is extremely important for researchers as regards widening their readership and gaining more research funds in a period characterized by large cuts in government funding for scientific research. This idea is also highlighted by SAGE. In its video abstract guidelines, SAGE encourages authors to consider the following question: "How might your paper be of interest to a layperson, or how might it impact policy or society?".[11]

It can be argued that the occurrence or absence of some subphases, and phases as well, is connected with the VA's target audience. As an example, we can consider the *Researcher(s) Identity* phase, which does not occur in the VAs targeting non-specialists and semi-specialists, namely VA #5 and VA #9-15 where the names of the researchers are mentioned nowhere.[12] In these VAs, researchers are referred to in general terms as "researchers" and "researchers from…" as illustrated in the following extract from VA #10:

> A new paper from researchers at Rockefeller University has uncovered the genetic basis of pheromone detection and they did that by creating genetically modified ants.

In other words, in these VAs, what is important is the research outcome, which is presented as a piece of news being delivered to the audience, with the

[11] https://us.sagepub.com/sites/default/files/sage_video_abstract-external_guidelines.pdf (15.07.2019).

[12] The only exception is the *Opening* phase in VA #11-15, where the names of the researchers appear in small size below the VA title.

researcher's identity irrelevant and thus sidelined. What emerges from the extract above is the fact that while the researchers disappear, the institution for which they work is foregrounded by an explicit reference to it (i.e. researchers at Rockefeller University). This is indeed a promotion strategy which is implicit in this VA, but which can be made explicit in the Promotion phase found in some VAs.

6.3. The added value of the VA

Watching a four-to-five-minute VA takes researchers more time than skimming a WA. This begs the question: why should they spend their time watching a VA in the first place? It can be argued that researchers expect to find *something* the WA does not provide. What is that *something*? If we consider the generic structure of the VA, we can see that the VA tends to follow the same structure as the RA but with some variation in the *Methods* phase. Otherwise, the IMRAD structure clearly emerges in the VAs under analysis (see *Section 5*). This seems to suggest that, due to the lack of detailed guidelines from publishers on the production of VAs, researchers tend to rely on the genre that they, and their audience, are more familiar with, i.e. the RA. Even so, we can expect innovations in VAs that will make them less like WAs. For example, there are structural elements such as the *Researcher(s) Identity* phase that are characteristic of the VA format. The degree to which the VA genre is detaching itself from the WA genre, however, needs to be further investigated with a much larger corpus.

A further answer to this question is that the VA provides audiences with visual information that the traditional WA does not typically provide. Illustrative of this is the extract from VA #7 shown in Table 5 where a microscope image, presumably relating to the research described in the VA, is displayed. The image is striking as it is not included in the RA, presumably due to space constraints or limitations in the number of figures/tables imposed by the journal. In addition, this VA also shows a 3D scientific animation which visualizes how the therapy described in the VA cures the tumour. Scientific animations like this are usually confined in the RA to the supplementary materials that readers need to download from the journal's website.

As regards the omission of visual-graphical representations in WAs such as graphs, pie charts and tables, which, as Lemke (1998) observes, are typically used when communicating research among researchers, there are of course exceptions. For example, some disciplines and journals allow researchers to include them in the WA: a case in point is *The New Journal of Physics*[13]. However, generally speaking, since the WA typically consists of written

[13] https://iopscience.iop.org/journal/1367-2630 (10.02.2020).

discourse only, its multimedia counterpart can potentially give audiences information they would otherwise expect to find only when reading the whole RA.

Besides making information about the research immediately available to audiences, the VA can potentially assist better comprehension of results. Indeed, Jakhar and Kaur (2018: 20) observe that scholarly articles related to dermoscopy are:

> full of descriptive terms which are almost impossible to comprehend without the aid of an image. Sometimes it becomes difficult to understand the perspective of the author with one or two images. In such a scenario, the reader loses interest in the article and goes on to search for an alternative research work. This way the articles lose their impact on the readers.

In their view, the VA decreases the likelihood that readers will discard articles.

The VA gives researchers the opportunity to give their take on their research and "talk about their article with feeling"[14], affordances that are hardly given by traditional academic genres such as the WA and the RA, thus freeing them from the straitjacket of distance and objectivity these genres typically impose in the communication of research. This means that when they appear physically in the VA, researchers can, for example, express their enthusiasm and excitement for their work and findings. In this regard, Coccetta (2020) observes the use of attitudinal language, particularly adjectives and adverbs (e.g. *exciting*, *interestingly*, and *desperately*), some of which also characterize some of the VAs under analysis. However, this enthusiasm could also be conveyed with facial expressions, gestures and prosodics. This is illustrated in VA # 10 where the speaker transmits a positive feeling for the discovery by using effectively the pace, pitch and volume of her delivery. It goes without saying that this can have an impact on the viewer who, at the end, might be more willing to read the article and have a positive attitude to it.

7. Conclusions

In the digital age, scientific knowledge dissemination has transcended the confines of well-established academic genres such as the RA, the WA and the Conference Presentation and embraced new genres including the Blog, the TED Talk Lecture and, most notably, the VA. Accordingly, this study has focused on the VA, reflected upon methodologies in VA analysis and proposed an approach that takes into account the multimodal nature of this complex

[14] https://www.elsevier.com/authors/author-schemas/artwork-and-media-instructions/media-specifications (10.02.2020).

emergent genre. In so doing, it has supported Coccetta's (2020) postulate which suggests there is a need to switch from a series approach, typically applied in the analysis of the WA genre, where moves are arranged in a rigid sequence one after the other, to a parallel series based on visual/verbal choices, where scientific information can be simultaneously conveyed verbally, visually, or verbally and visually. In support of this change in methodological focus, the study has described both the syntagmatic and paradigmatic relations that exist between subphases and phases, and the fact that at specific points in a VA's sequence of events, different types of subphases and phases appear to co-occur. Finally, although to some limited extent, the study has also speculated on the GSP of VAs by predicting the occurrence of subphases and phases as well as their likely order in the overall sequence of events in a VA. However, in order to make more accurate generalizations about the VA genre, there is a need to further consolidate the move from the phase as instance (Gregory 2002) to the phase as type (Baldry 2004; Baldry, Thibault 2006). In other words, in making the transition from phasal analysis as the study of instances to the study of types, this article has laid the premises for a more extensive corpus-based study of the qualitative and quantitative aspects of the findings described here.

In spite of its small-scale nature, the present study has laid the foundations for future lines of research which can include, for example, an analysis of gestures and their supporting role in making knowledge more accessible to audiences, or the role of voice which was touched upon in *Section 6.3* and many other issues that require a truly multimodal approach to studies on VAs.

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Annexe 1

VA 1. “Lifestyle Factors Linked to a Healthy Pregnancy.” Video, 2:18. https://www.youtube.com/watch?v=D_Vq4KhZfDw.
VA 2. “Breast Cancer Screening for over 70s doesn’t Prompt Expected Sharp Fall in Advanced Disease.” Video, 5:30. https://www.youtube.com/watch?v=NJsEcLaiwF4.
VA 3. “Concern over Inappropriate Use of Psychotropic Drugs in People with Intellectual Disability.” Video, 3:25. https://www.youtube.com/watch?v=XrB360yAMWQ.
VA 4. “Late Mortality after Sepsis.” Video, 3:06. https://www.youtube.com/watch?v=v4j695IWObk.
VA 5. “Education and Coronary Heart Disease: Mendelian Randomisation Study.” Video, 2:42. https://www.youtube.com/watch?v=edBBHJLWueE.
VA 6. “KSR2 Mutations are Associated with Obesity, Insulin Resistance, and Impaired Cellular Fuel Oxidation.” Video, 3:06. https://www.youtube.com/watch?v=XbvXRCnLGqk.
VA 7. “Vitamin D Lends a Hand to Chemo.” Video, 2:57. https://www.youtube.com/watch?v=c7N676qZs6w.
VA 8. “Protein Maps of Single Cells.” Video, 2:35. https://www.youtube.com/watch?v=vKbR0v1cNfk.
VA 9. “Cancer Cell Biology: Mutated KRAS & Reciprocal Signalling.” Video, 2:24. https://www.youtube.com/watch?v=GU-QZp5FwM8.
VA 10. “The MutAnts are here.” Video, 3:54. https://www.youtube.com/watch?v=M476cn6X5zM.
VA 11. “Researchers Take Materials Science to Now Heights.” Video, 2:25. https://vimeo.com/185381050
VA 12. “Molecular Triads May Bridge the Efficiency Gap in Artificial Photosynthesis.” Video, 2:36. https://vimeo.com/190267147.
VA 13. “Hand in Hand: Experimental-Theoretical Approach to Investigating Dioxygen Activation.” Video, 2:35. https://vimeo.com/192778164.
VA 14. “Researchers Get a Grip on Radioactive Tracers for Medical Imaging.” Video, 2:32. https://vimeo.com/220384242.
VA 15. “Newly Fashioned Nanomaterials are Hollow but Full of Potential.” Video, 2:07. https://vimeo.com/214767039.

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"HEALTH FOR KIDS"
Multimodal resources for popularising health knowledge on websites for children

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Abstract – The aim of this paper is to shed light on the ways in which verbal as well as visual elements are exploited in the explanation of health concepts on two websites expressly designed for children aged between 4 and 12, whose express aim is to popularise health knowledge. The two websites under investigation are approached taking into account multimodality. This provides instruments suitable for identifying cases where the visual mode interacts with the verbal mode to support popularisation. The analysis shows how the verbal mode exploits the visual mode to render information more accessible to children and contribute to their understanding. Through 'human-like characters', the images relate to real-life experience. They enhance the information transmitted and complete it with realistic details.

Keywords: popularising health knowledge for children; educational websites; image-text relations.

1. Introduction

Over the last two decades scholarly research has emphasised the role websites expressly designed for children play in developing children's literacy learning. Djonov (2008, p. 217), for example, suggests that they are "'edutainment' or 'infotainment' texts as they aim to *both* educate or inform *and* entertain their overt audience – children". In these digital tools, information is presented appealingly through multimodal strategies (Kress, van Leeuwen 1996, 2001; Lemke 1998; Unsworth 2005, 2006) to both educate and entertain. The contribution of these multimedia resources with their multimodal features to the educational process was discussed by Buckingham and Scanlon (2004), who approached edutainment websites for children by presenting a method of pedagogic analysis focusing on multimodality, navigation, and interactivity. Other research on the importance of web-based educational hypermedia to knowledge dissemination addressing children was carried out by Zhao (2008), who investigated the ways in which a children's website re-contextualises history for youngsters. Similarly, Maier (2008) illustrated how knowledge communication can be multimodally constructed in interactive texts on a website of scientific lessons.

Knowledge dissemination addressing children is a fairly recent area of inquiry in connection with popularisation from a discourse analytical perspective. Research in the field has focused on popularisation strategies adopted in different genres and specialised domains. For example, Sezzi (2017) explored popularisation as a form of remediation in history books for children in translation. Diani (2015, 2018) examined the linguistic-discursive strategies for the successful transfer and effective dissemination of legal concepts in texts destined for children, such as newspaper articles and information books from a cross-cultural perspective (English and Italian). Attention has also been devoted to the ways in which specialised and culture-specific concepts are reconceptualised and recontextualised. Cappelli and Masi (2019) analysed the discourse of travel guidebooks for children in English and Italian. Similarly, Bruti and Manca (2019) investigated the strategies adopted to recontextualise specialised knowledge in English and Italian children's magazines, dealing with the topic of environmental education.

Parallel to strategies of recontextualisation of specialised knowledge adopted in print texts targeted at children, research on this area of study has been carried out in digital texts for children. Diani and Sezzi (2019) investigated verbal popularisation strategies on the two official websites for children of the European Union. Similarly, these two websites were also explored by Silletti (2017), who analysed how verbal and visual elements interact to support popularisation strategies. Sezzi (2019) illustrated how museum websites popularise art for children. As research has shown, the importance of considering children as addressees in knowledge dissemination can be instrumental in understanding the dynamics of popularisation.

The present study contributes to this ongoing research by exploring the ways in which verbal as well as visual elements are exploited in the explanation of health concepts on two websites expressly designed for children aged between 4 and 12, whose express aim is to popularise health knowledge. The context of this study is provided by previous research (Diani, Sezzi 2020), which looked at the verbal-visual interplay on three scientific websites designed for children in English dedicated to a selected astronomic topic, namely 'The Sun'.

The paper begins with a description of the corpus used for the analysis and the methodology adopted (Sections 2 and 3). Section 4 focuses on the image-text relations characterising one single section of the two websites under investigation, the "Diseases/Illness" section. Section 5 discusses the use of the interactive resources as a case of health popularisation. Some concluding remarks are provided in section 6.

2. The corpus

The websites for children under investigation are *BAM! Body and Mind* and *Health for Kids*.

BAM! Body and Mind (www.cdc.gov/bam/index.html, last accessed 28 July 2019) is a U.S. online website developed by the U.S. Centers for Disease Control and Prevention (CDC), an agency of the U.S. Department of Health and Human Services. As it is explicitly declared on the website, it is designed for children aged 9-12 and aimed at providing them with information about all aspects of health, such as diseases, food and nutrition, physical activity, safety, life, and the body. In terms of audience and purpose of the website, the following brief but nonetheless far-reaching statement is to be found on the website's homepage:

> BAM! Body and Mind will tell you everything you need to know about all of the stuff that matters. Whether it's nutrition, physical activity, stress, safety, or diseases, we've got you covered! We designed this specifically for you—kids 9–12 years old—and even have some awesome games and quizzes to test your skills!

The website's homepage features anchors to the site's six sections ("Diseases; Food and Nutrition; Physical Activity; Your Safety; Your Life; Your Body"); it also includes a section addressing teachers ("Teacher's Corner") and a collection of educational games ("Game Room"), as shown in Figure 1. Access to these sections is offered by a vertical navigation bar occupying the leftmost part of the page. The homepage also features a surfacing anchor to a mobile game, called "Dining Decisions". This interactive app, designed for 7-12 year olds, allows children to categorise foods into three different groups: "Go", "Slow" and "Whoa". As the child advances to higher levels, more food items will need to be categorised in a shorter period of time. The goal of this game is to help children learn to keep a balanced diet and make the healthy choice. The anchor reading "Information for teachers" leads to the main page of the "Teacher's Corner" section.

Health for Kids (www.healthforkids.co.uk, last accessed 28 July 2019) is a UK online website designed for children in the 4-11 group, with a view to teaching them about staying healthy and looking after their health. The website has been designed and created by Leicestershire Partnership NHS Trust (LPT) and Diva Creative team with the help of pupils from primary schools from Leicestershire.

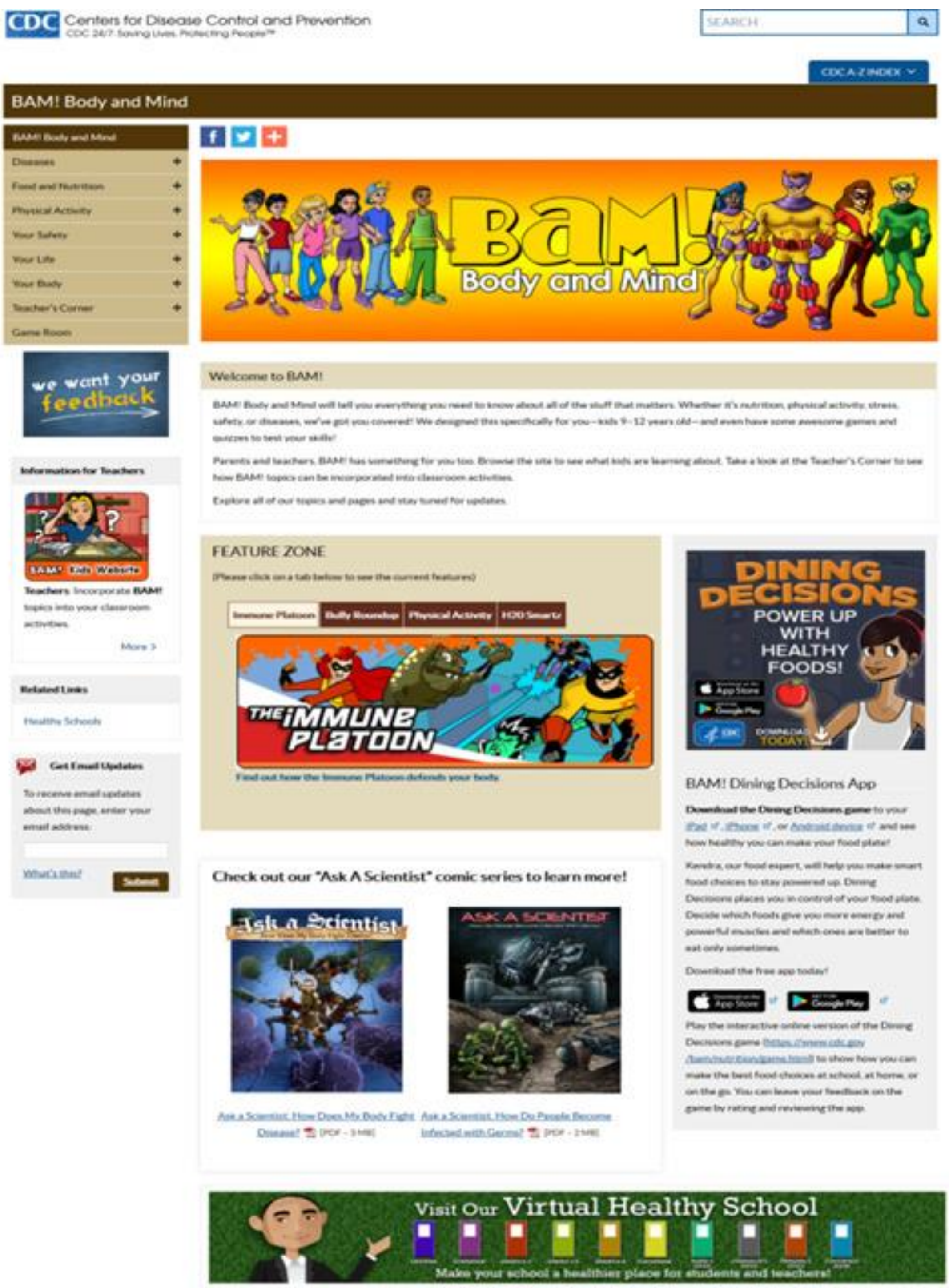


Fig. 1
BAM! Body and Mind homepage.

The website features a diverse range of health topics, as shown on the website's homepage in Figure 2.

Fig. 2
Health for Kids homepage

At the top of the screen are four tabs corresponding to the content sections: "Staying healthy; Illness; Feelings; Getting help". Access to these sections is also offered by the image of a space station in the centre of the webpage, serving as an anchor to the four content section icons representing the space station's screens. Clicking on a section's icon takes children to that section's main page. The "Staying healthy" icon is an image of a little girl on a sedan chair with a crown of fruit on her head. The "Illness" icon depicts a little monster; the "Feelings" icon is an image of a little girl on a boat who is given a shell by a boy; the "Getting help" icon is an image of a little girl with a thermometer in her mouth who asks for help from a warrior. The "Shine Time", "Food for Thought" and "Hailey Comet" icons are three games making learning about health more fun.

From a comparison between the two websites, it emerges that in *BAM!* the emphasis is more on the verbal mode. This may be consistent with the target age group the website addresses, i.e. children aged 9-12 who look for websites that feel more grown-up (i.e. websites offering more information texts than those for younger children). This is not the case with *Health for Kids*, where the overall organisation of the website is visual. As shown in Figure 2, the homepage, for example, consists mainly of icons, and it is only when the child clicks on them that the contents are disclosed. The design itself seems to appeal to small children, who are only attracted to images by their characters and colours because they have not yet developed their reading skills. However, as the texts inside the website reveal, it has been devised for older readers, be they adults reading with children or older children, who have already developed the cognitive skills necessary to process their content.

A significant difference also exists in the types of images. *BAM!* contains human-like characters, as exemplified in the image of the logo of the website, which visualises girls and boys in the target age range (Figure 1). It differs from a website for younger children such as *Health for Kids*, which uses cartoon-like characters to appeal to very young children, as they comprise much of their visual world. Although *Health for Kids* is targeting different age groups, it has familiar elements throughout. Interestingly, it uses a scenario (see Figure 2) based on the metaphor of space travel and children are invited to take a trip to the world of health ("Blast off to Planet X and learn more about avoiding illness. Let's Go!"). It uses an image of a planet to structure the website with astronauts, rockets, smiling faces, and cheerful characters so as to attract younger rather than older children. Ultimately, although both websites include texts and some animated characters, there is no sound. Characters speak but only in the form of a text box or of a speech bubble.

3. Methodology

In order to explore the relations between verbal and visual modes on the websites under investigation, the study adopts van Leeuwen's (2005) multimodal model of image-text relations. Table 1 shows the description of image-text connections, showing those relations and subtypes that van Leeuwen argues are relevant for this combination of modes.

Image-text relations	Types	Subtypes
Elaboration	Specification	The image makes the text more specific The text makes the image more specific
	Explanation	The text paraphrases the image (or vice versa)
Extension	Similarity	The content of the text is similar to that of the image
	Contrast	The content of the text contrasts with that of the image
	Complement	The content of the text adds further information to that of the text, and vice versa

Table 1
van Leeuwen's (2005, p. 230) overview of relations
between visual and verbal elements.

Attention was also given to the types of realisations of the verbal and the visual modes, following Maier *et al.*'s (2007, p. 467) typology, as reported in Table 2.

Modes	Realisations
Verbal	Internal text – labels inside the image External text – descriptions and instructions
Visual	Image outside the page
	Image inside the page

Table 2
Maier *et al.*'s (2007, p. 467) typology of realisations
of the verbal and the visual modes.

4. The "Diseases/Illness" section of *BAM!* and *Health for Kids*: an overview

The choice of concentrating on one single section of the two websites, the "Diseases/Illness" section, is for practical reasons, since it is not possible to analyse all the verbal and visual modes and their relationships existing in a whole multimodal hypertext in an article of this length.

In *BAM!* access to the "Diseases" section is through a vertical navigation bar occupying the leftmost part of the website's homepage. It is only when children click on it that three subsections are revealed ("Disease Detective; Immune Platoon; Disease Database"). In the "Disease" section the concept of disease is introduced through an image of a child who impersonates a doctor-detective ("Dr. Daniel Disease Detective") and by the question "Wondering what a disease detective is?", as shown in Figure 3.

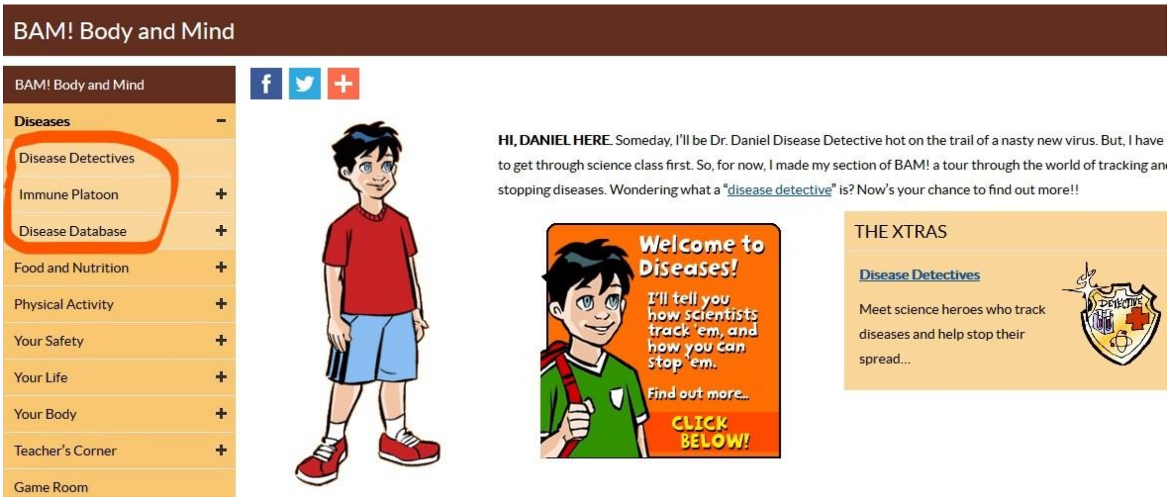
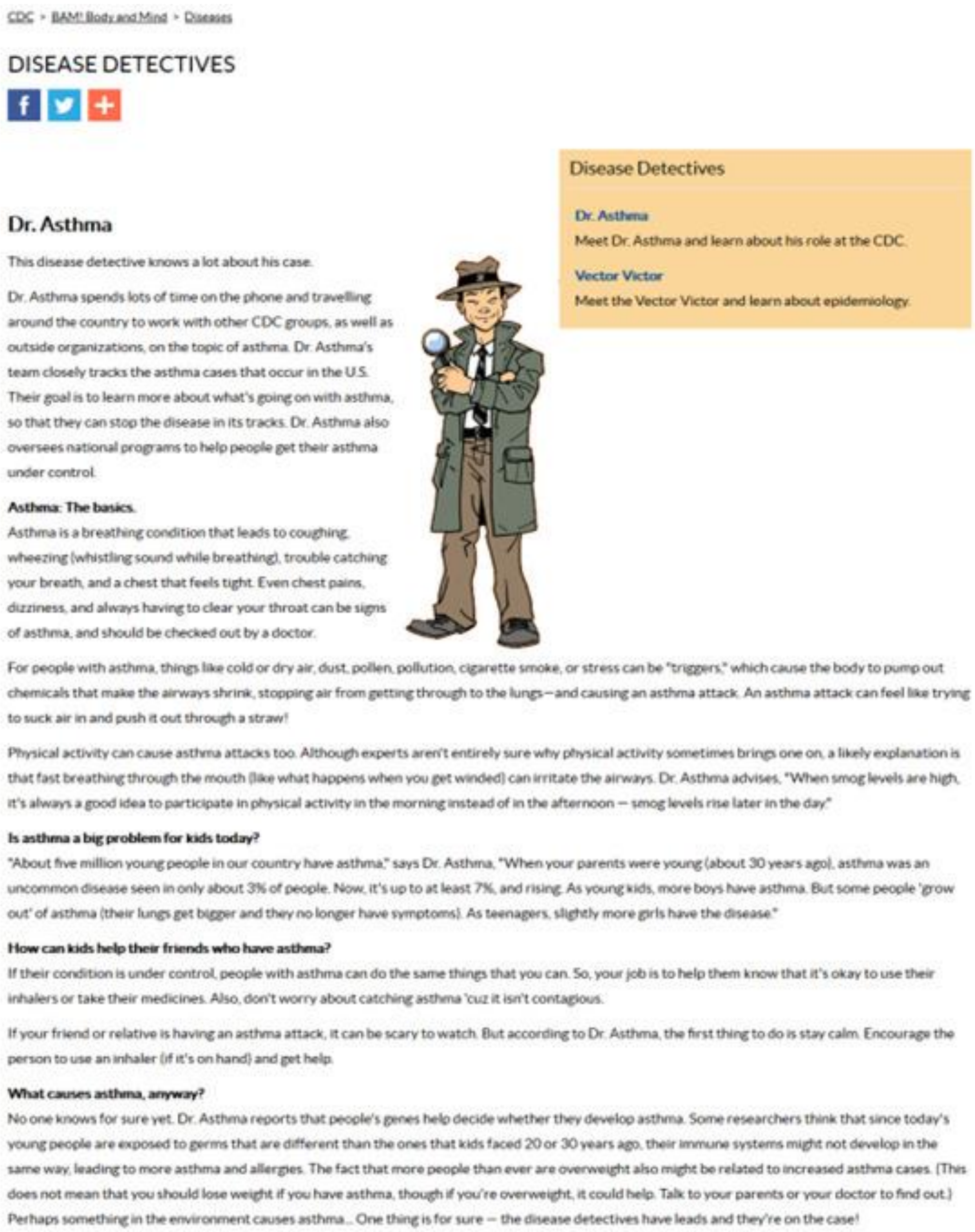


Fig. 3
"Diseases" section from *BAM!*

The fact that it is a child who asks himself the question makes knowledge transmission more immediate. As Stenglin and Djonov (2010) observe, on children's websites, fictional characters, typically children, speak and think, guiding the child-user in learning.

Clicking on the "Disease Detectives" takes children to discover what a disease detective is. Here an image belonging to a child's stock of knowledge appears (see Figure 4): a person wearing a brown detective hat and a coat and holding a magnifying glass impersonates the doctor called "Dr. Asthma". This is an example of how an image supports the popularisation strategy because it has the function of inserting the concept into a realistic context, so that children can perceive the concept of disease as part of their daily lives. The text also realises the concept of detective investigation in picture (through the image of a detective badge), so that it can be visually recognised by young readers.


CDC > BAM! Body and Mind > Diseases

DISEASE DETECTIVES

Disease Detectives

Dr. Asthma
Meet Dr. Asthma and learn about his role at the CDC.

Vector Victor
Meet the Vector Victor and learn about epidemiology.

Dr. Asthma

This disease detective knows a lot about his case.

Dr. Asthma spends lots of time on the phone and travelling around the country to work with other CDC groups, as well as outside organizations, on the topic of asthma. Dr. Asthma's team closely tracks the asthma cases that occur in the U.S. Their goal is to learn more about what's going on with asthma, so that they can stop the disease in its tracks. Dr. Asthma also oversees national programs to help people get their asthma under control.

Asthma: The basics.
Asthma is a breathing condition that leads to coughing, wheezing (whistling sound while breathing), trouble catching your breath, and a chest that feels tight. Even chest pains, dizziness, and always having to clear your throat can be signs of asthma, and should be checked out by a doctor.

For people with asthma, things like cold or dry air, dust, pollen, pollution, cigarette smoke, or stress can be "triggers," which cause the body to pump out chemicals that make the airways shrink, stopping air from getting through to the lungs—and causing an asthma attack. An asthma attack can feel like trying to suck air in and push it out through a straw!

Physical activity can cause asthma attacks too. Although experts aren't entirely sure why physical activity sometimes brings one on, a likely explanation is that fast breathing through the mouth (like what happens when you get winded) can irritate the airways. Dr. Asthma advises, "When smog levels are high, it's always a good idea to participate in physical activity in the morning instead of in the afternoon — smog levels rise later in the day."

Is asthma a big problem for kids today?
"About five million young people in our country have asthma," says Dr. Asthma. "When your parents were young (about 30 years ago), asthma was an uncommon disease seen in only about 3% of people. Now, it's up to at least 7%, and rising. As young kids, more boys have asthma. But some people 'grow out' of asthma (their lungs get bigger and they no longer have symptoms). As teenagers, slightly more girls have the disease."

How can kids help their friends who have asthma?
If their condition is under control, people with asthma can do the same things that you can. So, your job is to help them know that it's okay to use their inhalers or take their medicines. Also, don't worry about catching asthma 'cuz it isn't contagious.

If your friend or relative is having an asthma attack, it can be scary to watch. But according to Dr. Asthma, the first thing to do is stay calm. Encourage the person to use an inhaler (if it's on hand) and get help.

What causes asthma, anyway?
No one knows for sure yet. Dr. Asthma reports that people's genes help decide whether they develop asthma. Some researchers think that since today's young people are exposed to germs that are different than the ones that kids faced 20 or 30 years ago, their immune systems might not develop in the same way, leading to more asthma and allergies. The fact that more people than ever are overweight also might be related to increased asthma cases. (This does not mean that you should lose weight if you have asthma, though if you're overweight, it could help. Talk to your parents or your doctor to find out.) Perhaps something in the environment causes asthma... One thing is for sure – the disease detectives have leads and they're on the case!

Fig. 4
"Disease Detectives" subsection from *BAM!*

As exemplified in Figure 4, the concept of asthma is presented through a large volume of plain text, as seen in the paragraph titled "Asthma: the basics", in which a definition, symptoms and causes are presented. Most of the description is provided through the answers to specific questions the doctor formulates ("Is asthma a big problem for kids?; How can kids help their friends who have asthma?"). The text uses technical language and sentence structure that bring it closer to the style of textbook writing. For example, words such as “breathing condition, coughing, wheezing, chest pains, dizziness” are medical terms popularised for the lay public. On the other hand, the use of sentences starting with “if” functions as a link between a concept and a proposition (“If their condition is under control, people with asthma can do the same things that you can”; “If your friend or relative is having an asthma attack, it can be scary to watch”), but also as a way of showing children how to control their emotions and approach the symptoms of a disease in a practical way. As a result, the text seems to be more informative and less enjoyable for children, where only one picture is present.

However, this is not always the case. Clicking on “The Immune Platoon” brings up a description of the immune system (Figure 5). Here image and text go hand in hand in metaphor creation. The text combines with the image to instantiate a visual metaphor and facilitates the correct interpretation of the image for the children.

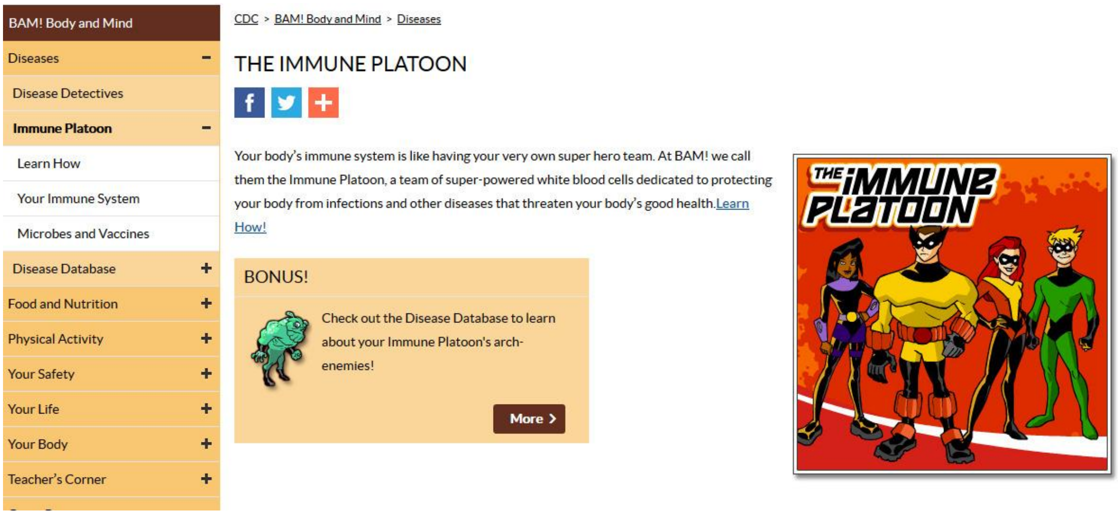


Fig. 5
“The Immune Platoon” subsection from *BAM!*

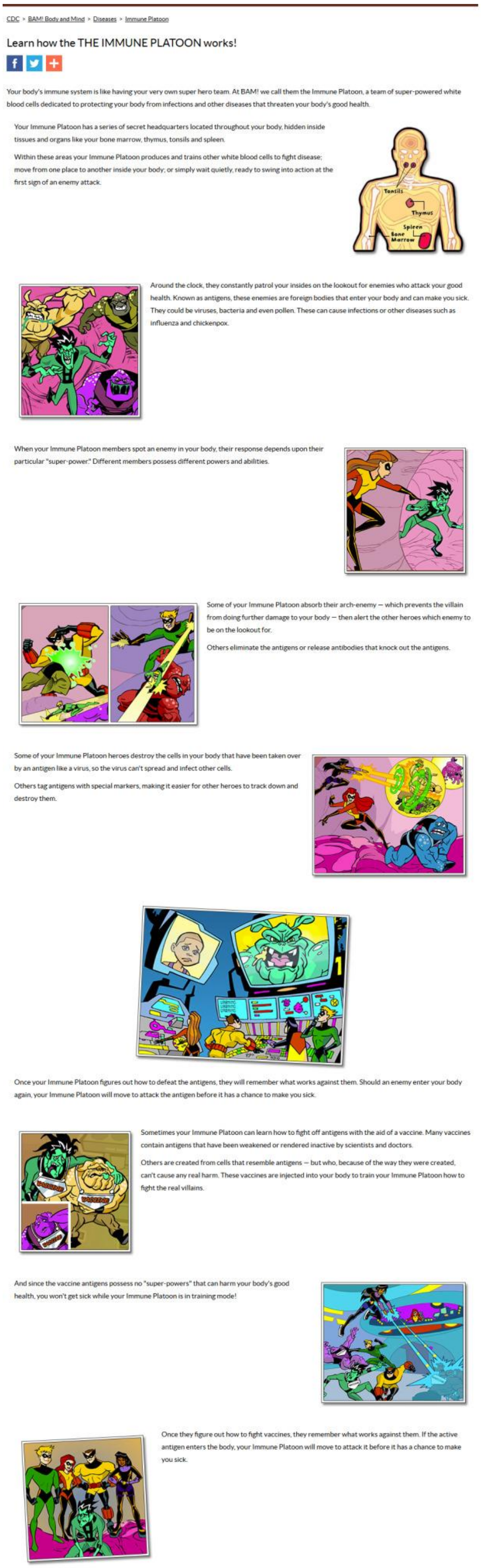
As we can see, the immune system, described metaphorically as “The Immune Platoon”, is represented by an image of a team of superpowered white blood cells. Recourse to this metaphor is key to assigning metaphorical meaning to the image. This strategy corroborates the general picture emerging from other studies that the metaphorical element “is cognitively familiar to the reader, being part of his/her background knowledge or everyday experience”. Thus, “when metaphors are used in popularization the kind of knowledge that is usually presupposed on the part of the readers is simply a basic general socio-cultural knowledge ‘of the world’” (Garzone 2014, p. 85).

As research has demonstrated, the use of metaphors serves a pedagogical purpose (Cameron 2003). As we have seen above, it often involves concrete and familiar concepts to help readers understand topics they may find abstract and difficult to grasp. This is particularly evident in the dissemination of knowledge targeted at children, as observed by Vosniadou (1987, p. 882), who suggests that metaphorical thinking plays "an important role in the child's attempts to acquire new knowledge".

The verbal description of the immune system is accompanied by illustrations which explain the text (Figure 6). Such visual descriptions imply the establishment of "elaboration through explanation", as van Leeuwen (2005) calls it, between the verbal mode and the visual one as the images paraphrase the verbal text. The information is thus presented in an entertaining way. The images are reminiscent of superheroes fighting against villains. They are very similar to the X-Men characters, who are specific kinds of superheroes very familiar to children. For example, the monsters as enemies represent antigens attacking the body; the superpowered hero represents the white blood cell that spots the antigens/enemies and eliminates them. Tentatively, we may speculate that visuals contribute to exemplifying the concepts which are being presented to the young reader, but they also encourage knowledge dissemination through an association of ideas. The illustration aims at reproducing the images children have already stored in their memories, so that they can relate them to a similar real-life situation.

Clicking on the subsection "Microbes and Vaccines" takes children to a definition of microbes, bacteria, viruses and vaccines (Figure 7). The concepts to be transmitted are accompanied by illustrations for easier understanding. Microbes, bacteria, and viruses are represented visually as small, ugly creatures with some human-like facial expressions, in the shape of balls with clenched teeth and eyes scrunched downward, creating an idea of something frightening and dangerous for children that can harm them; on the other hand, vaccines are exemplified by an image of a medical syringe used to administer a flu or vaccine shot. Here the verbal and the visual modes enter into a relation of elaboration though specification by which the images make the text more specific.

Unlike the "Diseases" section of *BAM!*, where concepts are transmitted through highly informative texts and only some illustrations having an explicative function are used, the "Illness" section of *Health for Kids* tends to provide more visual support than *BAM!*. It uses a surface of a planet with an underground and an aboveground setting, each one with children playing with other children or creatures. The planet is only shown in the background with what seems to be a sun or a sun-like star (Figure 8).



CDC > BAM! Body and Mind > Diseases > Immune Platoon

Learn how the THE IMMUNE PLATOON works!

Your body's immune system is like having your very own super hero team. At BAM! we call them the Immune Platoon, a team of super-powered white blood cells dedicated to protecting your body from infections and other diseases that threaten your body's good health.

Your Immune Platoon has a series of secret headquarters located throughout your body, hidden inside tissues and organs like your bone marrow, thymus, tonsils and spleen.

Within these areas your Immune Platoon produces and trains other white blood cells to fight disease; move from one place to another inside your body; or simply wait quietly, ready to swing into action at the first sign of an enemy attack.

Around the clock, they constantly patrol your insides on the lookout for enemies who attack your good health. Known as antigens, these enemies are foreign bodies that enter your body and can make you sick. They could be viruses, bacteria and even pollen. These can cause infections or other diseases such as influenza and chickenpox.

When your Immune Platoon members spot an enemy in your body, their response depends upon their particular "super-power." Different members possess different powers and abilities.

Some of your Immune Platoon absorb their arch-enemy — which prevents the villain from doing further damage to your body — then alert the other heroes which enemy to be on the lookout for.

Others eliminate the antigens or release antibodies that knock out the antigens.

Some of your Immune Platoon heroes destroy the cells in your body that have been taken over by an antigen like a virus, so the virus can't spread and infect other cells.

Others tag antigens with special markers, making it easier for other heroes to track down and destroy them.

Once your Immune Platoon figures out how to defeat the antigens, they will remember what works against them. Should an enemy enter your body again, your Immune Platoon will move to attack the antigen before it has a chance to make you sick.

Sometimes your Immune Platoon can learn how to fight off antigens with the aid of a vaccine. Many vaccines contain antigens that have been weakened or rendered inactive by scientists and doctors.

Others are created from cells that resemble antigens — but who, because of the way they were created, can't cause any real harm. These vaccines are injected into your body to train your Immune Platoon how to fight the real villains.

And since the vaccine antigens possess no "super-powers" that can harm your body's good health, you won't get sick while your Immune Platoon is in training mode!

Once they figure out how to fight vaccines, they remember what works against them. If the active antigen enters the body, your Immune Platoon will move to attack it before it has a chance to make you sick.

Fig. 6
"Learn how the Immune Platoon works" subsection from *BAM!*

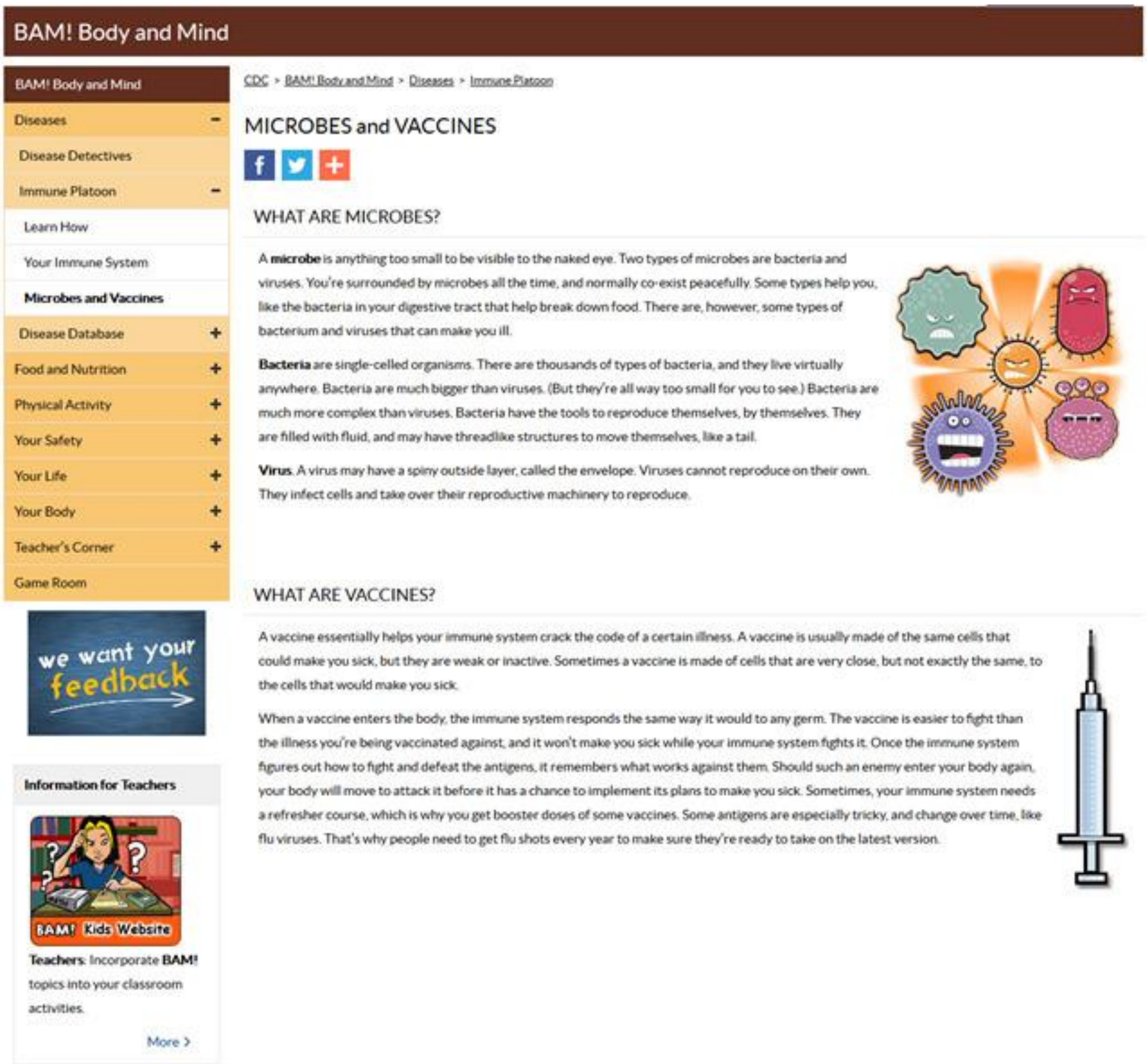


Fig. 7
“Microbes and Vaccines” subsection from *BAM!*

Fig. 8
"Illness" section from *Health for Kids*.

The section consists of icons corresponding to different diseases ("Allergies; Asthma; Flu; Living with an allergy; Poop Shooter; Being sick; Diabetes; Head lice; Migraine; Problems with poo; Problems with wee"). Two icons contain images: more specifically, "Allergy" is introduced through an image of a child sneezing into a white tissue; "Sickness" is visually represented by a child with a sad expression on his face. Each icon provides introductory information on the specific disease. For example, "Allergy" says: "Many children have allergies. Some allergens, such as food, are a problem all year long, but others might only bother you at certain times of the year").

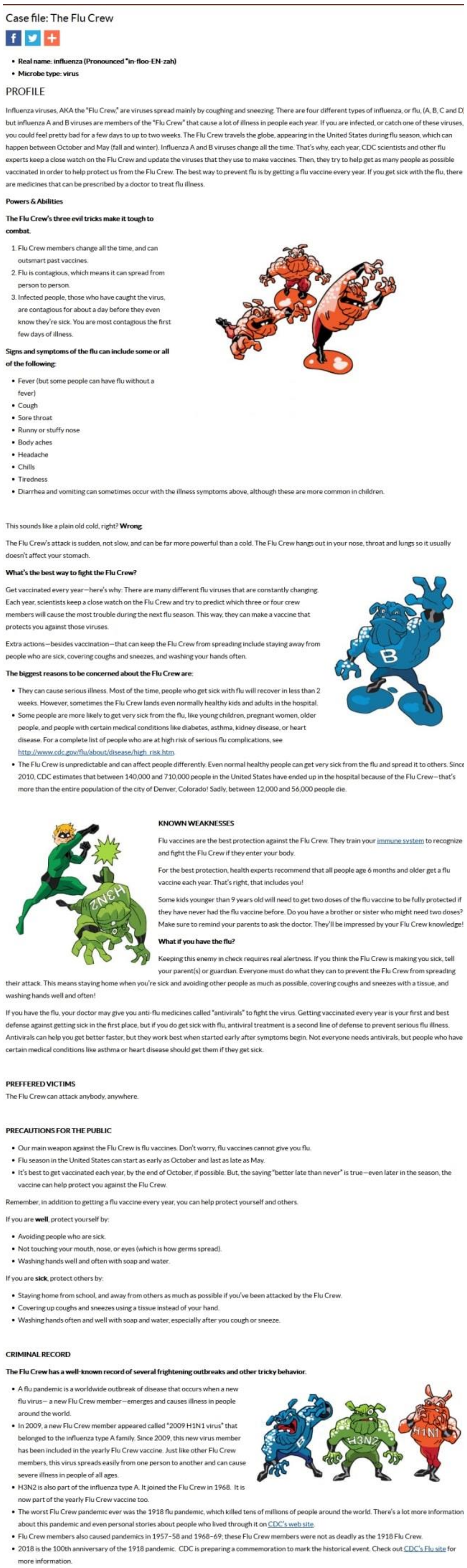
The next section gives an account of how verbal and visual modes are co-deployed on the "Flu" page of the two websites.

4.1. A case study: Flu

Comparing the two websites, the "Flu" page presents a different layout (Figure 9).

In *Health for Kids*, the text is placed inside an image of a rocket that metaphorically stands for flu viruses travelling very fast and spreading by sneezing. The image covers the whole page. This is different from *BAM!*, where it is the text that covers the whole page and the images only take a small portion of it.

As regards the style of the texts, both have an expository form. The Flu text of *BAM!*, for example, is divided into different sections labelled "Powers and abilities", "Known weaknesses", "Preferred victims", "Precautions for the public", including a detailed description of signs, symptoms, treatment of flu and of hygiene habits. Interestingly, there is also a section on "Criminal record" including a history of major flu pandemics. Although the text is highly informative, information is presented in an entertaining way. The more child-oriented mode of address of the text is reflected in its use of reference to viruses causing flu as "members of the Flu Crew" ("Influenza viruses, AKA the 'Flu Crew', are viruses spread mainly by coughing and sneezing. There are four different types of influenza, or flu, (A, B, C and D) but influenza A and B viruses are members of the 'Flu Crew' that cause a lot of illness in people each year. […] The Flu Crew travels the globe […] Flu Crew members change all the time"). The verbal metaphor of "Flu Crew" is represented visually by flu virus monsters, so as to boost children's immediate understanding.



Case file: The Flu Crew

- **Real name: influenza (Pronounced "in-floo-EN-zah)**
- **Microbe type: virus**

PROFILE

Influenza viruses, AKA the "Flu Crew," are viruses spread mainly by coughing and sneezing. There are four different types of influenza, or flu, (A, B, C and D) but influenza A and B viruses are members of the "Flu Crew" that cause a lot of illness in people each year. If you are infected, or catch one of these viruses, you could feel pretty bad for a few days to up to two weeks. The Flu Crew travels the globe, appearing in the United States during flu season, which can happen between October and May (fall and winter). Influenza A and B viruses change all the time. That's why, each year, CDC scientists and other flu experts keep a close watch on the Flu Crew and update the viruses that they use to make vaccines. Then, they try to help get as many people as possible vaccinated in order to help protect us from the Flu Crew. The best way to prevent flu is by getting a flu vaccine every year. If you get sick with the flu, there are medicines that can be prescribed by a doctor to treat flu illness.

Powers & Abilities

The Flu Crew's three evil tricks make it tough to combat.

1. Flu Crew members change all the time, and can outsmart past vaccines.
2. Flu is contagious, which means it can spread from person to person.
3. Infected people, those who have caught the virus, are contagious for about a day before they even know they're sick. You are most contagious the first few days of illness.

Signs and symptoms of the flu can include some or all of the following:

- Fever (but some people can have flu without a fever)
- Cough
- Sore throat
- Runny or stuffy nose
- Body aches
- Headache
- Chills
- Tiredness
- Diarrhea and vomiting can sometimes occur with the illness symptoms above, although these are more common in children.

This sounds like a plain old cold, right? **Wrong.**

The Flu Crew's attack is sudden, not slow, and can be far more powerful than a cold. The Flu Crew hangs out in your nose, throat and lungs so it usually doesn't affect your stomach.

What's the best way to fight the Flu Crew?

Get vaccinated every year—here's why: There are many different flu viruses that are constantly changing. Each year, scientists keep a close watch on the Flu Crew and try to predict which three or four crew members will cause the most trouble during the next flu season. This way, they can make a vaccine that protects you against those viruses.

Extra actions—besides vaccination—that can keep the Flu Crew from spreading include staying away from people who are sick, covering coughs and sneezes, and washing your hands often.

The biggest reasons to be concerned about the Flu Crew are:

- They can cause serious illness. Most of the time, people who get sick with flu will recover in less than 2 weeks. However, sometimes the Flu Crew lands even normally healthy kids and adults in the hospital.
- Some people are more likely to get very sick from the flu, like young children, pregnant women, older people, and people with certain medical conditions like diabetes, asthma, kidney disease, or heart disease. For a complete list of people who are at high risk of serious flu complications, see http://www.cdc.gov/flu/about/disease/high_risk.htm.
- The Flu Crew is unpredictable and can affect people differently. Even normal healthy people can get very sick from the flu and spread it to others. Since 2010, CDC estimates that between 140,000 and 710,000 people in the United States have ended up in the hospital because of the Flu Crew—that's more than the entire population of the city of Denver, Colorado! Sadly, between 12,000 and 56,000 people die.

KNOWN WEAKNESSES

Flu vaccines are the best protection against the Flu Crew. They train your immune system to recognize and fight the Flu Crew if they enter your body.

For the best protection, health experts recommend that all people age 6 months and older get a flu vaccine each year. That's right, that includes you!

Some kids younger than 9 years old will need to get two doses of the flu vaccine to be fully protected if they have never had the flu vaccine before. Do you have a brother or sister who might need two doses? Make sure to remind your parents to ask the doctor. They'll be impressed by your Flu Crew knowledge!

What if you have the flu?

Keeping this enemy in check requires real alertness. If you think the Flu Crew is making you sick, tell your parent(s) or guardian. Everyone must do what they can to prevent the Flu Crew from spreading their attack. This means staying home when you're sick and avoiding other people as much as possible, covering coughs and sneezes with a tissue, and washing hands well and often!

If you have the flu, your doctor may give you anti-flu medicines called "antivirals" to fight the virus. Getting vaccinated every year is your first and best defense against getting sick in the first place, but if you do get sick with flu, antiviral treatment is a second line of defense to prevent serious flu illness. Antivirals can help you get better faster, but they work best when started early after symptoms begin. Not everyone needs antivirals, but people who have certain medical conditions like asthma or heart disease should get them if they get sick.

PREFFERED VICTIMS

The Flu Crew can attack anybody, anywhere.

PRECAUTIONS FOR THE PUBLIC

- Our main weapon against the Flu Crew is flu vaccines. Don't worry, flu vaccines cannot give you flu.
- Flu season in the United States can start as early as October and last as late as May.
- It's best to get vaccinated each year, by the end of October, if possible. But, the saying "better late than never" is true—even later in the season, the vaccine can help protect you against the Flu Crew.

Remember, in addition to getting a flu vaccine every year, you can help protect yourself and others.

If you are **well**, protect yourself by:

- Avoiding people who are sick.
- Not touching your mouth, nose, or eyes (which is how germs spread).
- Washing hands well and often with soap and water.

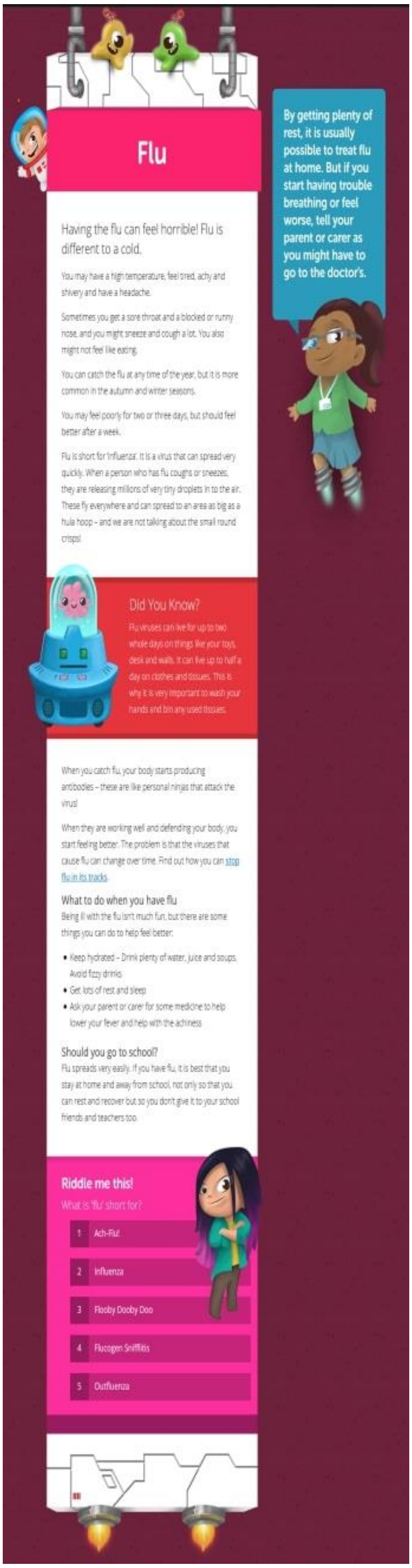
If you are **sick**, protect others by:

- Staying home from school, and away from others as much as possible if you've been attacked by the Flu Crew.
- Covering up coughs and sneezes using a tissue instead of your hand.
- Washing hands often and well with soap and water, especially after you cough or sneeze.

CRIMINAL RECORD

The Flu Crew has a well-known record of several frightening outbreaks and other tricky behavior.

- A flu pandemic is a worldwide outbreak of disease that occurs when a new flu virus— a new Flu Crew member—emerges and causes illness in people around the world.
- In 2009, a new Flu Crew member appeared called "2009 H1N1 virus" that belonged to the influenza type A family. Since 2009, this new virus member has been included in the yearly Flu Crew vaccine. Just like other Flu Crew members, this virus spreads easily from one person to another and can cause severe illness in people of all ages.
- H3N2 is also part of the influenza type A. It joined the Flu Crew in 1968. It is now part of the yearly Flu Crew vaccine too.
- The worst Flu Crew pandemic ever was the 1918 flu pandemic, which killed tens of millions of people around the world. There's a lot more information about this pandemic and even personal stories about people who lived through it on CDC's web site.
- Flu Crew members also caused pandemics in 1957–58 and 1968–69; these Flu Crew members were not as deadly as the 1918 Flu Crew.
- 2018 is the 100th anniversary of the 1918 pandemic. CDC is preparing a commemoration to mark the historical event. Check out CDC's Flu site for more information.



By getting plenty of rest, it is usually possible to treat flu at home. But if you start having trouble breathing or feel worse, tell your parent or carer as you might have to go to the doctor's.

Flu

Having the flu can feel horrible! Flu is different to a cold.

You may have a high temperature, feel tired, achy and shivery and have a headache.

Sometimes you get a sore throat and a blocked or runny nose, and you might sneeze and cough a lot. You also might not feel like eating.

You can catch the flu at any time of the year, but it is more common in the autumn and winter seasons.

You may feel poorly for two or three days, but should feel better after a week.

Flu is short for 'influenza'. It is a virus that can spread very quickly. When a person who has flu coughs or sneezes, they are releasing millions of very tiny droplets in to the air. These fly everywhere and can spread to an area as big as a hula hoop – and we are not talking about the small round crisps!

Did You Know?

Flu viruses can live for up to two whole days on things like your toys, desk and walls. It can live up to half a day on clothes and tissues. This is why it is very important to wash your hands and bin any used tissues.

When you catch flu, your body starts producing antibodies – these are like personal ninjas that attack the virus!

When they are working well and defending your body, you start feeling better. The problem is that the viruses that cause flu can change over time. Find out how you can stop flu in its tracks.

What to do when you have flu

Being ill with the flu isn't much fun, but there are some things you can do to help feel better.

- Keep hydrated – Drink plenty of water, juice and soups. Avoid fizzy drinks.
- Get lots of rest and sleep
- Ask your parent or carer for some medicine to help lower your fever and help with the achiness

Should you go to school?

Flu spreads very easily. If you have flu, it is best that you stay at home and away from school, not only so that you can rest and recover but so you don't give it to your school friends and teachers too.

Riddle me this!

What is 'flu' short for?

1 Ach-Flu!
2 Influenza
3 Flooby Dooby Doo
4 Flucogen Sniffles
5 Outfluenza

Fig. 9
"Flu" from *BAM!* (left) and *Health for Kids* (right).

The Flu text of *Health for Kids* is also organised into sections labelled "Having the flu can feel horrible! Flu is different from cold", "What to do when you have flu", "Should you go to school?", offering an outline of flu symptoms and treatment, but it is very short compared to that of *BAM!*. A possible explanation derives from the fact that the website is targeted at younger readers than those of *BAM!*, and texts should be kept to brief descriptions so that there is no room for the child reader to become bored. This may explain why the website focuses more on the visual mode than on the verbal one, as well exemplified by the Flu page.

As regards popularisation strategies, both websites highlight the tendency to introduce children to the concept of flu through a question-answer mode. As research suggests, recourse to questions is a common strategy of popularisation for children (Diani 2015, 2018; Sezzi 2015, 2017; Silletti 2017). As we can see in Figure 9, both texts are organised into paragraphs, some of which are introduced by *wh*-questions, functioning as titles ("What to do when you have flu"; "What's the best way to fight the Flu Crew?"; "What if you have the flu?"). The use of questions suggests a didactic function reflecting the purpose the website is designed for, i.e. for children who need to be taught the basic notions of the topic discussed. They shape the structure of the text, following somehow the "traditional classroom discourse structure" (Stenglin, Djonov 2010, p. 205), and arouse children's interest and curiosity (Webber 1994). We may speculate about this strategy on the basis of the function *wh*-questions express: "an imbalance of knowledge between participants" (Hyland 2002, p. 530), which helps "to construct readers as learners, and learning as a one-way transfer of knowledge" (2002, p. 535) from expert to non-expert.

Interestingly, *Health for Kids* devotes a section titled "Did you know?" in the flu description, as illustrated in Figure 9. This type of question involves children through a game-like structure similar to the fun-fact questions related to trivia and curious facts (Sezzi 2019). This section plays an engaging role but also conveys more specific information about the illness ("Flu viruses can live for up to two whole days on things like your toys, desk and walls. It can live up to half a day on clothes and tissues. This is why it is very important to wash your hands and bin any used tissues").

Another interesting point to note is that there is a tendency in both texts to address children directly as 'you', as exemplified in the following extracts:

> (1) If **you** think the Flu Crew is making **you** sick, tell **your** parent(s) or guardian. Everyone must do what they can to prevent the Flu Crew from spreading their attack. This means staying home when **you**'re sick and avoiding other people as much as possible, covering coughs and sneezes with a tissue, and washing hands well and often! […] (BAM! Body and Mind)

> (2) **You** may have a high temperature, feel tired, achy and shivery and have a headache. Sometimes **you** get a sore throat and a blocked or runny nose, and **you** might sneeze and cough a lot. **You** also may not feel like eating. **You** can catch the flu at any time of the year, but it is more common in the autumn and winter seasons. **You** may feel poorly for two or three days, but should feel better after a week […] When **you** catch flu, your body starts producing antibodies – these are like personal nijas that attack the virus! (Health for Kids)

The strategy of direct address to the child-reader foregrounds the highly interactive nature of websites for children, whose main purpose is to create a rhetorical effect of "closeness and involvement" as described by Breeze (2015, p. 16), who suggests that "the level of familiarity associated with the second person serves to involve the reader in the story".

Both sites also create what Kress and van Leeuwen (1996) have described as a "virtual you", whereby a character appears to be addressing children directly, attempting to establish a direct personal connection (Buckingham, Scanlon 2004). This is exemplified in the "Flu" text in *Health for Kids* (see Figure 9), where a little girl who impersonates the National Health Service, speaking in the form of speech bubble, addresses the young reader as 'you'. As Buckingham and Scanlon (2004, p. 279) observe, "these visual characters reinforce and complement the message of the written text".

Children are also addressed directly by animated characters, as exemplified in the quiz "Riddle me this!" at the bottom of the "Flu" page of *Health for Kids* (see Figure 9). In the course of the quiz the expression on the character's face indicates whether the question has been answered correctly. For example, the girl smiles and moves her head if the child gets the correct answer and the message underneath reads: "Oh yeahhh…you got it right". However, if the answer is incorrect her expression changes to dejection: her eyes and mouth drop, and her shoulders slump forward; the message underneath reads: "Oh noooo…you got it wrong".

In terms of text-image relations, both pages appear to highlight how the images are meaningfully interrelated to each other, and they also enter into meaning-making relations both with the internal texts and the external texts that accompany them.

5. Playing to popularise health knowledge

This section investigates how the sites deal with health, focusing on their use of interactive resources which are the predominant formats for activities on websites for children (Buckingham, Scanlon 2004). Both websites use game formats in the context of food/nutrition education as a case of health popularisation.

Health for Kids emphasises the importance of healthy eating for children by making learning about healthy lifestyles fun and inspiring for them. It has put a child's nutrition knowledge to the test in a trivia quiz called "Food for Thought". The choice of the title echoes quizzes available online assessing people's knowledge with regard to nutrition. The quiz is introduced visually through an image of an announcer: a man wearing a bow tie and jacket, holding a microphone and a question sheet (see Figure 10). Most likely, children have seen a quiz announcer on TV and the illustration aims at reproducing an image that belongs to their stock of knowledge, so that they can relate it to a real-life experience.

Fig. 10
Food for Though Quiz from *Health for Kids*.

The quiz is organised into three nutrition areas: fat, salt, sugar. Children can choose one area consisting of ten questions testing their knowledge of healthy eating. More specifically, each question tests children's knowledge of fat, salt or sugar content in grams (higher or lower) between two foods, as exemplified in Figure 11.

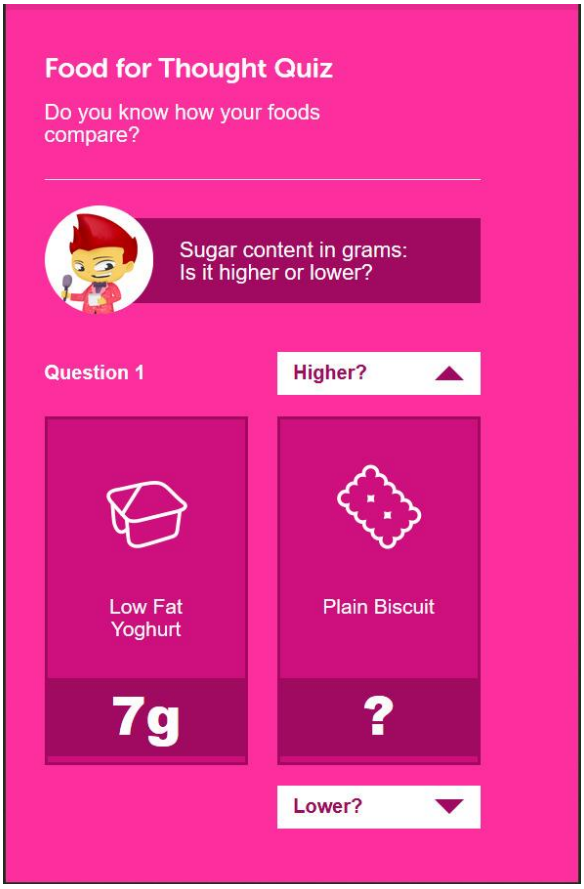


Fig. 11
Food for Thought Question from *Health for Kids*.

In order to move from one question to the next, the child has to answer the question shown on the screen. It is the expression on the announcer's face that indicates whether the question has been answered correctly or not. For example, the announcer winks at the child and lifts his thumb if the child gets the correct answer; the message underneath reads: "Well done you aced it!". But if the answer is incorrect, his expression changes to desolation: his eyes and mouth drop, and he frowns putting his hand on his head; the message underneath reads: "Uh oh! you got it wrong…". Each question has one point associated with it, and as the child answers, s/he adds up points for her/himself. The score range (0-10) gives children their level of knowledge. The score is given on completion of the quiz. As expected, the overall organisation of the quiz is verbal. It is introduced with a good deal of information on healthy eating forming a background for questions. The use of images is only limited to symbolic representations for the selected food, as exemplified in Figure 11.

Differently from the quiz, the game "The Mighty Poop Shooter" in *Health for Kids* develops through images rather than text (Figure 12). This is another interactive resource introducing children to eating healthily.

Fig. 12
The Mighty Poop Shooter game from *Health for Kids*.

The characters are aliens: 'K'ulu the Planet Globber' is the constipated alien whose belly is full of food. The child as learner takes the role of the mighty Poop Shooter to help K'ulu clear the blockages in order to keep him happy and healthy. An introduction to the game uses second-person address ("It's your job to clear the blockages and make sure everything keeps moving as it should") and an imperative statement to convey a sense of urgency ("Let's get started to help keep K'ulu happy and healthy"). The game is developed on an electronic scoreboard (see Figure 13).

Fig. 13
The Mighty Poop Shooter game from *Health for Kids*.

By using a rocket, the child has to click on groups of the same food (visually represented by an icon) to digest them, within a short period of time that is visually marked by an hourglass. The game must be completed before the hourglass runs out. Four types of food can be chosen with different scores. The child can get more points by grouping together as many of the same icons as s/he can. Success depends on the knowledge of healthy food rather than gaming skills.

BAM! also devotes a game to healthy food called "Picnic Pickup Game" (Figure 14). The game consists of clicking on food items a child thinks are the best, so as to make good decisions. Each food is visually represented by an icon. For example, when the child clicks on a healthy food like bananas, a message underneath reads: "Yes!", and a description of the food is provided: "Fruits and vegetables are a healthy way to get the vitamins, minerals, fiber, and energy your body needs to feel and look good". On the contrary, if the child's food choice sounds unhealthy, a message underneath reads: "Healthy eating is like a larger puzzle, where there is a spot for everything. As long as most of your puzzle has whole grains, vegetables, fruits, and low-fat dairy foods, plus some lean meats, fish, poultry, and beans, there is room for a few less-healthy choices".

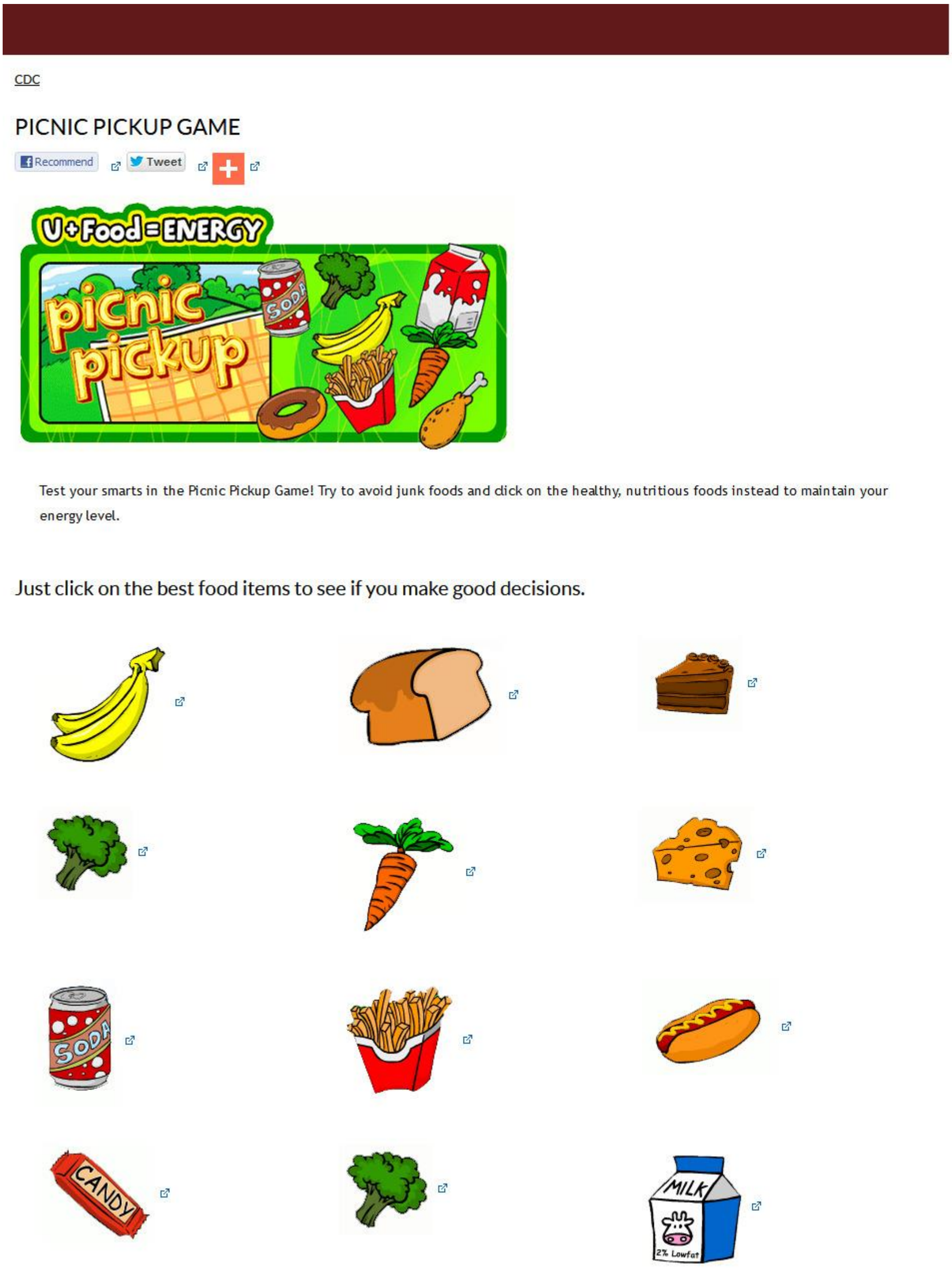


Fig. 14
Picnic Pickup Game from *BAM! Body and Mind*.

The use of these interactive resources makes "the world of health" appealing to children. As Webber (2018, p. 849) suggests, interactive websites as those under examination in this study are "a useful collection of interactive tools for teaching children that health is more than just an absence of illness and that actively taking care of their health can improve their quality of life now and for their entire lives".

6. Conclusions

The results emerging from the study provide evidence that on the two children's websites under examination the use of images supports health popularisation. The visual mode has an explicative as well as an appealing function. As we have seen, the verbal mode exploits the visual mode to render information more accessible to young readers and to contribute to their understanding. Images enhance the information transmitted and complete it with realistic details. However, as the analysis suggests, a significant difference between these websites exists in terms of the appeals they are making to children. *Health for Kids* relies heavily on the visual mode to appeal to very young children with colourful cartoon-like characters, while *BAM!* is based primarily on the verbal mode, as the target age group it addresses (children aged 9-12) is looking to learn for itself. This may find an explanation in the use of long information texts, interspersed with realistic illustrations, e.g. viruses, for instance, are shown with human-like facial expressions.

We could account for these differences on the basis of the websites' different approaches. As Webber (2018, p. 849) points out, the overall look and feel of *BAM!* "are consistent with the Centers for Disease Control and Prevention Web site, not a children's gaming site". On the other hand, the *Health for Kids* approach is geared toward supporting children's learning about health, using a large number of images that capture their attention. This orientation may have been influenced by the fact that primary school pupils from Leicestershire contributed to the design of the website. As Turner and Handler (1997, p. 33) observe, children, as authors, "develop their own hypermedia compositions. In the process, they learn not only about the topic of their composition but also about the elements of design that are important for communicating effectively in a visual environment".

Interestingly, the study provides clear evidence that both websites use similar strategies to popularise health knowledge to children. The strategies identified involve:
- features typically associated with science popularisation such as metaphors, both verbal and visual;
- linguistic features typical of dialogic interaction (i.e. *you*);
- the question-answer pattern.

It is commonly assumed that reading plays a fundamental role in the learning of concepts. Even though these websites are not necessarily intended to be used in schools, they clearly have an educational goal. The way the text is structured encourages both verbal communication (in the form of the children’s personal comments on the concepts explained in the text) and active participation of the young reader (i.e. the use of *you* in the text).

In conclusion, it can be observed that on these two websites the necessity of popularising knowledge is paralleled by the need to involve the addressees, so that the interactive nature of these websites and their games is also found in the popularisation strategies adopted. Children like to play games and compete against the computer (see the quiz). The images related to the games are used in a purely entertaining context. As the websites have shown, each mode of communication serves a different purpose: the image entertains, while verbal language educates (Buckingham, Scanlon 2004).

Since only two websites are used in this study, there are of course limitations to the generalisability of the results. It would be of interest to see how the verbal and visual modes are realised on other websites dedicated to specialised knowledge dissemination targeting at children, so as to collect further supporting evidence of the trends that have emerged from the present study as well as of other tendencies within and beyond those discussed above.

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KNOWLEDGE DISSEMINATION IN THE DINOSAUR TRAIN ANIMATED SERIES
How to popularise palaeontology for pre-school children

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Abstract – Paleontology is "the science of prehistoric life – of the fauna and flora of the geologic past" (Schindewolf 1993, p. 1), thus it is a complex, hybrid domain that combines methods of analysis from a wide range of disciplines, from the hard sciences (ex., biology, zoology, geology, chemistry, etcetera). Paleontology is also a discipline that is extremely popular among the general public, since "dinosaurs embody the drastic changes that life on Earth has undergone. Chasing after dinosaurs is really a quest to fill in part of our own backstory […]" (Switek 2014). Such popularity creates specific expectations in the public, who wants to receive reliable as well as enjoyable representations of their favorite prehistoric creatures. Children in particular are enthusiastic about dinosaurs as it is demonstrated by merchandise of all sorts, dedicated exhibitions, narrative and syllabus books, movies, websites, and TV shows. The present study investigates the animated series *Dinosaur Train*, chosen since it contains animated episodes and live action segments in which a real paleontologist gives scientific facts about the dinosaurs seen in each episode. Sample episodes are analysed verbally and visually: the verbal features are examined to identify the strategies of knowledge dissemination (KD) present in the series, while visual patterns were investigated through a multimodal analysis (Kress, van Leeuwen 2006; Baldry, Thibault 2006). In particular, the study considers the way(s) in which the series presents dinosaurs that are already well-known and those that are more unfamiliar. Results show that the popularity of the series is due to the structure of the episodes, composed of several phases, which make the series dynamic, thus suitable to young children's attention span, as well as to an accessible language that makes the stories interesting, also thanks to the representation of everyday situations lived by the dinosaurs that are already familiar to the viewers.

Keywords: knowledge dissemination; Palaeontology; multimodal discourse analysis; pre-school children; dinosaurs; ESP.

1. Introduction

Palaeontology is defined as "the science of prehistoric life–of the fauna and flora of the geologic past" (Schindewolf 1993, p. 1); it is thus a complex, hybrid domain combining methods of analysis from a wide range of disciplines that include biology, zoology, geology, chemistry as well as the Arts, and even computer science, given its core concern with realistic reconstructions of the appearance and living environment of dinosaurs.

Palaeontology has always been extremely popular with the general public, since “dinosaurs embody the drastic changes that life on Earth has undergone. Chasing after dinosaurs is really a quest to fill in part of our own backstory […]” (Switek 2014). This popularity creates specific expectations in the public, who wants reliable as well as enjoyable representations of these prehistoric creatures. Children, in particular, are enthusiastic about dinosaurs as demonstrated by merchandise of all sorts: dedicated exhibitions, books, movies, websites, and TV shows. In many cases, dinosaurs are anthropomorphised and cartoonised so that children can follow the stories and learn scientific facts easily and readily. This type of presentation of dinosaurs typically involves collaboration between artists and palaeontologists, who dig out the fossils, reconstruct and study the appearance and life cycles of these extinct animals scientifically, but who also work as consultants[1] in the edutainment[2] industry.

KD practices, especially when targeting lay audiences, consist in “a vast class of various types of communicative events or genres that involve the transformation of specialised knowledge into ‘everyday’ or ‘lay’ knowledge, as well as a recontextualisation of scientific discourse” (Calsamiglia, Van Dijk 2004, p. 370). The recourse to those resources is also known as popularisation. The state of the art investigating KD aimed at adults is quite abundant. However, the study of popularisation aimed at children is still in its infancy and, thus, the existing literature is relatively limited. Some studies have investigated the strategies employed to disseminate legal knowledge to young audiences (e.g., Engberg, Luttermann 2014; Sorrentino 2014; Diani 2015, 2018; Diani, Sezzi 2019), while Djonov (2008) has considered how to popularise expert knowledge in web-based educational environments. Other existing literature addresses methods on how to teach the theoretical aspects of the hard sciences (such as mathematics, physics, chemistry, biology, and so forth; cf. Myers 1989; Unsworth 2005) as well as their practical application to experiments and in real life (Curtis 1998; Hong, Diamond 2012; Fusaro, Smith 2018). Finally,

[1] An example is Prof Jack Horner, Palaeontology Professor at Montana State University (USA). He was a scientific consultant for the 1993 film *Jurassic Park* film directed by Steven Spielberg, as well as for the other films and books in the *Jurassic Park* franchise (http://www.jackhornersworldofdinosaurs.com/).

[2] Edutainment is defined as “a hybrid mix of education and entertainment that relies heavily on visual material, on narrative or game-like formats, and on more informal, less didactic styles of address” (Buckingham, Scanlon 2005, p. 46).

other studies focus on the dissemination of scientific knowledge on environmental issues (Bruti, Manca 2019) or in the domain of tourism communication (Cappelli 2016; Cappelli, Masi 2019).

So far, no linguistic study – to the knowledge of the present author – has yet attempted at investigating the linguistic, discursive, or pragmatic features that characterise the popularisation of scientific discourse in the domain of Palaeontology to preschoolers or to children in primary school. Two notable exceptions are a pilot study (Cesiri 2019) and this Chapter. Given that Palaeontology, with its concern with studying a lost species, is a visual science *par excellence,* it is important for research in general, and for ESP researchers in particular, to develop methods of analysis that allow conclusions to be drawn about the interplay between visual and verbal resources in the transmission of scientific knowledge. It is especially important for such methods to be applicable across the wide range of children's genres mentioned above which include a comparison of the strategies used in online edutainment and those used in classroom teaching.

The preliminary study mentioned earlier (Cesiri 2019) analysed how specialist knowledge in the field of Palaeontology, mostly concerned with dinosaurs, is disseminated to pre-school children. To this end, the animated series *Dinosaur Train* (Bartlett 2009-2017) was chosen, as it contains animated episodes and live-action segments in which a real palaeontologist presents scientific facts about the specific dinosaur depicted in each episode. A sample episode from one of the seasons in the series was analysed, both verbally and visually, in order to identify the knowledge dissemination (KD) strategies employed.

The results of this preliminary investigation led to the conclusion that further investigation was warranted. The present study thus investigates the series more extensively, systematically applying the same methods of analysis of the tie-up between verbal and visual resources but contrasting two kinds of episodes, namely those that present familiar species of dinosaur and those introducing unfamiliar, or recently discovered, species, and which therefore represent a greater challenge to young viewers in terms of their acquisition of the units of information/scientific facts involved. Indeed, the study is designed to conduct a fine-grained investigation into the KD strategies adopted throughout the series. The goal is to frame the series within a theoretical-methodological background in which the KD strategies identified are compared to teaching strategies. These techniques were already considered in the pilot study, and were thought to be one of the reasons behind the series' international popularity.

The Chapter is structured as follows: Section 2 offers an overview of the results from the previous study. Section 3 describes the structure of the live-action segment analysed, while Sections 4 and 5 present fine-grained visual and verbal analyses of the live-action segment. In both cases, a comparison with the previous study is drawn in order to highlight differences and similarities in the KD strategies identified in the two case studies. For the sake of brevity and clarity, the live-action segment investigated in the pilot study (Cesiri 2019) will henceforth be referred to as ‘CS1’ (Case Study 1), while the live-action segment analysed here will be called ‘CS2’ (Case Study 2). Finally, Section 6 compares the structure of a Montessori lesson to the structure of the live-action segment, highlighting the significance that the similarities have in enhancing the edutainment aspect of the series.

2. Preliminary results

Dinosaur Train is a US television series broadcast by the PBS (Public Broadcasting Service) that seeks to disseminate specialist knowledge in the field of Palaeontology to pre-school children. The series was chosen because every episode contains animated stories and live-action segments in which a real palaeontologist provides scientific facts about the dinosaurs seen in the animated part.

At present, the series comprises four Seasons, each with 89 episodes. The structure of each episode, which lasts around 30 minutes, is the same in every Season. The main topic in the episode is presented in two animated stories, each lasting 11 minutes but separated from each other by a short live-action segment (lasting around 90 seconds) featuring Dr. Scott Sampson, a real palaeontologist, who describes the aspect, behaviour and natural habitat of the dinosaurs seen in each episode.

All the episodes in the series follow the same structural pattern. The pilot study chose a representative episode, specifically the one presenting the Velociraptor species, assumed to be familiar to the young audience, since it appears various times in the series before the CS1 episode (Bartlett 2009-2017). Baldry, Thibault’s (2006) phasal analysis technique was used to identify the part of the episode in which KD is most prominent, namely the live-action segment in which the real palaeontologist provides scientific facts on dinosaurs and a group of children interacts with the palaeontologist by answering his questions or by reacting to his statements. This part of the episode is defined ‘live-action segment’, since it features real persons, while the rest of the episode shows CGI characters and is referred to as the ‘animated part’.

The pilot study focussed on the live-action segment: the verbal features were examined to identify the KD strategies present in the live-action segment, while visual patterns were investigated through multimodal analysis (Kress, van Leeuwen 2006; Baldry, Thibault 2006) in order to determine how the visual component integrated with the verbal KD strategies. Further analysis showed that the structure of the episodes, despite being relatively short, consists of several phases, which make the series dynamic and thus consistent with young children's attention span. The phasal structure is illustrated in Table 1. The episode starts with Phase 1, the opening phase, showing the opening credits, the series' theme song and an animation that introduces the main characters (a family of dinosaurs). The subsequent phase (Phase 2) shows the train conductor, another recurrent character, who introduces the story, anticipating the new characters appearing in the episode. Phase 3 shows the first events in the episode that lead to Phase 4 in which the family boards the train, going on an adventure initiated by events in Phase 3. Phase 5 shows the first part of the adventure, in which the family meets old and new friends and explores their world. This phase is interrupted by Phase 6, the live-action segment, in which Dr Sampson talks about the dinosaurs that the family meets in the episode. Phase 7 contains the second part of the animated episode, in which the story initiated in Phases 3 to 5 is completed and the family boards the train for the journey back home. Phase 8 ends the episode with the closing credits and closing theme song.

<table>
<tr><th>Phases</th><th>Description of Phases</th><th>Macrophases</th></tr>
<tr><td>Phase 1
(1 min. 10 secs.)</td><td>Opening theme song with specific animation and opening credits.</td><td rowspan="4">Macrophase 1</td></tr>
<tr><td>Phase 2
(1 min 10 secs.)</td><td>The Train Conductor anticipates the topic of the episode.</td></tr>
<tr><td>Phase 3
(49 secs.)</td><td>The family starts the day with an everyday event/activity. This prompts the journey depicted in the episode.</td></tr>
<tr><td>Phase 4
(4 mins. 25 secs.)</td><td>The family boards the train and the Train Conductor introduces their journey (essential information on era, species, etc.).</td></tr>
<tr><td>Phase 5
(11 mins.)</td><td>First animated story.</td><td>Macrophase 2</td></tr>
<tr><td>Phase 6
(1 min. 30 secs.)</td><td>Dr Scott (with real children and animations) gives more detailed information on dinosaurs/eras/species evolution.</td><td>Macrophase 3</td></tr>
<tr><td>Phase 7
(11 mins.)</td><td>Second animated story with funny conclusion to the episode</td><td>Macrophase 4</td></tr>
<tr><td>Phase 8
(29 secs.)</td><td>Closing theme song with end credits</td><td>Endphase</td></tr>
</table>

Table 1
Phasal Analysis of CS1.

The structure of the live-action segment and the discoursal choices in the script were critically assessed in terms of teaching techniques that were considered similar to the Montessori Method (Montessori 1912), whereby children/pupils are at the centre of the class and are stimulated to master the learning goals for their age thanks to direct interaction with the teacher and the materials used for the lesson. The structure of the live-action segment was compared to a typical Montessori lesson, and some interesting similarities were found. The Montessori lesson is generally divided into three ‘periods’. In the first two periods, the teacher names and indicates items (‘naming period’) that the children are subsequently asked to recognise and associate them to similar items in real life (‘recognition period’). In the live-action segment, these periods correspond to the subphases where Dr. Sampson presents the dinosaur and describes its main physical features and then asks the children to name present-day animals with similar characteristics.

In the third period of a Montessori lesson, the ‘testing period’, the children are stimulated by the teacher to revise the concept acquired in the first two periods through specific questions. This period corresponds, in the live-action segment, to the subphase where Dr. Sampson further remarks on the dinosaur’s features or behaviour, waits for the children’s reaction and, then, provides more feedback after their reaction (see Cesiri 2019).

3. The present study

The rigid repetition of the same phases in each episode indicates the emergence of a genre structure that characterises this edutainment series, concerned with “encouraging basic scientific thinking skills as the audience learns about science, natural history and palaeontology” (http://www.pbs.org/parents/dinosaurtrain/about/).

The parallel between the generic structure and the generic structure of the Montessori lesson would appear to confirm what was posited in the pilot study, namely that the resemblance between the two structures is not casual but instead indicates a specific choice on the part of the series creators.

The investigation conducted in the present study seeks to confirm this by examining another episode in the *Dinosaur Train* series, namely the episode with the Ornithomimus species as the protagonist in the live-action segment. This episode was chosen as being representative of the less familiar species of dinosaurs, introduced, that is, to the audience of pre-schoolers for the first time in the series. As in the case of the ‘familiar’ species of Velociraptor, the live-action segment lasts 90 seconds and is positioned in the middle of the animated story. The phasal analysis of the CS2 episode is illustrated in Table 2.

Phases	Description of Phases	Macrophases
Phase 1 (1 min. 10 secs.)	Opening theme song with specific animation and opening credits.	Macrophase 1
Phase 2 (1 min 08 secs.)	The Train Conductor anticipates the topic of the episode.	
Phase 3 (51 secs.)	The family starts the day with an everyday event/activity. This prompts the journey depicted in the episode.	
Phase 4 (4 mins. 15 secs.)	The family boards the train and the Train Conductor introduces their journey (essential information on era, species, etc.).	
Phase 5 (11 mins.)	First animated story.	Macrophase 2
Phase 6 (1 min. 28 secs.)	Dr Scott (with real children and animations) gives more detailed information on dinosaurs/eras/species evolution.	Macrophase 3
Phase 7 (11 mins.)	Second animated story with funny conclusion to the episode	Macrophase 4
Phase 8 (29 secs.)	Closing theme song with end credits	Endphase

Table 2
Phasal Analysis of CS2.

Table 2 clearly shows that episode structure in CS2 is identical to that identified in CS1. This reinforces the idea of a genre structure typical of the series as is also demonstrated by the position of the live-action segment. In CS2 too, it coincides with Phase 6, thus confirming its function as the KD phase that marks the centre of the episode and which, according to Cesiri (2019), is pivotal in helping children to assimilate as it contextualises what they see in the episode and associates the dinosaur's features and behaviour to what children are already familiar with.

4. Visual Analysis

The phases identified in Tables 1 and 2 can potentially be analysed in terms of subphases (Baldry, Thibault 2006). While expectations about a rigid structure at the higher level of textual organisation (phases and macrophases) were confirmed, it was less certain whether the organisation of the micro-units would follow a similarly rigid sequencing. To understand this it was necessary to turn up the text microscope to a higher level of magnification.

In the pilot study on CS1, a circular structure in the live-action segment was identified, in which Dr Sampson appears with a small group of children and a static, brightly coloured cartoonised drawing in the background of the dinosaur described in the live-action segment. After a brief salutation, Dr. Sampson proceeds with some facts about the dinosaur, alternating with brief interactions with the children, followed by more facts, the final greetings and an invitation to watch more episodes in the series. This structure was also identified in CS2, however, with some substantial differences in the central part of the live-action segment. Table 3 illustrates the methodology used to represent this level of text analysis, with a sample from the analysis of CS2.

T	FRAMES	PARTICIPANTS & PROCESSES	ORAL DISCOURSE	SOUND	KINESICS & PROXEMICS
1→6		Dr. Sampson looks at the kids with a picture of Velociraptor in the background. The kids stare in different directions.		Back-ground tune	Dr. Sampson's gaze directed at kids. He stands in a relaxed, friendly position. Kids stare in different directions. They stand distractedly.
7→14		All but one of the kids turn towards Dr. Sampson, while he addresses the viewers	Dr Scott: Hi!		Dr Sampson's and one of the kids' gaze is directed at viewers. The other kids stare at Dr Sampson.

Table 3
Example of the multimodal transcription of the live-action segment.

The following visual analysis describes the structure of CS2, at the same time drawing a parallel analysis with the frames in CS1 in order to highlight the differences and similarities in the two live-action segments. After the salutation, which is present in both live-action segments, the first sequence starts with Dr Sampson who introduces the first, brief facts on the species of dinosaur presented in the episode (Table 4).

	

Table 4
Dr Sampson and the children: (a) left, CS1 (b) right, CS2.

In both, Dr Sampson appears full figure, dressed in the same way. The children in the two live-action segments are different, but are dressed in a similar way and, in both live-action segments, belong to the age group that the series targets, namely pre-schoolers (4 to 6 year olds). The frames in Table 3 show the moment when Dr Sampson utters the first scientific facts about the dinosaur: his gaze is directed at the viewers, while the children look at him. In (a) and (b) in Table 4, the dinosaur appears in the background, represented by a static drawing that illustrates its physical characteristics but which lessens the impact thanks to the use of pastel colours (pink in CS1 and azure in CS2).

Figure 1
Dr Sampson asks questions and a child replies in CS1.

The next sequence in the two live-action segments contains the first differences. While in CS1 Dr. Sampson asks questions and one of the children replies (Figure 1), in CS2 more details are provided by the palaeontologist alone, who, is shown with a head and shoulders view, staring at the dinosaur and pointing out the features he is describing (Figure 2).

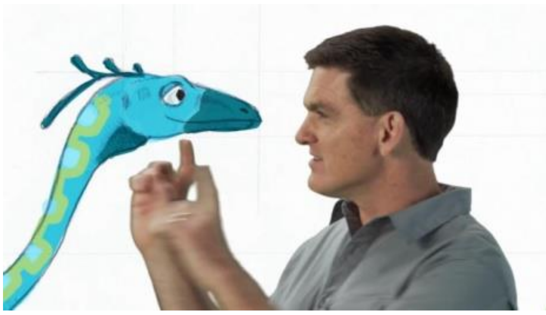

Figure 2.
Dr Sampson describes the 'unfamiliar' species of dinosaur in CS2
instead of asking children questions.

Another difference lies in the enunciation of the name of the dinosaur, which occurs in the next sequence of frames. In CS1, (a) in Table 4, the 'familiar' Velociraptor is named by the palaeontologist when he first describes the animal. In CS2, instead, the palaeontologist states the 'unfamiliar' name of Ornithomimus, but a light-blue inscription then appears in the background in capital letters with the name of the dinosaur and the name gets repeated (slowly and clearly articulated) by all the children appearing in the live-action segment.

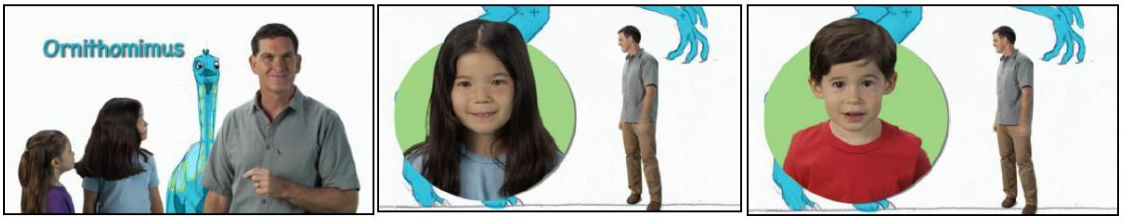

Figure 3.
Dr Sampson and the children repeat the name of the dinosaur in CS2.

Figure 3 shows the name repetition sequence, i.e., the dinosaur is named first by Dr Sampson and, then, by the children. In the first frame, Dr Sampson utters the name of the dinosaur, which is repeated in a clear, coloured font in the background. He looks at the viewers, while the two girls look at the dinosaur and its name. In the next frames, Dr Sampson is shown full figure while gazing at the children, who appear in circles while they repeat the name of the dinosaur for the young audience. Even though Figure 3, owing to space constraints, shows just two of the children, all the children shown in Table 3 (b), and thus participating in the live-action segment, re-appear in the green circle when they repeat the name. The dinosaur is only partially shown, its back legs and front paws are a simple metonymic reminder of the rather large protagonist shown full size in the live-action segment.

The next sequence is also consistently different in the two live-action segments. At this point, CS1 shows Dr Sampson asking the children some more questions, such as naming present-day animals with similar characteristics to those of the dinosaur under description (see Figure 1 above and Figure 4 below).

Figure 4.
Dr Sampson asks more questions and one boy replies in CS1.

This sequence is followed by a comic moment in which some funny remarks by Dr Sampson are corrected in a serious manner by a Man with a Hat who enters through a computer-generated door (Figure 5).

Figure 5.
Dr Sampson and the Man with the Hat's entrance in CS1.

Cesiri (2019) indicated this moment as one of comic relief. The comic effect was created by the contrast between the palaeontologist's relaxed and friendly behaviour and the rigidly serious attitude of the Man with the Hat. The comic moment is further enhanced in the next sequence in which Dr. Sampson confirms the facts pointed out by the Man but also adds some more funny remarks to which the children react enthusiastically.

These two sequences are completely absent in CS2. The sequence in which Dr Sampson asks questions (and the children reply) is replaced by a sequence in which Dr Sampson is shown alone (in full- or half-figure) with two different parts of the dinosaur, while he describes these body parts to his young audience (Figure 6).

Figure 6.
Dr Sampson illustrates more facts in CS2.

This sequence is followed by another sequence in which the children are involved in the exposition of scientific facts. The first moment involves indirect and limited interaction (Figure 7).

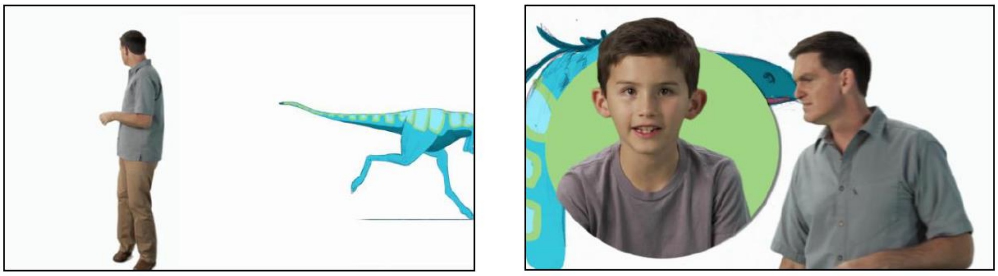

Figure 7.
Dr Sampson and one of the boys interact.

In this sequence, the dinosaur runs off screen, to Dr Sampson's surprise, at the very moment when he is describing its running skills. Dr Sampson asks "where did it go?" and the boy who enters the frame in a green circle utters "here it is!", while the green circle in which the boy's bust is enclosed slides down the frame from the top to the bottom of the screen.

The palaeontologist then starts asking the children questions. For instance, in CS1 he asks the children to name living species of animals that share similar characteristics to Ornithomimus. However, in CS2 (Figure 8) the interaction is more complex than in CS1. While in CS1 only two boys replied and both were shown with pictures of the actual animals in the background (see Figures 1 and 4), in CS2 three children reply. However, only one is shown together with the picture of the 'present-day' animal. In this case, the ostrich is shown to the public because a detailed comparison of the characteristics of both Ornithomimus and ostriches is provided by Dr Sampson in the next sequence, in which he appears alone as in the first frame, top left corner, in Figure 8.

Figure 8.
Dr Sampson asks questions and the children reply.

A long sequence follows in which Dr Sampson is alone, while he explains other features of the dinosaur, interrupted only by a very brief sequence in which all the children appear together (without the palaeontologist) in the frame shouting "go, ostrich!" as if supporting the ostrich in a sports event. In this sequence, illustrated in Figure 9, the ostriches are represented as static images. The fact that they are represented as fast runners is symbolised by a sound effect that recalls a running movement and which also adds a comic effect as it indexes the sound effects used in cartoons to indicate characters' on-screen actions.

Figure 9
The children support the ostrich. A 'running' sound is audible.

The live-action segment then comes to an end with the salutation sequence, in which Dr Sampson and the children are once more shown together in the same frame. Dr Sampson greets the viewers while he runs away, trying to match the dinosaur's speed, while the dinosaur itself runs off screen (Figure 10). In CS1, this sequence is a repetition of the one shown in (a) in Table 4, in which Dr Sampson looks at the viewers while he stands still and invites the public to follow more *Dinosaur Train* stories.

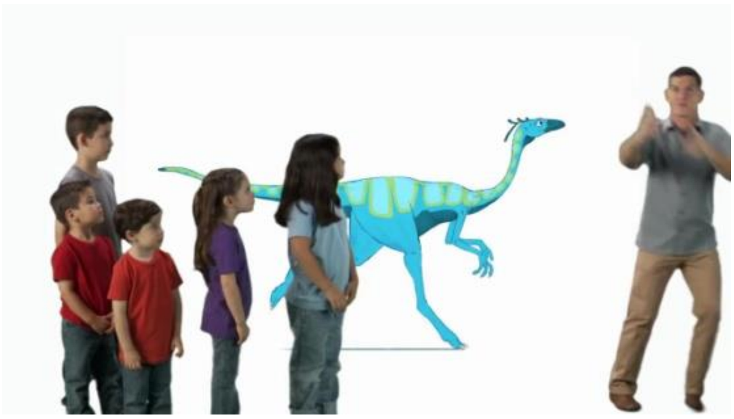

Figure 10.

Closing sequence 1.

5. Verbal analysis

The analysis on the verbal component of the live-action segment was conducted by contrasting the discursive features of KD (a.k.a. popularisation) identified in the relevant literature (e.g., to name only a few, Myers 2003; Calsamiglia, Van Dijk 2004; Giannoni 2008; Gotti 2013; Kermas, Christiansen 2013; Bhatia et al. 2015) as generally typical of the popularisation strategies in scientific discourse. In particular, the strategies identified by Gotti (2013) are used in this Section as framework to identify and investigate the KD strategies employed in the live-action segment.

One of the features that helps distinguish a specialised text from a popularised one is the reference to general categories of scholars and concomitant absence of any mention of the names of individual scholars. as is evident in Example (1) from CS2:

(1) In fact **scientists** think that Ornithomimus may have been one of the fastest dinosaurs ever (emphasis added).

This example also contains another feature typical of popularising texts, namely the use of hedging devices that are used to highlight a statement's tentativeness. In Example (1), the modal verb 'may' is used to describe those characteristics of dinosaurs that have been posited or reconstructed by palaeontologists from the observation of their fossilised remains and parallel examination of living creatures with similar characteristics. This strategy is present in the live-action segment in general, when Dr Sampson compares Ornithomimus to ostriches, as illustrated in Example (2):

(2) Most of the time ostriches can easily escape any predators trying to catch them and Ornithomimus was probably the same.

We can see in the example that the certainty of the ostriches' running ability ('can easily escape') contrasts with the tentative interpretation of the Ornithomimus's skills ('was probably the same'). As already pointed out in Cesiri (2019), the use of tentative expressions to lessen the force of a statement may be attributed to the informative nature of popularising texts, in which scientific information is presented rather than discussed (cf. Gotti 2013).

Fundamental, as regards conveying complex concepts in the clearest and most concise way, is the recourse to the use of figurative language. However, even though they were used several times in CS1, there are no occurrences of figurative expressions in CS2. There is, instead, just one instance of comparison indicated in bold type (emphasis added) in Example (3):

(3) Kangaroos and humans, that is people like you and me, both move around on their back legs but there is one bipedal animal, **a big bird that looks a whole lot like Ornithomimus**.

In this case, the comparison with a living animal is essential in allowing children to understand the abilities and functions of the physical features described for the ‘unfamiliar’ dinosaur by anchoring this new idea to children’s reality and experience.

Another feature typical of popularising texts, found both in CS1 and in CS2, is the use of general terminology, as in Examples (4) to (6) from CS2:

(4) It was really fast;
(5) Both have a small head a long neck and strong legs and they both ran really fast;
(6) Outrunning meat-eaters like T-Rex.

As the examples illustrate, preference is given to a general description such as ‘really fast’, ‘small head’, ‘long neck’, ‘strong legs’, ‘meat-eater’, expressions that are preferred over corresponding monoreferential terms (cf. Gotti 2013). This is all the more evident in the use of the technique of juxtaposition (*ibid.*), absent in CS1, to introduce domain-specific expressions that might easily be unknown to pre-schoolers. This is shown in Examples (7) and (8):

(7) Ornithomimus was bipedal **which means that** it moved around on its two back legs and those back legs were very long, great for running fast;
(8) Kangaroos and humans, **that is** people like you and me.

The bold-typed expressions (emphasis added) show that the domain-specific term is, first, introduced (‘bipedal’ and ‘humans’) and, then, signalling expressions (‘which means that’ and ‘that is’) are used to alert the audience’s attention, to the fact that an explanation in more general and simplified terms is about to follow.

6. Discussion

The analysis of the Ornithomimus episode in CS2, along with its comparison to the Velociraptor episode in CS1, has shown that KD strategies are used extensively in the live-action segments, particularly in the case of 'unfamiliar' species. KD is achieved thanks to the use of the juxtaposition technique, "a process whereby the specialised term is followed by its periphrasis" (Gotti 2013, p. 209). In the case of CS2, juxtaposition is used to explain terms and concepts that are presumably unknown to the young audience that the series addresses, as is the case of Examples (7) and (8), in which Dr Sampson first uses the specialised term (bipedal and human, respectively) and subsequently adds a periphrasis that explains children the meaning of these terms. This strategy was not used in the case of the 'familiar' species of dinosaurs in CS1, in which the comparison of present-day animals was more accentuated in order to allow children to draw a more direct connection between extinct animals and living ones.

Moreover, the differences between CS1 and CS2 also involve the relationship between the palaeontologist, the children, and the viewers. In the case of CS1, the interaction between the participants seen in the live-action segment is more limited, since Dr Sampson addresses viewers more frequently than the group of children. In CS2, instead, the viewer takes on the role of a spectator, since the palaeontologist and the children interact with greater frequency. This is further underscored by the direction of the palaeontologist's gaze: in CS1 he looks predominantly at the viewers, engaging with them more directly than in CS2, where he prefers to look at the children next to him. In addition, in CS2, more facts and scientific information are provided by Dr Sampson than in CS1, in which the more serious role of scientific informer is performed by the Man with the Hat, a sequence that is completely absent in CS2. Finally, the children in CS2 are more actively involved in answering Dr Sampson's questions, which he directs to the children in the frame and, unlike CS1, not to the viewers.

If we look at the kind of interaction taking place between the palaeontologists and the children in the live-action segment in CS2, similarities between the Montessori lesson and the live-action segment become all the more apparent than in CS1. The 'naming period' in the lesson coincides with the sequence in which Dr Sampson ('the teacher') names the dinosaur and describes its features. This is illustrated visually, in Figures 4 and 5, verbally as in Example (1), and in the following line at the beginning of the live-action segment:

(9) Dr Sampson: Hi there I'm Dr Scott the palaeontologist and this is Ornithomimus. -- Children take turns in repeating the dinosaur's name -- Dr Sampson: The most important thing to know about Ornithomimus is that it was really fast.

The 'recognition period' is represented in the subphases of the live-action segment in which the palaeontologist-teacher asks the children-pupils specific questions, and the children eagerly answer, as in Figures 7 and 8 above, and in the following interaction:

(10) Dr Sampson: Can you think of any bipedal animals alive today? -- Girl 1: Kangaroos -- Girl 2: Humans.

Dr Sampson then proceeds with his exposition of scientific facts about the dinosaur and asks further questions, to ascertain whether the children have really grasped the parallel between Ornithomimus and living animals, as in the following example:

(11) Dr Sampson: Yup! Kangaroos and humans, that is people like you and me, both move around on their back legs but there is one bipedal animal, a big bird that looks a whole lot like Ornithomimus… -- Boy: Ostrich! -- Dr Sampson: Exactly! The ostrich and Ornithomimus have plenty in common: both have a small head a long neck and strong legs and they both ran really fast.

In this interaction, the palaeontologist does not ask any questions but lets the boy finish his sentence, thus ascertaining that his explanations were being followed by the children, that they could make the correct association between dinosaurs and living animals, and that they could answer accordingly. Dr Sampson's subsequent explanation serves as feedback for the children's answers and builds on what he had already said thanks to the addition of more facts that complete the children's knowledge on the subject. This phase can be compared to the 'testing period' of the Montessori lesson, in which the core topic of the lesson is fixed by the teacher, who also assesses that the learning goals of the lesson have been reached by the pupils (see Montessori 1912).

7. Conclusions

The present study has investigated one part of an episode in the *Dinosaur Train* animated series for pre-school children. The goal was to further investigate the KD strategies adopted in the series as already analysed in a pilot study (Cesiri 2019). More specifically, the live-action segment was investigated, in which a real palaeontologist gives an analytical presentation of the dinosaur that is the protagonist in the animated parts that make up the bulk of a specific episode.

The first study, CS1, ascertained that, when presenting a 'familiar' species of dinosaur, the KD verbal strategies employed in the live-action segment are those typical of the language of popularisation of scientific discourse. This further confirms what other studies have recently found out in other genres and media (Bruti, Manca 2019; Masi 2019), namely that these strategies are now commonly used to disseminate scientific knowledge to children. It is unsurprising, then, that the same features were found in the second live-action segment, CS2, investigated in the present study, in which an 'unfamiliar' species of dinosaur is presented to children. The verbal strategies were the same as those found in the first study with the addition of juxtaposition, which is particularly productive in popularising texts since it allows experts in a certain domain to transmit new, specialist concepts to a public of non-experts (see Gotti 2013).

Visually, the two episodes showed some differences. In CS1 the palaeontologist tends to engage the viewers' attention, while in CS2 the children appearing in the live-action segment are involved in an interaction with the adult through direct questions to which they answer as if during a classroom lesson. In general, the live-action segment of the second episode analysed is more educational and less entertaining than the first episode, as demonstrated by the absence of the comic moment with the Man with the Hat. This absence might well indicate that possible 'disruptions' tend to be avoided when a new species of dinosaur is being introduced to the children.

The comparison between the episodes in the *Dinosaur Train* series and the Montessori method of teaching pre-school children is, of course, tentative. Despite the striking resemblance found, first, in CS1 and, then, further confirmed and reinforced in CS2, we would need more evidence to corroborate this hypothesis, such as the analysis of the animated parts in the episodes, to ascertain whether KD strategies are adopted in those parts, and, if so, how they are structured both before and after the live-action 'interlude'. Moreover, considering that both the animated parts before this short interlude each last 11 minutes, it would be interesting to see if the duration of the various parts somehow influences the KD strategies. In addition, other similar series might be analysed with a similar approach to see if this tendency to reproduce a Montessori three-period lesson and to use KD verbal strategies characterises the genre or whether these characteristics are specific to the *Dinosaur Train* series.

Finally, it would also be interesting to interview the creators of the series to see if the similarity to the Montessori lesson was intentional or casual. In this latter case, a first attempt at contacting the creators was undertaken by the author, but so far to no avail.

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HOW TO DO THINGS WITHOUT WORDS
Multisemiotic visualization in LEGO *vs*. IKEA building instructions*

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Abstract – This study explores LEGO and IKEA building instructions within the broader landscape of multisemiotic qualitative data visualization practices. Building instructions are defined as procedural texts, in which an encoder plans ahead how a practical action is to be undertaken in the real world, and as cognitive protocols, guiding users in the performing of complex tasks by way of rescaling the latter in a sequence of smaller problems, and therefore turning representation into action. The peculiarity of LEGO and IKEA building instructions lays however in the multisemiotic mix through which they perform their referential and instructional functions, which does not comprise verbal language. By way of multisemiotic visualization strategies, LEGO and IKEA building instructions present numerical, topographical, analytical and processual meanings in synoptic, integrated fashion, so as to allow the grasping of articulated data sets on the part of the user. Incorporating Systemic Functional Grammar, classic Social Semiotics and Cognitive Discourse Analysis, this study analyses and contrasts the ideational and interpersonal processes through which LEGO and IKEA building instructions codify empirical phenomena and procedures in such a way as to get unspecialized users to obtain a complete and concrete object from a box of scattered pieces. Attention is finally given to the overarching cultural and epistemological tendency that may be detected behind the fast-growing diffusion of visualization in today's information dissemination practices, i.e. the spatialization of temporal processes.

Keywords: qualitative data visualization; multisemioticity; Cognitive Discourse Analysis; procedural discourse; spatialization of temporal processes.

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1. Introduction: building instructions as referential and instructional protocols

This is an exploratory investigation of LEGO and IKEA building instructions as a case study in multisemiotic data visualization (Benking 2005; Vertesi 2014). Based on the coaxing of empirical phenomena into visual patterns and schematizations (such as, for instance, graphs, maps, charts, or scripto-visual products), data visualization can be quantitative (as with graphs and charts; Tufte 1997, 2001) or qualitative (as with conceptual maps or infographics; Coopmans 2014). Enabling a synoptic and integrated presentation of numerical, topographical, analytical and/or processual knowledge in terms of spatial patterns, relationships, networks and hierarchies, qualitative visualization plays a crucial role in today's information dissemination processes, as is testified by the diffusion of new products and genres, such as digital infographics, in both general and specialised discourse (Friendly 2009).

This study considers the multisemiotic strategies deployed by LEGO and IKEA building instructions on the ideational and interpersonal level (Halliday 2002, 2004), with a view to exploring the procedural and cognitive features of visualization strategies in lay, asymmetric contexts such as the entertainment and home environment industry. In particular, the study analyses their referential and instructional functions, with a focus derived from Systemic Functional Grammar (SFG; Halliday 2002, 2004), in combination with Social Semiotics (Kress, van Leeuwen 1996; van Leeuwen 2005) and Cognitive Discourse Analysis (McKay 1999; Taylor, Tenbrink 2013; Tenbrink, Taylor 2015).

Both LEGO and IKEA sell their products with step-by-step illustrated instructions, guiding users on a conceptual path towards the practical process of building an object, be it for recreational ones (as with brick building), or technical reasons (as in the case of self-assembly furniture). Customers buy a box of pieces that must be assembled following a precise procedure until the object is ready for use. As a text type, building instructions are therefore procedural protocols in which an encoder shows users how to do something, thus planning ahead how an action is to be undertaken in the real world (Pillegaard, Frandsen 1996; Werlich 1976). But they also encode a cognitive process: they display "a given declarative representation" and transform it into action (Tenbrik, Taylor 2015, p. 3). The process through which their cognitive architecture guides users in carrying out complex tasks has been investigated by problem solving studies (McKay 1999; Taylor, Tenbrink 2013). In particular, it has been shown that they reduce the complexity of a problem by way of progressively rescaling and retargeting it into an ordered sequence of smaller problems, each of which is therefore reconceptualized and simplified. Building instructions, in other words, offer “a breakdown of the original problem into separate solution steps […] delineating a predetermined solution path” (Tenbrink, Taylor 2015, p. 3).

The pragmatics of building instructions may hence be placed along a continuum between the referential and the instructional function (Gotti 2003; Pérez-Llantada 2020). On the one hand, they have an informative mission in practical contexts, i.e., the transferring of procedural meanings that have to be orderly, complete and comprehensible in order for the user to grasp and reproduce the progressive configuration of the pieces to be put together. A typically reader-based and writer-responsible genre (Schnurr 2013), building instructions instantiate an interplay between an informative demand on the part of the user (‘How do I get from a box of pieces to a complete and concrete object?’) and a corresponding informative offer. On the other hand, they are in fact meant for lay audiences, expected not to have any specific expertise about given contexts. LEGO products, for instance, would hardly expect their embedded end-users to be conversant with engineering, as much as IKEA customers are expected not to be carpentry professionals. To overcome this knowledge gap, building instructions textualize meanings in a clear, schematic and concise way (by way of bullet points, numbering, lettering, etc.), in order for users to understand and perform certain actions and achieve certain results.

A widespread strategy in this respect is the use of multisemiotic resources typical of data visualization, such as graphics (arrows, lines, signs, etc.) and visuals (pictures, sketches, etc.), which, combined with verbal language – as research in multiliteracy and resemiotization processes has shown (see for instance Iedema 2003; O’ Halloran 2004; O’ Halloran, Kay, Tan, Wignell 2016; Rowley-Jolivet 2004) – integrate and facilitate the transmission of meanings. Moreover, if these can be transferred through purely graphic and/or figurative language, instructional texts may avoid resorting to verbal language. This is precisely the case with LEGO and IKEA building instructions, in which there are no words, design being – in itself – information (see Neuenschwander 1993). For this reason, LEGO and IKEA building instructions may be defined as multisemiotic cognitive protocols disregarding the use of verbal language.

In particular, the numerical mode (i.e. mathematical symbols, formulae or tables) provides conventionalised visibility to empirical data, in the form of analysable quantities and comparable proportions (Bertin 2011; O’ Halloran 2008; Rowley-Jolivet 2002). In terms of the cooperative maxims that rule referential communication, numbers anchor representation to the principle of Quantity (Grice 1975, p. 45). The figurative mode, due to its high degree of iconicity (a multifaceted, synchronous referential load, pivoting on the selection of criterial aspects of reality, and calling for disambiguation on the part of the viewer), instantaneously singles out and objectifies complex contents – i.e. spatial and functional relationships – which would take time to interpret and decode if articulated in verbal language (Arnheim 1969; Diana, Reder 2004; Rowley-Jolivet 2002, 2004). This guarantees that the maxim of Relation (or relevance of information provided; Grice 1975, p. 46) is respected. Graphical language, on account of its monosemic, eidetic and stylised character, encodes phenomena in synoptic fashion, disambiguating and synthesizing them in terms of logical, hierarchical and systemic relations (Bertin 2011; Tufte 1997, 2001). In objectifying the adherence of figurative and numerical representation to the segment of reality they are meant to codify, the overarching language of graphics ensures both Quality (accuracy) and Manner (perspicuity) of information (Grice 1975, p. 46).

In LEGO and IKEA building instructions, mathematical symbols obviously specify how many pieces have to be put together; figurative signs clarify the functional and mechanical connections among components; and graphic elements outline the proper sequence of manual movements to be performed in order to achieve the expected result. The resulting simultaneous articulation of computational, relational and procedural meanings allows for a facilitated and accelerated encoding (and grasping) of data and processes. The latter can thus be conveyed even outside the temporality and sequentiality of the scriptural medium, which is by tradition associated with the representation of time-based referents (Mitchell 1980). As opposed to more traditional data visualization genres such as scientific infographics, which pivot on visual-cum-verbal hybridity, LEGO and IKEA's multisemiotic style leaves the use of verbal language aside. The synoptic and systematic visual processing of factual or conceptual knowledge (Diana, Reder 2004, p. 200) seems to override the traditional verbal component of multiliteracy products and genres. LEGO and IKEA building instructions pivot on a principle of pure "visuospatial thinking" (Taylor, Tenbrink 2013, p. 189). Their instructional format is meant to interact with the audience's "imagery cognitive style" (Bergen, Lindsay, Matlock, Narayanan 2007, p. 734), that is, their growing inclination – while thinking and acting –to understand and process information by means of mental pictures, instead of verbal constructs.

As mentioned above, the three-legged multisemiotic style of LEGO and IKEA building instructions is designed to perform important referential and instructional functions that work – in the SFG framework – on the ideational and interpersonal level. At the ideational level, dealing with how segments of an experiential world are represented by signs (Halliday 2004, p. 29), building instructions carry out their referential task: they use numbers, pictures and graphics in order to show users *what it is* they are building. At the interpersonal level, accounting for social and communicative processes performed by language (Halliday 2004, p. 29), building instructions accomplish their instructional task, especially by way of directions and caveats (Jary, Kissine 2014; Van Olmen, Heinold 2017). That is to say, they use numbers, pictures and graphics to instruct users as to *how to proceed* in building what they set out to build.

In the light of the above, this study will investigate the genre of building instructions across different linguistic strata (ideational and interpersonal), semiotic modes (numerical, graphical, figurative) and pragmatic functions (referential and instructional). In particular, the following research questions will be addressed: How differently does the multisemioticity of LEGO and IKEA building instructions encode meanings? How do numbers, pictures and graphics replace words in showing users what object they are building (referential function) and in guiding them (instructional function) to assemble the pieces until the object is complete?

In order to address such questions, this study will analyse and compare how LEGO and IKEA building instructions codify and transfer one common referent, i.e. How does one assemble a kitchen cabinet?

2. Materials

A qualitative analysis will be carried out, in order to contrast LEGO and IKEA multisemiotic strategies in visualising a common referent, i.e. a kitchen cabinet. In order to do so, two sets of instructions for building the same type of object have been downloaded from the Web in PDF format (see Fig. 1 and Fig. 2).[1] The specificity of their multisemiotic style will be defined in the next two Sections.

2.1. LEGO multisemioticity

The LEGO kitchen cabinet comes from a larger set of bricks for building the pseudo-domestic environment of a surfer camper van, in which there is a mini stove-and-oven kitchen module (see Fig. 1).

On neutral background, LEGO building instructions (see Fig. 2) combine the numerical, figurative and graphical modes. They unfold through numbered boxes, each of which displays one step in the assembly procedure. Typological and numerical information (i.e. which pieces to put together, and how many of them) is typically given at the top of the box, usually inside a

[1] Downloaded from https://www.lego.com/en-us/service/buildinginstructions/search#?text=31079%2520Sunshine% 2520Surfer%2520Van%2520LEGO%2520Creator and https://www.ikea.com/gb/en/assembly_instructions/metod-base-cabinet -for-built-in-oven-sink__AA-2119848-1_pub.pdf

smaller box in a different shade of the same colour (see Fig. 2), while graphical devices (typically arrows, which have the transactional equivalence of ‘clicks’) connect it to the picture of the object being built, and show where they fit.

Figure 1
LEGO Surfer Camper Van building instructions (cover page).

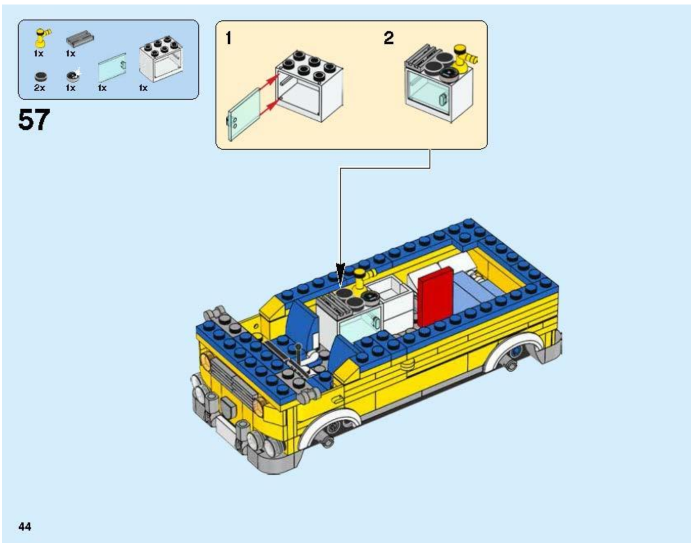
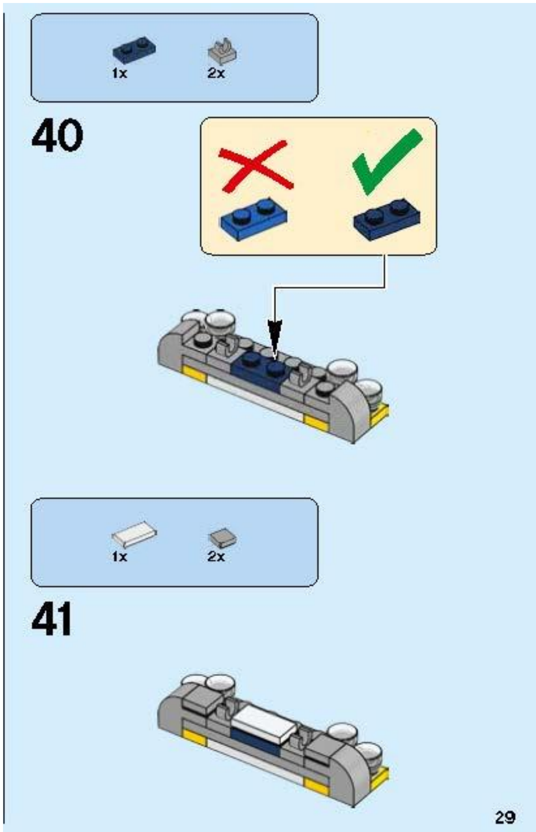


Figure 2
LEGO building instructions (detail).

Items are illustrated in photorealistic high definition and in frontal isometric perspective, which emphasises the object’s functional and dynamic construction (Kress, Van Leeuwen 1996, p. 85), whereby arrows or other types of vectors are features of directionality signalling the occurring of particular processes. If the action represented in the box consists of more than one step, it is split up in further sequencing, indicated with the numbers 1, 2, 3, etc. (This additional information comes in smaller boxes in a different colour, which work as magnifying glasses revealing close-up details of the procedure, reconceptualising complex instructional steps by adding supplementary perceptual information, i.e. boosted vision). Graphical elements, such as icons, finally work as visual directives throughout, providing dos and don’ts (Jary, Kissine 2014) – as in the case of tick *vs*. X marks (see Fig. 3), disambiguating right *vs*. wrong, or the double curved arrow signalling ‘turn model around’ (see Fig. 4).



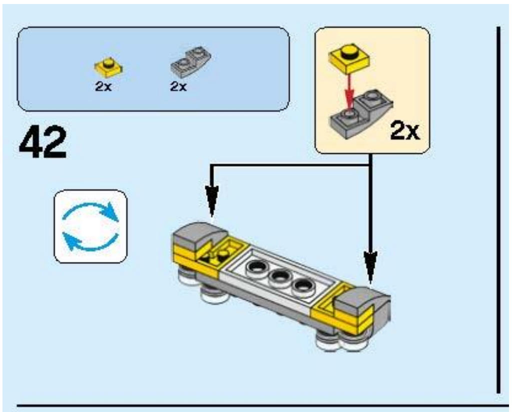


Figure 3 and Figure 4
LEGO building instructions (detail).

2.1. IKEA multisemioticity

The IKEA cabinet, suited for built-in stove-and-oven appliances (40x40x60 cm), belongs to the METOD modular system series (see Fig. 5).

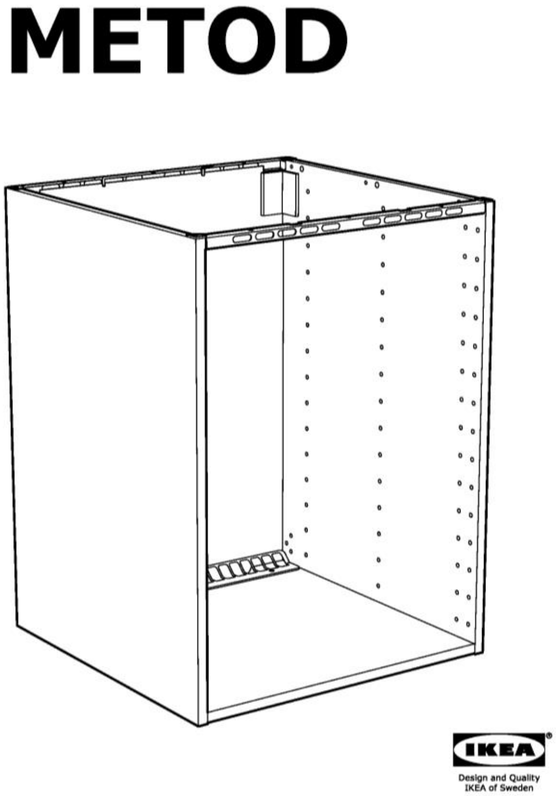
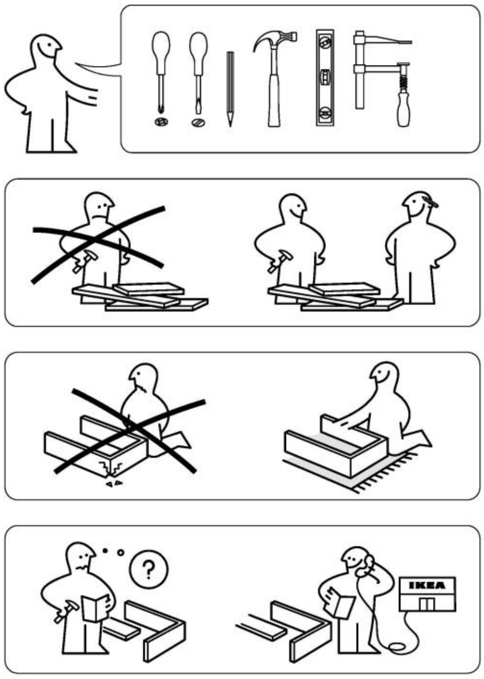


Figure 5
IKEA Metod Series building instructions (cover page).

IKEA building instructions also revolve around a mix of numerical, figurative and graphical signs. On a white background and in monochrome, they also unfold through numbered boxes. They present typological and numerical information, typically condensing it at the beginning of the document, in the fashion of a preliminary 'What's inside the box' section (see Fig. 6). They also feature graphical language: lines (not arrows) conjoining pieces that fit together; manicules (or pointing indexes) specifying the spot where pieces fit in the model; thought balloons, expressing possible hesitations on the part of the customer; speech balloons, working as magnifying glasses for close-up procedural details; and icons, such as the curved arrow signalling 'turn object around' and the X for 'don't do this' in Fig. 6 and Fig. 7.

With respect to LEGO, IKEA instructions make a more extensive use of figurative language, providing drawings in either technological (see Fig. 7) or naturalistic fashion (see Fig. 8), or, as can be seen in Fig. 6, in a cartoonlike style that is reminiscent of Osvaldo Cavandoli's celebrated 1970s *La linea* (see Pozzo 1995).



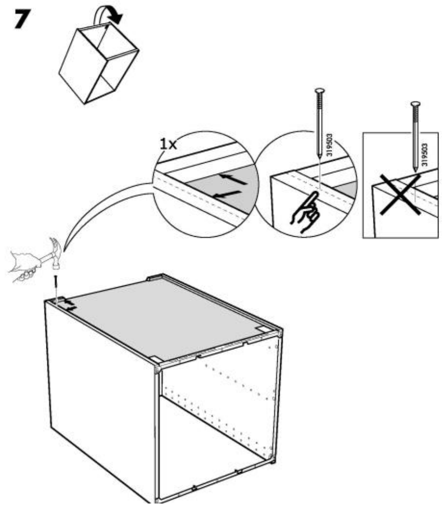


Figure 6 and Fig. 7
IKEA building instructions (detail).

While technological visuals are used to represent the tools needed when assembling the object (screwdrivers, hammer, bubble level, clamp, a rug for preventing breakages, etc.), naturalistic and cartoonlike visuals alike are used to depict the human world, that is, actors and actions involved in the process – like hammering, or two people turning over a piece of furniture (as shown in Fig. 8).

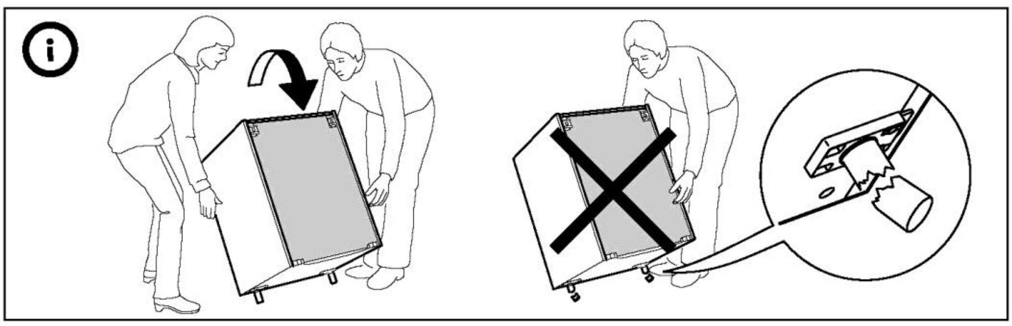


Figure 8
IKEA building instructions (detail).

3. Method

In order to analyse the different types of processes enacted by the multisemiotic mix of LEGO and IKEA language, as well as to highlight the pragmatic functions it performs, and to investigate the broader cognitive affordances of building instructions as visuospatial semantic machineries, this study will incorporate SFG metafunctions (Halliday 2002, 2004), classic Social Semiotics (Kress, Van Leeuwen 1996; LeVine, Scollon 2004; O'Halloran 2004; O'Halloran, E, Podlasov, Tan 2013; O'Halloran, Tan, E 2017; O'Halloran, Tan, Wignell 2016; Van Leeuwen 2005), and Cognitive Discourse Analysis (Taylor, Tenbrink 2013; Tenbrink, Taylor 2015).

4. Results

LEGO and IKEA building instructions do perform a referential function (i.e. visualising the finalised, concrete object that is to be assembled) and an instructional function (i.e. providing guidance throughout the assembly process). Both these functions are instantiated by two kinds of representative processes (Halliday 2002, 2004; Kress, Van Leeuwen 1996) that can be identified as the result of their multisemiotic synergy, i.e. narrative and relational processes.

4.1. Narrative processes

4.1.1. Transactional processes in LEGO building instructions

In LEGO instructions (see Fig. 3), narrative processes are always signalled by arrows, that is, graphic vectors marking directionality: Represented Participants (i.e. people and things, concrete or abstract, about which the communication is produced) are depicted as "doing something to or for each other" (Kress, Van Leeuwen 1996, p. 56). Such narrative patterning has the purpose of presenting the unfolding of events and actions, "processes of change" and "transitory spatial arrangements" (Kress, Van Leeuwen 1996, p. 56). In functional semiotic terms, the representation of the LEGO mini-kitchen being assembled in Fig. 2 presents a unidirectional transactional process, i.e. two structural roles (or Participants) unilaterally connected by a transitive action. In particular, the figure shows a number of Actors (the Participants instigating the vector: the bricks presented in numerical formation at the top of the box), one Goal (the Participant at which the vector points: the kitchen cabinet being assembled in the main frame of the box), and a Transaction (the vector itself, signalling something done by an Actor to, or with, a Goal – in this case, bricks building a kitchen cabinet).

If these meanings were to be codified using scriptural signs, this configuration would call for the linguistic expression of action inside a transitive clause (that is, a unidirectional transactional process) by means of syntactic configurations of noun groups and verbal groups. In a visual artefact, this is rendered immediately discernible and expressible by vector-based relations between Participants. The resemiotization of a unidirectional transactional process in linguistic terms (Iedema 2003; O' Halloran, E, Podlasov, Tan 2013) would call for the use of a transitive verb and a "two-participant material process" (Halliday 2002, p. 103), whereby Actors and Goal (the new bricks, and the developing object) would work as Subject and Object in lieu of noun phrases, and the arrows would function like verbs (the verb *build*). The whole structure would thus form a clause reading like: "LEGO bricks build a kitchen cabinet".

4.1.2. Reactional, verbal, mental processes in IKEA building instructions

In IKEA instructions (see Fig. 6 and Fig. 7), on the contrary, no vectors may be found. A number of lines do conjoin the various pieces to be assembled, but these are not arrows. As a consequence, no transactional processes are depicted, for lines "without an indicator of directionality" do not signal a narrative process, but a relational one (see Section 5.2. below). Three other types of narrative processes are instead to be found in IKEA manuals, which can be labelled as reactional, verbal and mental representations.

Reactional processes involve some represented Participant's gaze, whereby an eyeline is directed from one Reacter to a Phenomenon. In IKEA building instructions, this typically occurs at the beginning of the assembly procedure, for all IKEA manuals start with the same recommendation section (see Fig. 6), where the aforementioned cartoonlike character, standing on the right hand side of the picture – probably a benevolent caricature of the customer himself – smiles (from top to bottom) at appropriate working tools, at another human figure who is helping him (four hands being better than two), and at the product safely placed on a rug. To the left of the same illustration, the same character unhappily looks at scattered pieces on the floor (for no one is helping him out), at the broken product (due to lack of protective cushioning), and at a confusing step in the assembly process. Visual structures like the ones in Fig. 8 are moreover used to convey dos and don'ts, which is why they also (interpersonally) work as directive strategies (Van Olmen, Heinold 2017).

Speech and mental processes are signalled by the slanting projection of thought and dialogue balloons, connecting representations of speakers and thinkers to the ideational contents of their speech or thought (Kress, Van Leeuwen 1996, p. 67). In functional semiotic terms, these are called projective structures (Halliday 2002, p. 227), for they display a Phenomenon (the content of the balloon) being mediated by a Reacter who acts as, respectively, Speaker or Senser. Speech balloons are consistently used in IKEA instructions (see Fig. 7 and Fig. 8) to frame and highlight specific sequences of the procedure that are liable to confusion or ambiguity (see the magnifying glass effect shown in Fig. 7, also a feature of LEGO instructions; or the numerical labels, set vertically next to the depicted object in the same figure, indicating production codes in case individual items needed to be replaced). In such cases, the Speaker does not have a human shape; it is the assembled piece of furniture that, to some extent, is shown to 'speak for itself'. Thought balloons are usually to be found in preliminary sections (see Fig. 6), at the bottom left of the page, where the puzzled user projects his inner mental process in the form of a question mark, pointing to an obvious gap in his knowledge system, soon to be filled by the picture on the right hand side of the frame (where he phones IKEA's customer service).

If, again, mental projective processes were to be transcoded using verbal language, verbs of perception (*see*, *hear*) would probably be used, along with verbs of affection (*like*, *fear*) and verbs signalling processes of cognition, like *know*, *think* or *believe*, in which there are a Senser (who does the seeing, knowing etc.) and a Phenomenon (being seen, known, etc). Phenomena may also be represented by whole clauses, as in the instance in Fig. 6, where the illustrated mental process sounds like "He does not know", and the rest of the representation may be complemented by a clause such as "what to do with all this". Likewise, in the case of speech processes, a linguistic translation would be based on a verb of quotation (*say*, *claim*), a Sayer – even a non-animate one, such as in this case the assembled piece of furniture –, and a Phenomenon, which may also take the form of a whole clause, both in the form of reported speech (as in "The kitchen cabinet says [that] the screw goes here") or direct/quoted speech (as in "The kitchen cabinet says: 'The screw goes here'").

4.2. Relational processes

Relational representations are conceptual structures conveying the equivalent of clauses where "the process is a form of relation between two roles" (Halliday 2002, p. 211). The two roles in question are a Carrier and its Possessive Attributes, for these structures reveal something about "the way participants fit together to make up a larger whole" (Kress, Van Leeuwen 1996, p. 49). Their purpose is to represent referents in terms of class, structure and meaning – depending on their classificatory, analytical or symbolic nature –, thus typologically pointing at "their generalized and more or less stable and timeless essence" (Kress, Van Leeuwen 1996, p. 56).

In both LEGO and IKEA building instructions, analytical processes occur very frequently. Given the pragmatic functions of the genre, this is not surprising: Represented Participants are linked in terms of part-whole structures, where the Carrier (the object being built) presents itself as possessing a number of Possessive Attributes (the assembled pieces). These obey criterial representation, that is, they are selected as contextually relevant, while others are left out as non-essential. Attributes, in turn, allow for the scrutiny and identification of the Carrier (Halliday 2004, p. 223).

4.2.1. Compounded, exhaustive, topographical structures in LEGO building instructions

In the case of LEGO (Fig. 2), the kitchen cabinet that is represented as the Goal of a transactional process is also the Carrier of Possessive Attributes, i.e. the bricks it is made of: a yellow tap, three black discs reproducing burners, a transparent square reproducing an oven door. The object is thus structured within an analytical, spatial process which makes it identifiable as "a kitchen module". Should this configuration be transcoded into verbal language, one would most likely use a possessive (attributive) relational clause (Halliday 2002, p. 121), representing something in terms of more or less permanent states or truths, rather than in terms of actions and reactions, and therefore produce a sentence like "This kitchen cabinet (the Carrier) has such and such LEGO bricks in it (possessive relational process)".

LEGO relational processes can further be defined as compounded, exhaustive, and topographical. Compounded structures are formed by Attributes "welded together, while at the same time retaining their distinct identities" (Kress, Van Leeuwen 1996, p. 100). LEGO bricks are shown as neither completely merging with one another (as would be the case with fused structures, where the whole is shown at the expenses of parts), nor completely disengaged (as in the case of conjoined structures, where all parts are shown at the expenses of the whole). On the one hand, LEGO Attributes have a precise topographical and epistemological function, i.e. making the Carrier recognisable. And this, it may be argued, is part of the reason why building bricks may be considered as a fully-fledged linguistic system, as well as an intellectually rewarding activity. Playing with LEGO amounts to assembling hundreds, perhaps thousands, of small, geometric pieces in such a way as to produce a criterial and – to an extent which may vary – revealing representation of an empirical or creative referent, be it a 1:800 reproduction of the Empire State Building in the "Architecture" system, for instance, or a fan-designed imaginary pop-up *Once Upon a Brick* fairy tale book in the "Ideas" series. On the other hand, LEGO instructions must highlight the mechanics of the building procedure, illustrating which piece goes where, as is also typical of technical drawing, where the whole object and the component parts need to integrate to some extent, but not so as to completely blur their boundaries.

Should relational processes be transcoded into verbal language, conjoined structures such as the one visualized in Fig. 2 may be compared to a sentence like “The ship is long”, where the attributive process is still made explicit by the copula. On the other hand, compounded structures may read like “the long ship”, where the attributive process itself is attenuated, but the words remain distinct; and fused structures may be similar to a noun such as “the longship”, where the predication is completely erased by the attributes merging until the structure loses its analytical character (see Kress, Van Leeuwen 1996, p. 53).

4.2.2. Conjoined, exhaustive, topographical structures in IKEA building instructions

Conjoined structures are instead to be typically found in IKEA instructions (see Fig. 9). Here, the analytical process still shows the Carrier (the kitchen module) as made up of a number of interrelated Possessive Attributes (wooden boards, screws, etc.), but such Attributes are connected by simple lines lacking directionality, therefore not signalling any narrative processes.

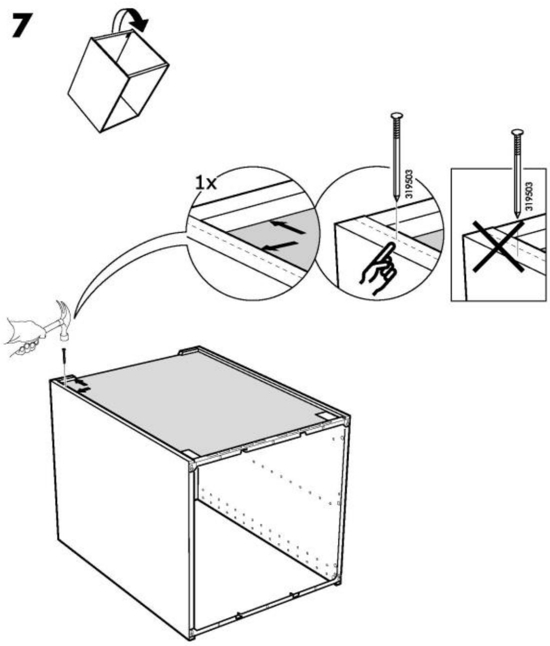


Figure 9
IKEA conjoined structure.

Such layout separates the components to a certain extent, albeit clearly showing how they fit together. This again serves the purpose of allowing the viewer to scrutinise the mechanics of the procedure, emphasising the functional welding together of the parts instead of the whole configuration resulting from it. (Which may perhaps be interpreted as a token of IKEA's flat-pack, no-nonsense stance towards interior design.)

IKEA (as well as LEGO) structures are moreover exhaustive, that is, they follow a structural principle of non-selective, holistic assembly, according to which Attributes are joined together in such a way as to form a complex shape that – within the semiotic boundaries and mission of either system – is meant to account for the whole Carrier, not only for some of its parts. This happens in opposition to inclusive analytical structures, where Attributes "do not exhaustively divide up the space of the Carrier", leaving other parts blank and unanalysed (Kress, Van Leeuwen 1996, p. 98). Both LEGO and IKEA structures are also topographical, since both Carriers read as "accurately representing the physical spatial relations and the relative location of the Possessive Attributes" (Kress, Van Leeuwen 1996, p. 101), in terms of dimensional accuracy (the whole and the parts are drawn to scale) and quantitative exactness and completeness (the quantitative attributes of the parts are fully and correctly represented).

5. Discussion: the procedural and cognitive affordances of multisemiotic visualization

The narrative processes described in Section 4.1. showcase some interesting procedural affordances of LEGO and IKEA building instructions. In both cases the assembly process is actually codified – albeit to varying degrees – in dynamic and proactive terms, as a sequence of actions set off and directed by the joint effort of the user's manual abilities and the competence provided by building instructions themselves. And in both cases narrative processes serve a twofold task. They firstly present users with a faithful working representation of the object they are building; secondly, they provide practical directives – especially in the form of dos and don'ts, which are typically conveyed through graphical devices. In the case of LEGO, the same narrative resource is used for both functions: the transactional relationship between Actors and the Goal, graphically conveyed through the directionality of arrows, also foregrounds the architectural and processual significance of 'making bricks click' to build a toy version of empirical reality. In the case of IKEA, the directive function is performed by reactional, verbal and mental processes (e.g. eyelines and speech/thought balloons; see Fig. 6 and Fig. 7), while naturalistic or humoristic figuration (see Fig. 8, a realistic portrait of the user, and Fig. 6, benevolently caricaturing him/her) is also used as an interactional reinforcement strategy, in order to create engagement on the part of the customer.

The relational processes analysed in Section 4.2., instead, present the (broader) cognitive pragmatics of LEGO and IKEA building instructions. As is typical of technical visualization practices – such as maps, diagrams, schemes and blueprints –, both LEGO and IKEA represent the assembly process by means of numerical and graphical signs, producing what in fact appears to be an exhaustive and topographical schematization of an empirical referent. Relational processes thus seem to serve both the referential purpose of providing accurate information about the configuration and/or mechanics of the product being built, and the epistemological purpose of boosting the exactness and reliability of building instructions themselves. This may happen in a more dynamic, interactional style – as with LEGO instructions, where compounded structures are used to reveal how strikingly and creatively the predictable geometry of building bricks may be used to imitate (or symbolize) the complexity of real-life referents, such as the kitchen cabinet in question. Or the same effects may be achieved in more static, analytical terms, as is the case with IKEA conjoined structures, the function of which is less visionary (and far more hands-on), i.e. showing users how the component parts fit together until they form a utilizable piece of furniture.

It may furthermore be observed that when codifying the role of the customer in the building procedure, IKEA preferentially resorts to the iconicity and potential polysemy of figurative language (Bernstein 1981; Van Leeuwen 2005), while LEGO tends to convey such meanings mainly via stylised graphic signs. When instead codifying the features of the product, at both referential and instructional level, both IKEA and LEGO resort to graphical and numerical language – that is, to the eidetic, monosemic and analytical visualization that is typical of specialized knowledge, such as for instance engineering or medicine (Coopmans 2014; Rowley-Jolivet 2000, 2002; Vertesi 2014). Multisemioticity may thus be said to cover the whole spectrum of metafunctional strata (ideational, interpersonal), pragmatic purposes (referential, instructional) and epistemological affordances (procedural, cognitive) that are associated with these building instructions as a token of qualitative data visualization.

One may however still wonder: why is the scriptural mode not part of the multisemiotic array? Part of the answer probably lies in the fact that resemiotization – or intersemiotic translation/transmutation (Jakobson 1959; Iedema 2001, 2003) – is a diachronic and unidirectional process, which in Western culture has moved from word to image, progressively shifting the boundaries of discourses and modes from the scriptural to the visual domain, and not the other way around (O' Halloran, Tan, E 2017; O' Halloran, Tan, Wignell 2016). Especially in the context of today's increasing digitalization, resemiotization has involved the technologized re-codification of meanings across ever more propagative semiotics, whereby the linear and irreversible sequencing of discrete signs, which forms verbal language, has progressively been assisted or accompanied – and in some domains eventually replaced – by the combinative synchronicity of visualization. As mentioned in the Introduction, visual language most efficiently synthetizes complex referents in topological and systemic terms: while verbalization works through the linearity of causal and temporal progression, which readers must necessarily follow in the correct sequence, visualization allows viewers to grasp complex information synoptically and instantaneously. For this reason, in both lay and specialized communication, pictures and graphics have traditionally been employed as "visual glosses" (Hyland 2005, p. 52), i.e. as cognitive facilitators of spatial nature with respect to verbal texts, which they can both illustrate and clarify.

The reverse movement, on the other hand, is most likely to produce not semantic clarity, but opacity – or even ambiguity and confusion. Indeed, the referential and instructional purposes of building instructions seem fully coherent with the cognitive scope and semiotic affordances associable with verbal-to-visual transmutation. Providing guidelines for the undertaking of practical action, displaying protocols that need to be imitated (not interpreted or questioned), the genre of building instructions is not meant to expand or revise knowledge, but to make it digestible and accessible to lay audiences, by breaking down complex ideas into step-by-step procedures that can be visualized and imitated. As a writer-responsible genre, building instructions posit no hermeneutic activity on the part of the reader, a competence that on the contrary is implied in verbal communication, especially when texts of argumentative and persuasive nature – that is, typically writer-based and reader-responsible texts (Schnurr 2013) – are concerned. Furthermore, since the effectiveness of assembly instructions is a direct consequence of the transparency and univocity of the information provided, the risk of redundancy (or loss of perspicuity) inherent in the hypothetical recodification of meanings from visual back into verbal language would not be insignificant.

This may be evidenced by Fig. 10, reproducing a sequence of operating instructions from a 1990s VCR remote control.[2] As anybody who has installed any such appliance will remember, first-generation instructions tended to integrate all four semiotic modes, including the scriptural one, and to indistinctly and repeatedly codify referents and directives across visual and verbal modes (McKay 1999; Tenbrink, Maas 2015). In the case of these remote control functions, a sequence of imperatives (explaining 'how to watch a tape repeatedly') is provided in linguistic form in each numbered box

[2] M4E4B VCR User Manual Instruction Book. Downloaded from https://fccid.io/A7RM4E4B/User-Manual/Instruction-Book-133453

in the page. But these imperatives are simultaneously resemiotized in iconic terms (see the visual directives provided by pointing indexes and buttons), also in conjunction with graphical and numerical signs (see the lines that connect buttons to the corresponding number in the sequence). The practical mastery of the procedure being explained here may, however, not come as straightforward, since verbal and visual referents overlap and echo each other; directives conveyed in words are duplicated – and made redundant – by graphics and pictures; the numerical information provided in the central section, meant to elucidate the sequence of gestures explained in both words and pictures, is reiterated (1, 1, 2, 3, 3) and made ambiguous. Lay audiences could in fact hardly be expected to successfully imitate such procedure.

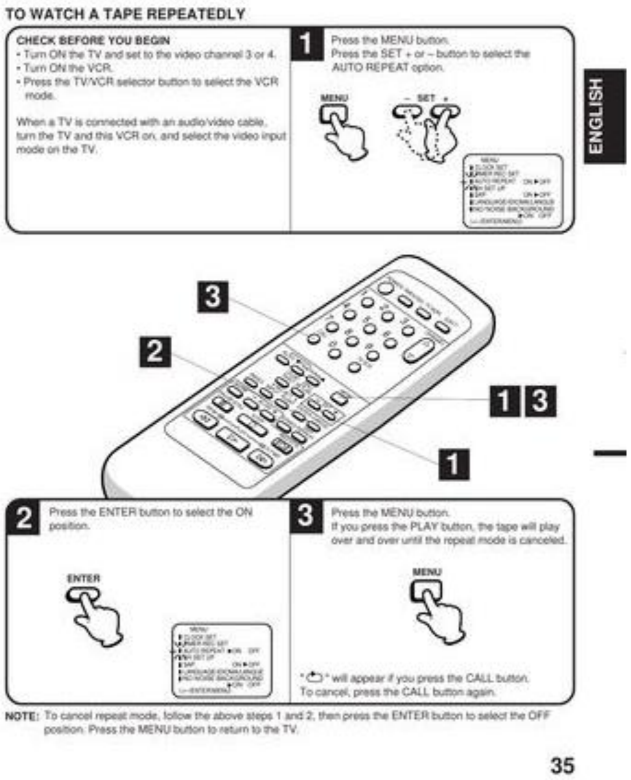


Figure 10
VCR user manual operating instructions.

This is precisely where today's fast-growing visual literacy, and the cognitive benefits of qualitative data visualization and "visuospatial thinking" (Taylor, Tenbrink 2013, p. 189) – i.e. the spatialization of processes and structures outside of, and beyond, the temporality inherent in the scriptural medium – may come into play. Multisemiotic visualization may indeed be said to push forward the communicative boundaries of traditional scripto-visual hybridity, particularly in lay contexts, i.e. discourse settings in which disregarding the use of verbal language is less likely to entail a loss of conceptual or disciplinary complexity.[3]

As the result of multisemiotic visualization, spatialization does significantly occur in LEGO and IKEA building instructions, too, as is evidenced by a closer look at Fig. 2 and Fig. 9 above. Here, narrative and conceptual processes appear to be structurally embedded in one another: the LEGO kitchen cabinet in Fig. 2 works as Relay between a transactional narrative process, in which it acts as Goal, and an analytical relational process, in which it is a Carrier of Attributes. The same happens with the IKEA kitchen cabinet in Fig. 9, working as a Phenomenon within the speech process signalled by the balloon, and as a conjoined structure within an analytical relational process. Both visualizations, that is to say, pivot on the kitchen cabinet being simultaneously presented as a Relay between intrinsically temporal processes (i.e. narrative sequences, be they of transactional, reactional mental and verbal nature) and ultimately spatial structures (i.e. analytical-relational constructs, of exhaustive, topographical, compounded/conjoined nature). It is the radicalized hybridity of temporality and spatiality – better still, of temporality being structurally intertwined with, and subsumed by, spatiality – that indeed construes the kitchen cabinet, along with its referential and instructional implications, as the procedural and cognitive core of these building instructions.

It is thus possible to define LEGO and IKEA visualizations as spatial structures where temporal processes occur, much in the fashion of narrative diagrams (Kress, Van Leeuwen 1996, p. 59). Relational structures in particular, as shown in Section 4.2., function as diagrammatic representations, codifying events and actions taking place over time, such as the assembly process, as visual configurations. Pragmatically speaking, the turning of processes into systems may facilitate the interpretation of instructional meanings, as well as prove a more effective process-oriented learning resource for the engaging of audiences – even junior or unspecialized ones, such as

[3] Words can in fact provide conceptual clarifications and distinctions, for instance in cases of ambiguity or underspecification due to the limits inherent in other semiotic modes. While visualization foregrounds specific segments of reality which are perceived as prominent at the expenses of background elements, the latter may indeed be relevant for a comprehensive overview or analysis of a phenomenon. For this reason, cases of semantic ambiguity may arise and actually be assessed and resolved in linguistic terms. As a symbolic, arbitrary and polysemous system of signification, verbal language can in fact name and define complex ideas, which would be problematic to express through visual language alone. As Denis Diderot's tale *Ceci n'est pas un conte* (1772) and Réné Magritte's painting *Ceci n'est pas une pipe* (*La trahison des images*, 1929) have clearly shown, a concept like "This is not a pipe" is an instance of those opaque, multi-layered meanings that visual language alone may not be best suited to convey.

those implied by LEGO and IKEA products – in “analysing and transforming information” into concrete action (McKay 1999, p. 324).

6. Concluding remarks: towards a spatialization of time processes?

The multisemioticity inherent to qualitative data visualization, as evidenced in the case of LEGO and IKEA building instructions, may emerge as an effective strategy for operatively and cognitively coping with temporal problems. The synoptic and synchronous representation of processes, and above all the spatialization of temporal sequences, which the Discussion in Section 5. above has suggested as the core of LEGO and IKEA diagrammatic representations, seems in this regard to have acquired a function that had traditionally been performed by verbal language, by means of nominalization (or “grammatical metaphor”, Halliday 2004, p. 613), whereby much of the semantic load is conferred to nominal instead of verbal groups.

The illustration in Fig. 9 may on this ground back-translate into a noun phrase like “thumbscrew inserted in dashboard outer edge”. The similarity between verbal nominalization and diagrammatic visualization should by this time come as no surprise, as both phenomena are typical strategies of referential, procedural and expository discourse genres. The use of “a noun instead of a verb to convey concepts relating to actions or processes” (leading in turn to higher nominal density and more lexical conciseness) is motivated by more efficient textual patterning, whereby the thematising of information facilitates the flow of contents in the structure and their grasping by the reader (Gotti 2003, p. 79). As a consequence, information is presented “in its ‘objectified’ form as something to be taken for granted” (Gotti 2003, p. 79), in the same ways as diagrammatic visualization appears to be an increasingly strategic feature for the effectiveness of referential, and in particular, instructional discourse in lay contexts such as the ones under discussion in this paper (Halliday 2002, p. 74; Gotti 2003, p. 179).

In conclusion, although it goes far beyond the scope of this study to gather evidence in this respect, it may be observed that there is an increasing tendency in today’s knowledge dissemination practices and processes – in lay as well as specialized contexts, such as scientific or technological communication (Friendly 2009) – towards the enhanced perceptual experience of data visualization, of which LEGO and IKEA building instructions are one among many possible examples. Within the obvious limits of its object and methodology of analysis, this paper has aimed to suggest that this tendency towards multisemiotic visualization, which ultimately pivots on the spatialization of time processes, may arguably be associated with the progressive emergence of boosted paths for “visual thinking", i.e. for ever more persuasive and propagative modes of understanding, processing and transferring information (Pylyshyn 2003). In other words, there seems to be underway a cultural, perhaps more broadly epistemological tendency away from traditional time-based media, towards the spatialized syncretism of figurative and graphical language. Although this tendency distinctly emerges in unspecialized communicative environments – such as the entertainment and home environment industry, as in the case studies that are the object of this paper – it cannot be fully explained in terms of lack of discursive or disciplinary training, or cognitive non-compliance (if not downright laziness) on the part of the audience. The relationship between vision and cognition – which has, for that matter, been there for centuries in the history of speculative thought (Berger 2017) – indeed seems to deserve much more extensive investigation.

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PART 2 MEDICAL DISCOURSE

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KNOWLEDGE DISSEMINATION FOR SOCIAL CHANGE
A Multimodal Discourse Analysis of an online health information service

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Abstract – The study focuses on Kinsey Confidential™, a weekly newspaper column that adds an image to each answer it provides to the question received from a young reader. Based on corpus building criteria, the work collected all the web pages containing the image, the question, and the corresponding answer in the time span between February, 2015 to May, 2018. Tools of analysis found in Kress and van Leeuwen (2006), Machin and Mayr (2012), Ledin and Machin (2018), and in the pack of utilities of WordSmith 7.0 (Scott 2016) were used to identify a series of salient recurring discursive strategies through which the website depicts sexuality and promotes sexual health. These strategies help to represent a new multimedia mode of scientific knowledge dissemination and a multimodal channel of safe sex promotion for social change in the contemporary sociocultural context of adolescents' sexual knowledge and behaviour. The data from previous studies, based exclusively on linguistic analysis of young people's questions submitted online, showed the presence of misinformed socially-derived beliefs and understanding of sex, gender and reproduction (Harvey 2013; Maglie 2015, 2017). In addition, this study addresses the way knowledge dissemination on sexuality is communicated by the website, not just through popularised scientific language, but also through visual language. Thus, the combination of the linguistic and semiotic resources found in Kinsey Confidential™ helps to introduce different levels of signification of discourses, all aiming at fostering appropriate knowledge of sexual and reproductive health among the younger generation.

Keywords: Multimodal Discourse Analysis (MDA); sexual and reproductive health discourse; expert-based health platforms; quanti-/qualitative approach.

1. Introduction

Sexuality, as defined by the World Health Organization (WHO), is "a central aspect of being human throughout life" encompassing various determinants of health and wellbeing, namely "sex, gender, identities and roles, sexual orientation, eroticism, pleasure, intimacy and reproduction" (2002, p. 5). This multidimensional construct represents a crucial quality of life issue (Quinn, Happell 2015) involving physical and socio-emotional needs and concerns, along with matters of clinical interest that require specialised support and targeted policies. Over the last two decades, preventive healthcare has become a major priority among younger generations, identified as "at risk" on account of their higher odds of getting or passing on sexually transmitted infections (STIs) that might lead to an increased risk of transmission of the human immunodeficiency virus (HIV) (Keastle *et al.* 2005; Newbern *et al.* 2013). Juvenile vulnerability to sexual risks may result from their sporadic adoption of primary prevention methods (e.g. condoms) and their lack of access to STI services (e.g. vaccination, testing, treatment and care). It is estimated that 357 million cases per year of curable STIs concern sexually active people below the age of 49, with a dramatically higher risk of young women developing complications (WHO, 2016). More in particular, half of STIs affect people aged between 15 and 24 and almost two thirds of people who contract chlamydia are young (Centers for Disease Control and Prevention [CDC], 2018). Despite the increasing social awareness of prevention and protection strategies, early diagnoses and the effective treatment of STIs, a broad range of sex-related issues are still frequently neglected in various healthcare settings as a result of social stigma and embarrassment (Ollivier, Aston, Price 2018).

Previous studies have shown that the guilt, embarrassment and shyness perceived by physicians while taking patients' sexual histories might have negative repercussions on STI assessment and counselling (Merrill, Laux, Thornby 1990). On the other hand, young people feeling embarrassed about purchasing condoms are less likely to buy them, subsequently decreasing condom use (Dahl, Gorn, Weinberg 1998; Moore *et al.* 2006) However, this reticence to address topics of a certain delicacy applies especially to the 'traditional', face-to-face healthcare delivery system. While online, in fact, people are more likely to display disinhibited behaviour, revealing very personal details about themselves without worrying about how they look or sound (Suler 2004), and more generally, without experiencing self-presentation difficulties that characterise real-life interactions. Among all situational factors, anonymity may also impact positively on the individual's perception and engagement, resulting in a potentially increased condom use (Young *et al.* 2017). Mixed modes of communication afforded by digital media and electronic devices are supposed to elicit these (dis)inhibiting processes, the effects of which can be qualified as positive, as in the case of counselling and provision of helpful information (Lepidot-Lefler, Barak 2015), or negative, as in the case of revenge porn and flaming (Voggeser, Singh, Göritz 2017). The current discourse of sexual and reproductive health is thus shaped by technology and multimodality, and comprises a combination of linguistic strategies and semiotic resources supplementing more traditional healthcare settings.

Given their exposure to high-risk sexual behaviour as well as their computer literacy and familiarity with digital media, adolescents and young adults usually rely on electronic healthcare (e-health) providers to explore sensitive, typically inhibiting subjects, as evidenced by linguistic analyses of US-based (Maglie 2015, 2017) and UK-based (Harvey 2013; Brookes, Harvey, Mullany 2018) question and answer (Q&A) expert services. Lay use of the Internet to overcome financial, societal, cultural and geographical barriers that would otherwise restrict access to health information is a challenge to professionals committed to the positive popularisation of sexuality. The often-ignored need to develop and share worldwide accurate, exhaustive and non-judgemental advice and information emerges as a primary issue for social change in a contemporary sex scenario lacking in quality education interventions. Empowering cultural domains and social practices in the interest of the key population means, first and foremost, calling into question the dominant paradigms of healthcare (e.g. medical paternalism, medicalisation, financial divides) and sexuality (e.g. sex-related misinformation, stereotypes and stigma).

Supported by a socially-driven approach, the present study combines Multimodal Discourse Analysis (MDA) (Kress, van Leeuwen 2006; Kress 2010; Machin, Mayr 2012; Plastina 2015; Tessuto 2015; Ledin, Machin 2018) with the methods of Corpus Linguistics (CL) (Baker *et al*. 2008; Baker 2018; Baker, Brookes, Evan 2019) to understand from a quanti-/qualitative and both linguistic and semiotic perspective, a multiplicity of modes of communication adopted by sexual health experts to counteract misinformation, stereotypes and stigma still revolving around human sexuality, with possible positive implications on lay health-seeking and disease-prevention behaviour as well. The final purpose of this study is to foster a new counter-discourse of sexual health which uses expertise to empower younger generations and convinces them of the need for a societal paradigm shift, since the lack of bottom-up educational and informational interventions and policies may facilitate and sustain unsafe sexual practices, homo(trans)phobic attitudes towards LGBTQI communities, devaluation of women, misunderstanding of specialised content, including research-based knowledge on the spread of STIs, bodily organs and functions, desire and consent, sexual orientation and identity in all their diversity and complexity.

2. Materials

The dataset for this study is made up of posts retrieved from the weekly newspaper column of Kinsey Confidential™, a sexuality information service designed by the Kinsey Institute for Research in Sex, Gender, and Reproduction at Indiana University, Bloomington. This US-based website provides a variety of accurate, open-access multimedia resources to meet college-age adults' sexual health information needs.

Educational and medical content available on Kinsey Confidential™ comprises a growing number of Q&A posts, articles and interviews about matters of some delicacy that often require social awareness and specialised care. The dissemination of scientific knowledge to the general public benefits from the provision of multimedia texts, images and audio podcasts about 12 different sexual health topics, i.e. *Birth Control*, *Bodies*, *Common Problems*, *Gender*, *Health & Disease*, *Pleasure & Orgasm*, *Pregnancy*, *Relationships & Love*, *Sex Research*, *Sex Therapy*, *Sexual Assault* and *Sexual Orientation*.

The weekly newspaper column represents the densest web section in terms of contents and multimedia modes, which are managed by Dr Debby Herbenick, an AASECT-certified sexuality educator and research scientist. In this column, readers can consult the provider and access a considerable list of Q&As concerning sexual and reproductive health. Posts originate from questions or requests submitted by anonymous users via the Kinsey Confidential™ online form, and so depending on the specific message received, the sex advice columnist suggests a tailored answer on a weekly basis.

As pointed out by Harvey (2013), the Ask-the-Expert format can be considered a particularly effective tool to investigate users' real-life needs and communicative styles, since questions are proposed spontaneously by the advice-seekers themselves and not solicited by healthcare professionals' agendas. This participatory feature applies very well to Kinsey Confidential™, and it could also explain the uneven distribution of each post across sexual health topics. In this respect, the higher percentage of resources published on Kinsey Confidential™ relate to the *Bodies* category (18% of total texts, 74.67% of which are Q&As), which represents the most populated topic in the Q&A column–and hence the issue of major interest and concern for advice-seekers–followed by *Relationships & Love* (11%) and *Common Problems* (10%). *Sex Therapy*, conversely, verges on 1% of text materials.

Awareness and care of users' needs also relate to the openness and the multimodality of resources developed by the Institute. Indeed, a further distinctive feature of the weekly column is the combined provision of audio, textual, visual and graphic materials, so that the dissemination of expert advice and information meets new modes and affordances. Even the Kinsey Confidential™ homepage displays titles, podcast buttons and image thumbnails from the column, supplementing language with optical information (Ledin, Machin 2018). These post previews are sorted by date to introduce the most recent Q&A posts, keeping and maintaining up-to-date topics of interest to users. Yet, for ease of reading, the provider usually adds bold slogans to plain texts and small captions (e.g. summarising captions)

(Cavalieri 2015) to images, matching different grammars and canons of use in a visual "whole" (Kress, van Leeuwen 2006; Kress 2010; Machin, Mayr 2012; Ledin, Machin 2018). The co-occurrence of texts and images in every topic and web section thus reveals the frequent and widespread adoption of visual highlighting strategies to facilitate content navigation and search.

In accordance with the principles of knowledge-sharing, the web platform does not require any registration to access digital content, but rather affords HTML button links to social media (i.e. Facebook and Twitter), tags and subscription buttons, all contributing to popularise safe and responsible sex practices among younger generations.

3. Methods

Given the diversity of content and design characterising Q&A expert services, the investigation of the Kinsey Confidential™ discourse represents a great methodological challenge involving multiple perspectives and tools of analysis. Based on corpus-building criteria (Harvey 2013; Maglie 2015, 2017; Brookes *et al.* 2018), the present work collected all the Kinsey Confidential™ webpages (i.e. text posts and related images) from the weekly column over the timespan of February 2015 to May 2018 to run the corpus analysis. The total number of unique Q&A texts posted on the column was 1,006 (i.e. 503 questions–Q-posts and 503 matching answers–A-posts), amounting to 238,020 running words/text tokens. Questions and answers were examined separately since Q- and A-text posts are different sizes (Q-post tokens = 27,856; A-post tokens = 210,164; Q-/A-post token ratio = 1/7.54), and are also representative of two distinct statuses in the e-health sector (i.e. users and providers). The software package WordSmith Tools 7.0 (Scott 2016) allowed for the objective, quantitative analysis of lexical and discursive trends emerging from Q- and A-posts, and more specifically:

- *WordList* tools offered word frequencies in absolute, relative and percentage terms;
- *Concord* tools detected habitual and characteristic patterns, clusters and collocations on the basis of t-test and Mutual Information (MI) statistics.

In addition to corpus analysis, a qualitative, comprehensive approach to the Kinsey Confidential™ multimodal discourse was adopted to balance quantitative data emerging from the plain texts. As a matter of fact, the weekly column also comprises 352 Q&A-related images recurring in more topics in the form of smaller previews, for which the application of basic corpus techniques is not specifically intended. Table 1 lists the frequencies of texts and images across sexual health topics.

Topic	Texts		Images	Topic	Texts		Images
	Q-	A-			Q-	A-	
Birth Control	26	26	16	Pregnancy	30	30	7
Bodies	171	171	91	Relationships & Love	88	88	50
Common Problems	102	102	42	Sex Research	10	10	6
Gender	3	3	3	Sex Therapy	5	5	4
Health & Disease	70	70	40	Sexual Assault	4	4	2
Pleasure & Orgasm	131	131	72	Sexual Orientation	35	35	19

Table 1
Absolute frequencies of text and image per sexual health topic.

In reply to users' questions, each image appearing on the Q&A section is purposely combined with A-post texts by the sex advice columnist to draw attention to certain aspects and features of specialised discourse. The complete set of different pictures and photos downloaded from the Kinsey Confidential™ column constitutes the visual corpus of this study, for a total amount of 166 unique images. Tools of analysis found in Kress and van Leeuwen (2006), Machin and Mayr (2012), and Ledin and Machin (2018) were used to carry out the examination of a broad range of visual communication modes promoted by experts in an effort to spread research-based content among young people.

4. Research Questions

In view of these methodological premises, the present work aims to answer the following questions:

1. What kinds of multimodal specialised discourse have been adapted to a new form of knowledge dissemination?
2. How does this new form of knowledge dissemination popularise specialised discourse with a view to social change?

5. Results

5.1. Corpus-based findings

Quantitative evidence resulting from the computation of frequency lists and collocation statistics includes lexical trends as well as salient discursive patterns based on a total of 1,006 different Q- and A-text posts (of which 238,020 are text tokens) from the Kinsey Confidential™ weekly column. As shown in Table 2, the extremely high frequency of function words reveals a direct correspondence of personal pronouns and possessive adjectives between Q-posts (“I” = 6.54%; “MY” = 2.30%) and A-posts (“YOU” = 2.37%; “YOUR” = 1.17%). This lexical correspondence is extended to content words, such as “SEX”, “PENIS”, “TIME”, “PARTNER”, “ORGASM”, “WOMAN”, “INTERCOURSE”, and “RELATIONSHIP”, all almost equally distributed.

n.	Q-post tokens	% freq.	A-post tokens	% freq.	Q-post content words	% freq.	A-post content words	% freq.
1	I	6.54	TO	3.38	SEX	1.48	SEX	1.30
2	AND	2.88	AND	2.59	TIME	0.37	WOMEN	0.67
3	TO	2.65	YOU	2.37	BOYFRIEND	0.36	MEN	0.61
4	A	2.50	THE	2.27	YEARS	0.30	PEOPLE	0.46
5	MY	2.30	A	2.13	PENIS	0.28	PARTNER	0.36
6	THE	1.83	OR	2.03	GIRLFRIEND	0.24	TIME	0.29
7	IT	1.79	OF	1.95	PARTNER	0.20	PENIS	0.26
8	IS	1.64	THAT	1.93	INTERCOURSE	0.19	EXPERIENCE	0.23
9	HAVE	1.57	IN	1.42	VAGINA	0.19	ORGASM	0.21
10	SEX	1.48	SEX	1.30	ORGASM	0.19	WAY	0.18
11	THAT	1.33	IT	1.28	WOMEN	0.18	WOMAN	0.18
12	WITH	1.16	IS	1,22	RELATIONSHIP	0.18	INTERCOURSE	0.17
13	BUT	1.09	YOUR	1.17	TIMES	0.15	PROVIDER	0.17
14	OF	1.02	WITH	1.07	WOMAN	0.13	MASTURBATION	0,16
15	FOR	0.90	FOR	0.98	CONDOM	0.12	HEALTH	0.15
16	ME	0.89	ARE	0.94	WIFE	0.12	VAGINA	0.15
17	IN	0.87	ABOUT	0.93	ERECTION	0.12	RISK	0.15
18	THIS	0.79	AS	0.89	MAN	0.12	BODY	0.15
19	WE	0.78	HAVE	0.89	PROBLEM	0.12	WAYS	0.14
20	CAN	0.76	CAN	0.80	SIZE	0.12	RELATIONSHIP	0.14

Table 2
Word percentage frequencies in Q&A posts.

Further matches relate to the most significant collocations for the keyword “SEX” in both Q- and A-posts, such as “SEX” + “DRIVE” and “SEX” + “TOY”*, as illustrated in Table 3.

However, looking at the concordance lines, Q- and A-posts seem to vary in terms of semantic preference and discourse prosody. If we consider recurrent lemmas and related inflections in their specific contexts of use, a semantic preference emerges for bodily issues (“PENIS”, “VAGINA”, “ORGASM”, “ERECTION” and “SIZE” often collocating or otherwise dealing with “PROBLEM”*) and sexual activity (“HAVE” often collocating with “SEX” and “INTERCOURSE”) in Q-posts, whereas A-posts seem more focused on relationship-based advice (“SEX” often collocating with

“COLUMNIST”, “THERAPIST”, “RESEARCHER”, “COUNSELOR”, “EDUCATOR”).

	Collocates (position)	MI score	T score	Examples of concordance lines
Q-posts	DRIVE (R)	5.91	2.78	I have found that my *sex drive* increases
	LIFE (R)	5.08	3.36	male and have had a very unfulfilling *sex life*
	TOYS (R)	4.82	2.16	Can you explain the risk of sharing *sex toys*?
	WITHOUT (R)	4.54	3.17	How can I have *sex without* pain?
	HAVE (L)	4.27	10.6	likes it if I also *have sex* with other men
A-posts	COLUMNIST (R)	6.27	2.61	as a researcher, educator and *sex columnist*
	DRIVE (R)	6.07	2.61	a high *sex drive* and very frequent erections
	TOY (R)	6.01	9.44	If your friend is interested in trying a *sex toy*
	TOYS (R)	5.97	7.93	use *sex toys* and other enhancement products
	THERAPIST (R)	5.88	9.58	their *sex therapist* or doctor may advise them

Table 3
Examples of collocations from Q&A posts
(node = “SEX”; span = 5; MI threshold = 3; T threshold = 2).

Prominent themes emerging from texts tend to assume a negative connotation within users’ discourse of sexuality and sexual health, as in the case of Q-posts concerning *bleeding, pain, sex abuse, unfulfilling sex, standard sex* and *unprotected sex,* contrasting with the neutrality or even positivity of A-posts addressing *pleasurable sex, safe sex, sex play, study* and *your sex.*

5.2. Discourse-based findings

As already mentioned, words and images work hand in hand to emphasise the narrative approach to human sexuality originally fostered by the Kinsey Institute and pursued by Indiana University, Bloomington. Images retrieved from the weekly column vary in terms of themes and features, and also match with answers provided by experts such as Dr Debby Herbenick. According to Ledin and Machin (2018), web platforms may be considered as a set of multimedia sources affording various kinds of artefacts, each with their own materiality and design (e.g. photographs, link buttons, graphics or fonts). In line with Systemic Functional Linguistics (Halliday 1978), the authors critically look at these sets of artefacts since they deploy a wide range of semiotic resources constructed for a purpose and in someone’s interest.

In the case of Kinsey Confidential™, the main purpose underlying the sharing and publishing of sexuality-related content is the active promotion of sex-positivity in all its many facets, with particular regard to young adults. To this end, the column displays images depicting five kinds of artefacts with different materiality: drawings, paintings, sculptures (including dolls and bas-reliefs), movie stills and photographs. These artefacts, in turn, represent miscellaneous subjects such as, respectively, human beings (e.g. young men and women, heterosexual and homosexual couples, doctors, crowds), objects (e.g. blister packs of contraceptive pills, condoms, lubricants, sex toys, bed sheets and blankets, flags, signboards), human body parts (e.g. hands, mouths, hair, feet), and even natural elements (e.g. leaves, flowers, soil, water). Various subjects tend to co-occur in images, playing different roles and actions depending on the specific participants and settings portrayed. For instance, 2.15% of posted images depict motionless human stick figures, while inanimate objects in motion do not reach 2%. Despite their low frequency, these kinds of images represent a novel, metaphorical way to recount human sexuality. Nevertheless, actions taken by participants are not limited to external, physical processes and features (e.g. motion and stasis), but also include social transactions (as in the case of the visual portrayal of communication exchanges) and psychological processes, both inferred from the presence of verbal or non-verbal indices, especially psychological gaze, that have the potential to evoke emotions, feelings and thoughts. Additionally, semiotic material afforded by images may affect text information structure by corresponding words and key themes, by adding new information to texts or even highlighting words.

In the first case (Figure 1), images provide a graphic representation of words or patterns inserted into titles or otherwise recurrent in the body text (e.g. blood stains matching with the lemma “BLOOD” and its inflections; curved objects matching with the lemma “CURVE” and its inflections; cracked, dry soil matching with “DRY” and “DRYNESS”), replicating the aboutness of texts.

Figure 1
Graphic representations of word/patterns.

In the second case (Figure 2), images supply new relevant information to texts (e.g. a TV monitor combined with the Q&A entitled *Have I been sensitized to sex?*).

Figure 2
Example of an image supplying new information to texts.

In the third and last case (Figure 3), images focus on a particular word, depicting a specific element of the discourse (e.g. a couple of dolls under the blankets combined with the Q&A entitled *Is fantasizing the same as cheating?*).

Figure 3
Example of an image depicting a specific element of the discourse.

Besides *what* is described by means of images, it is necessary to consider *how* these subjects and actions are portrayed for social and educational purposes, and therefore the occurrence of denotative and connotative elements as well as biological and cultural details. In this respect, Kress and van Leeuwen (2006) and Machin and Mayr (2012) claim that visual communication and design can be analysed by using several flexible categories and indices, in agreement with the versatility characterising qualitative techniques.

Based on the present dataset, approximately one fifth of image posts (21.69%) dates to 2012; more than a half of images (50.6%) refer to the *Bodies* topic, and they are mainly colour illustrations (87.35%) sharing a horizontal orientation and rectangular shape. The most recurrent kind of image is represented by photographs of people, individuals or couples in domestic or decontextualised settings (e.g. against a plain white background). It is interesting to note the lack of any demanding gaze in all these pictures; in fact, the actors portrayed do not look directly at or demand anything from the viewer. Indeed, the photographed participants are ‘offered’ to the viewer, who is the real, active subject of the gaze (Kress, van Leeuwen 2006). A relatively high occurrence of verbal processes (25.9%) inferred from tags and symbols, in addition to gestures and facial cues, reveals a strong preference of symbolic and metaphorical images of which the connotative elements are readily identifiable by the general public (e.g. street signs, banners, labels, flags, screaming expressions). Salient or foreground elements and connections among visual features contribute to highlighting the variability of the thematic issues addressed in each A-post. These features and themes conveyed by Dr Debby Herbenick as a visual whole are not predefined, since they match a unique question and acquire a specific meaning depending on their context of use. This implies that the same recurrent image has the potential and the power to evoke different thoughts or feelings according to its visual and linguistic frame.

Considering the broad range of discursive strategies observable in all the images and texts collected, the present study focuses on two peculiar communication styles adopted by Dr Herbenick to popularise specialist knowledge of human sexuality, i.e. directness and humour.

The first Q&A post, dated 2012 and entitled *I Might Have HPV, But Can’t Get Tested*, addresses the availability of HPV (human papillomavirus) vaccines and the lack of approved HPV screening facilities for men. This Q&A belongs to the *Health & Disease* topic category and refers to the tag of the same name, as displayed in the upper section of the webpage. The scientific nature of the subject is stressed by the expert choice of posting a biological image (Figure 4) just beneath the bold heading.

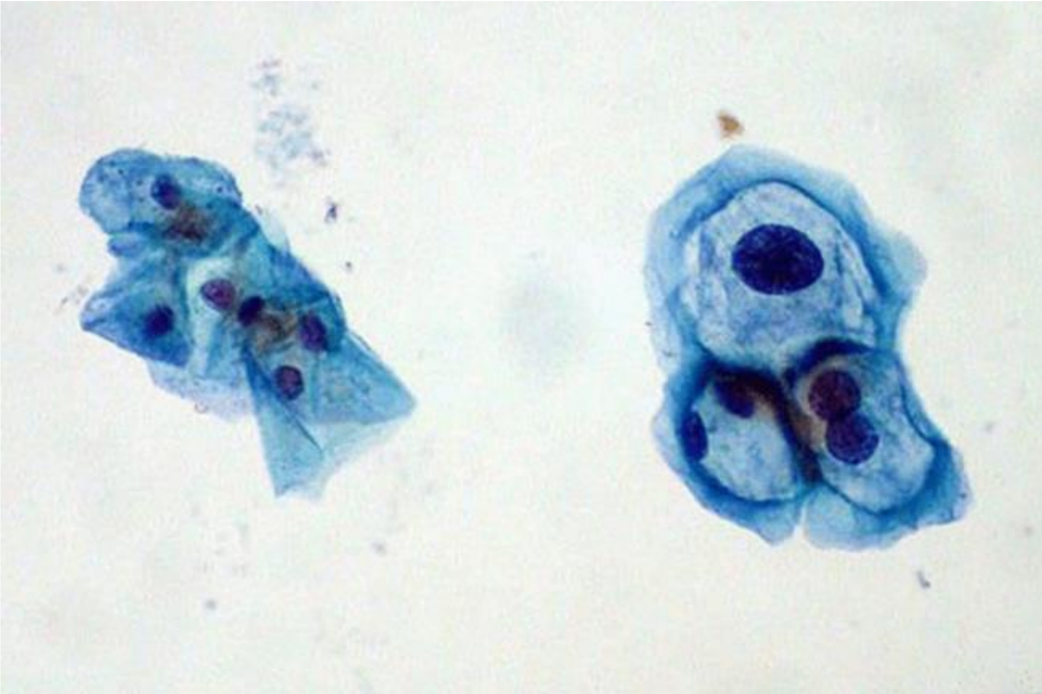

Figure 4
HPV abnormal cytology.

The image portrays a TrinPrep cytology in which structural details of pathology specimens are clearly visible. However, splitting the picture vertically into two halves, it becomes evident that indexical signs of HPV positivity are more prominent and sharper on the right, and hence it is possible to locate the image theme (i.e. *HPV*) on the left side, and the image focus (i.e. *positivity*) on the right. The whole photograph is polarised and captured from a frontal, eye-level angle, instilling feelings of involvement and equality in the viewer. The absence of filters and frames qualifies the image as objective, even though the close-up shot of specimens most likely required the support of a microscope. The application of an optical zoom to make human viral conditions visible may also communicate closeness with the viewer. Brightness emphasises the light grey gradient of the background, and simultaneously softens the highly-saturated blue tones of the cells in the foreground, so that the overall impression of the image is more natural and cleaner.

All these visual features meet discursive patterns emerging from A-post texts. Indeed, the first paragraph reads:

> As more magazines and newspapers talk about HPV, which stands for the human papillomavirus, and the HPV vaccines, we get more and more questions about this very common sexually transmissible infection, or STI.

The provision of popular sources (i.e. *magazines and newspapers*), along with quantifiers (i.e. *more*, *very*) and the adjective *common*, is intended to qualify HPV as a frequent STI, suggesting its high prevalence among all STIs, and the increasing concern about HPV vaccines as a result of increased awareness of HPV. Additionally, medical acronyms are pieced apart to offer clarification to lay readers. By framing and contextualising information, Dr Herbenick introduces HPV as a topic of concern in a prompt and friendly way. Emphasis on the spread of HPV is remarked on by the following slogan, written in bold, stating *Most People Will Get It*. This slogan introduces the second paragraph, defining HPV as *extremely common* and encompassing *100+ strains*. The following lines are also mentioned into the image caption:

> Also, the HPV vaccine is now available to men in many places; you may want to ask your healthcare provider about it. Just because your girlfriend had at least one of the strains doesn't mean she had all four strains of HPV that Gardasil protects against.

The repetition of the whole paragraph in two distinct web sections contributes to highlighting the widespread availability to men of HPV vaccines, including *Gardasil*, for the administration of which Dr Herbenick recommends an in-person medical consultation. She also reassures the Q-post writer about his girlfriend, addressing him directly. The issue is discussed in more detail through examples of means and methods of HPV transmission, including *oral*, *vaginal* and/or *anal sex*. The second slogan claims that *Men Can't Be Tested*, anticipating the third paragraph. A particular form of repetition, namely dilogy, is used to stress the lack of routine HPV testing for men. Dr Herbenick also provides the higher odds of women getting a diagnosis, since *they're the ones being tested*. Men, by contrast, are basically unable to know if they are infected, but *It Might Not Cause Any Problems*, as reported in bold letters. The following paragraphs remark that young adults are particularly at risk, although complications constitute a quite exceptional occurrence. Relationship-focused advice to talk to a trusted doctor as well as to sexual partners about the common possibility of contracting HPV are accompanied by a very brief suggestion to use condoms as a potential means to counter the risk of contracting HPV. The gradual shift from "the issue" to the lay-professional relationship becomes evident in the final encouraging wordings, signed by *Debby Herbenick, PhD, MPH*:

> I typically tell people that HPV is one of those infections that most sexually active adults will come into contact with. It doesn't make you strange, unusual or 'diseased' in any way. (…) You can continue to feel confident about having great and pleasurable sex.

Besides using directness and transparency to spread expertise about STIs and body issues, the provider usually adopts rhetorical tropes such as metaphor and humour to promote sexual diversity, as in the case of the Q&A related to *Common Problems* and entitled *Is A 25-year-old Virgin Dude Something Weird?* (2017). The post combines four visual elements depicting virginity, i.e. title, image, caption, body text. In the image caption, the concept is alluded to, whereas in the remainder of the web page the keyword “VIRGIN” is explicitly mentioned. More in detail, the image (Figure 5) represents a human participant (young man or *dude*) wearing a hoodie, a pair of sunglasses and a printed T-shirt that says *I’M A VIRGIN (This is a very old T-Shirt).*

Figure 5
Young man wearing a printed T-shirt.

The first slogan on the T-shirt (*I’M A VIRGIN*) is completed by the caption (*…but not at all shy.*). In this instance, irony is expressed not only by the verbal cues contained in both the image and caption, but also by visual cues attributable to the subject photographed (shades, casual wear, relaxed stance). The alleged look into the camera, hidden by the dark glasses worn by the actor, may suggest an invitation addressed to the viewer, and thus a demand, identifiable in the mouth grimace as well. Ongoing emotional processes can be detected by the medium-high intensity of the overall facial expression, and they seem to convey dismissal towards the label on the T-shirt, as if to say: “I’m a virgin, (this is a very old t-shirt) and I don’t really care about it.”

The presence of a single participant in the picture evokes the theme of individualisation. The whole image is centred, consisting of a medium shot from a frontal, eye-level perspective. These features are typically associated with social distance, involvement and equality, all creating a sense of interaction with the viewer and also expressing comradeship. The image is framed on either side, with foreground elements emphasised by the high colour saturation (red scale), revealing high-quality drama. Taking a closer look at the typefaces on the T-shirt, the proportional, condensed font used for the first slogan clashes with the smaller letters in brackets, playing on the double meaning of virginity in Western societies, i.e. a moral value or something to feel ashamed of.

All these discursive aspects are reflected by texts, in which the occurrence of slogans such as *It's Up to You* and *Now Let's Get Personal* underline the need to legitimise a variety of attitudes and sexual behaviours, as shown below:

> And just as it does not make a person weird to have had intercourse, it also does not make a person weird to have not had intercourse at a certain age. (…) Some people wait to have intercourse or other kinds of sex until they find someone they are very attracted to, whereas others will have intercourse or other kinds of sex with a person even if they aren't very attracted to them. Similarly, some people wait to engage in partnered sexual activities until they are in love (…) or until they are married or otherwise in a committed relationship. Other times, people want to have sex but find it difficult to meet people or else they feel shy or just aren't sure how to go about flirting with people or advancing a sexual situation.

Also in this case, Dr Herbenick uses quantifiers and practical examples to question sexual "weirdness", with a view to restoring feelings of acceptance in the readers. The categorisation of the topic as a "common problem" underlines the consistent frequency with which doubts and concerns about virginity are likely to affect advice-seekers. The following paragraphs address asexuality as a possible natural variant of human sexuality, encompassing definitions and explanations about sexual diversity that are scientifically substantiated by data and statistics from the National Survey of Sexual Health. Active suggestions to consult a specialist (sex counselor or therapist) in cases of need are accompanied by dedicated web links and requests for additional information. The last lines, signed by *Debby Herbenick, PhD, MPH*, expressly invite the Q-post writer to experience sexuality and intimacy through personal, free choices comprising many different ways and forms of behaviour.

6. Discussion

The combination of lexical, discursive and visual strategies adopted by the US-based website Kinsey Confidential™ represents a new form of scientific knowledge dissemination that mirrors the increasing impact of images and more generally of visual artefacts in Western cultures. Content availability to the general public provides the dual benefit of knowledge sharing and knowledge management, in full compliance with users' needs. Furthermore, multimedia communication channels allow professionals to co-deploy verbal and visual codes encompassing various linguistic and semantic features to overcome language barriers and also spread expertise among laypeople. In the present case, given the relevance and sensitivity of sexual issues, the choice of materials to be published is an even more demanding task for specialists.

User expertise in sexual and reproductive health could be inferred from both lexical accuracy and subject pertinence. Indeed, the adoption of the medico-technical register (e.g. epididymitis, premature ejaculation, hymen, Pap smear, contraceptive implant, contracting STIs) in posing questions reveals a degree of public awareness and digital health literacy, in line with the likely college age of advice-seekers. However, despite the specificity of their stories, questions and requests, in most cases, Q-post writers bring into focus misbeliefs, bias and concerns originating from misattribution (e.g. *He's 28 and that's <u>too young</u> to have erectile difficulties*), misinformation (e.g. *<u>I've read about</u> different pills, pumps, herbs, exercises, and surgeries that claim to increase penis size*.), and a lack of reliable information sources (e.g. *I like having sex with women but <u>I want to know</u> if having sex with a guy would be something I'd like, too. <u>Is there a test</u> to tell whether I am bisexual or not?*).

The occurrence of idiosyncratic collocations such as, for example, "STANDARD" + "SEX" comes with the discrepancy between social and environmental expectations and users' sexual and reproductive needs that require recognition and acceptance. It follows that several assertions and comments from Q-posts convey the negative convictions and attitudes of young adults towards "the problems" of sexuality and sexual health, embraced by repressive ideologies still present in our societies and also disseminated by new media.

In line with an efficient use of Q&A services, the shortness and concreteness of questions often seem to reflect users' impatience to "get to the point", as in the case of emergency contraception and/or prevention of STIs, where contexts and circumstances of limited access to traditional healthcare services could expose users to unwanted risks.

On the other hand, A-posts appear longer and segmented into multiple discourse units (i.e. paragraphs) by blanks and slogans, which each comprises research-based information and/or tailored advice. Expert answers are systematically complemented by visual elements such as images, frames and font styles, drawing attention to the various web sections. In the overall column, words and images are experienced by the public as wholes of observable qualities that not only facilitate reading but also settle the specialised discourse on human sexuality as a social practice. These images accompanying the texts are deliberately sorted by experts to avoid possible semantic gaps and provide additional or even different keys for understanding the sociocultural background of contemporary sexual knowledge and behaviour. While some of them are intended to clarify the aboutness of texts (e.g. blood stains for "BLOOD", curved objects for "CURVE" and dry soil for "DRY"/"DRYNESS") others provide new information (e.g. TV monitor combined with *Have I been sensitized to sex?*) as well as new meanings and focusses, (e.g. a couple of dolls combined with *Is fantasizing the same as cheating?*), making it possible to frame and reframe discourses through visual design. At the same time, texts are often used to comment on images, as in the case of captions. The mutual enrichment resulting from the multimodal promotion of sexual health is also confirmed by the occurrence of various rhetorical devices (e.g. humour, metaphor, repetition and amplification) throughout the visual material, the peculiarity of which is the transferral of established knowledge in the field of sexuality into easily visible, clearly legible and publicly available texts and images.

With specific regard to the strategies investigated by the present study, directness and humour used by Dr Herbenick in reply to lay requests take account of the respective features and different nature of Q-posts. In examining the risks of contracting HPV, the columnist features data from periodical literature to emphasise the high prevalence of this specific STI among the sexually active population, as well as the availability of vaccines and medical screening. Linguistic adjustments adopted by the expert include exemplifications and active suggestions, whereas the objective depiction of micro-details of HPV positivity provides a further form of safe-sex promotion for social change. Besides directness as a lexical and visual choice to popularise the discourse about STIs, humorous expressions found in texts and images are treated by Dr Herbenick as a rhetorical device to positively connote virginity and sexual diversity, in an attempt to counteract the monolithic mainstream view of intimate relationships. In both cases, the expert answer entails informative and normative aspects of sexual education by means of digital media to empower the most vulnerable part of the population searching for quality sexual health services.

7. Conclusion

This multimodal analysis of Kinsey Confidential™ was supported by quantitative methods and explanatory models leading to relevant choices and exchanges involved in lay-professional communication in sexual and reproductive health Q&As. Precisely, with reference to the two research questions pointed out in section *4* to this chapter, this study has sought to show how the multimodal specialised discourse on sexual and reproductive health was adapted to a new form of knowledge dissemination and social change.

Firstly, the linguistic-semiotic interplay provided by Kinsey Confidential™ appears to be perceived by web users as a whole made up of blanks, slogans, captions, paragraphs, images, frames, and font styles, in addition to Q&A posts. These multimodal forms of specialised discourse are supplied by the experts in order to simplify and advance knowledge sharing. These strategies and modes aided by new media exploit different functions of discourse, all connecting real (denotative) and assumptive (connotative) dimensions of human sexuality in the interests of the youth population.

Secondly, through multimedia Q&As, specialised services might promptly respond to genuine social needs, affording a participatory space for scientific and cultural popularisation in direct contrast with misinformation online and preconceptions fostering negative attitudes and unsafe behaviour. Indeed, the development and dissemination of informative and educational material require a previous demand analysis and professional shift from predetermined, technical and/or paternalistic communicative styles to personalised linguistic and multi-semiotic adaptations to lay requirements.

All in all, quantitative and qualitative evidence from the combined analysis of linguistic and semiotic resources highlight lay and professional power in (counter)acting popular values and beliefs and (re)shaping the frontiers of specialised knowledge and care delivery for social change, stemming from media attention to multifaced, naturally occurring approaches to safe and consensual practices among adolescents and young adults, and the legitimation of stigmatised minorities, e.g. STI-positive population, and sex and gender diverse community.

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Multimodal product promotion in the pharmaceutical industry across languages and cultures (2018, ESP across Culture), and Vague language in the MMR vaccine controversy. A corpus-assisted Discourse Analysis of its Functional Use (with A.F. Plastina, 2019, Lingue e Linguaggi).
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DIGITAL COMMUNICATION OF THE INTERNATIONAL HUMAN GENOME EDITING SUMMIT
Exploring the multimodal potential of conference presentations[1]

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Abstract – This study investigates the multimodal potential of conference presentations for specialized knowledge dissemination purposes during the International Summit on Human Gene Editing. The methodological framework combines a genre perspective with a social semiotic reading of multimodal artefacts, focusing on the main canvas of analysis represented by the video recording of a PowerPoint-based conference presentation, with the parallel corpus of slides and commissioned papers. The study pursues the aim to assess how different semiotic codes interact in the resulting multimodal artefact, and, specifically, how video recording of conference presentations contributes to the dissemination of scientific knowledge on human gene editing in slides and papers. The findings pinpoint the disappearance of elements typical of dissemination and popularization from the papers and the PowerPoint slides, and at the same time confirm that videos provide adaptive choices for integrating different modes for the fullest knowledge dissemination attempt, with some minor technical shortcomings.

Keywords: conference paper presentations; multimodal meaning making; gene editing; knowledge dissemination; specialized communication.

1. Introduction

Specialized discourse on the human genome has attracted the attention of communication scholars for quite some time, and such attention reached its highest point with the conclusion of the Human Genome Project in the 2000s. Linguistic research in this LSP area focused mainly on popularization practices associated with knowledge of the human genome (Turney 1998;

[1] This study contributes to the national research programme "Knowledge dissemination across media in English: Continuity and change in discourse strategies, ideologies, and epistemologies", financed by the Italian Ministry of Education, University and Research for 2017-2019 (nr. 2015TJ8ZAS).

Petersen 2001; Calsamiglia, van Dijk 2004) and, since the abstract language of genetics has become strongly associated with metaphors, its translation into metaphors (Nelkin 1994, 2001; Pramling, Säljö 2007). The mysteries of our genetic code are far from being unravelled, and scientific research constantly produces new developments, such as the discovery of gene-editing technology in the mid-2010s. This technology allows geneticists to alter segments of the DNA – plant, animal or human – cutting out and replacing the unwanted segments. Linguistic research into gene editing discourse reflects the general line of research associated with the language of genetics. It has concentrated so far mainly on the terminology (Wells, Joly 2017), metaphorical representation (O'Keefe *et al*. 2015; Mattiello 2019) and popularization in mass media (Nikitina 2019).

The inception of this new technology of genetic manipulation occurred when most forms of scientific communication were becoming increasingly more digitalized and reliant on multimodal forms. For instance, modern scientific textbooks along with traditional textual resources use images, colours and different kinds of spatial arrangement (Bezemer, Kress 2016). Scientific lectures and presentations embody another knowledge dissemination channel which employs multimodal resources (Rowley-Jolivet 2002; Bucher, Niemann 2012). Research has also explored the dissemination potential of scientific conference presentations from a recipient's perspective (Bucher, Niemann 2012), yielding stimulating results on the way different forms of knowledge design and coordination contribute to facilitating knowledge transfer through the combined use of slides, spoken text and body language. In line with these general tendencies, gene editing has been communicated since the outstart not only through traditional linguistic code, but also through images, layout and video (Bateman 2008, 2011; Kress 2009, 2014; Forceville 2014), provoking academic curiosity as to how these different modes are combined to enhance the knowledge dissemination potential.

This chapter investigates the resulting multimodal artefacts – the combination of slides, commissioned papers and video recordings in the conference presentations at the International Human Genome Editing Summit, which are understood here as "a middle ground – a site of integration for the contributions arising from both mode and genre" (Hippala 2015, p. 5). The chapter first offers a conceptualization of the conference paper presentation as a genre, with a description of resources used for multimodal meaning making as applied specifically to conference presentations. Next, materials and study design are detailed in Section 3, with the findings and discussion following in Section 4.

2. Conference presentations and multimodal meaning making

Traditionally, research into scientific academic discourse has revolved around written genres; yet starting from the early 2000s there have been an increasing number of spoken academic discourse studies (Lynch 2011; Rowley-Jolivet 2002), focusing specifically on the multimodal aspects of conference paper presentations (Charles, Ventola 2002; Rowley-Jolivet 2002, 2004; Carter-Thomas, Rowley-Jolivet 2003). This section builds on genre theories (Swales 1990, 2004) to describe the multimodal artefact of a conference paper presentation and the underlying communicative situations, with their social and communicative purposes (van Leeuwen 2005; Baldry, Thibault 2005; Bateman *et al*. 2017). The framework of social semiotics and systemic functional linguistics (Halliday 1994 [1985]) is applied in that it has exerted a significant impact on multimodal research (Kress, van Leeuwen 2006; Jewitt 2014).

Conference presentations as a genre are placed against a broader conference background, including the communicative context and purposes – "the intangibles of the conference 'buzz'" (Swales 2004, p. 197) – and the (inter-)disciplinary nature of the conference. The International Human Gene Editing Summit ("Summit"), as any other international conference, is defined by a broad topic, here – human gene editing, which represents the *field* from the systemic functional perspective (SFL, Halliday 1994 [1985]). Although the composition of the Summit speakers is quite heterogeneous and interdisciplinary (geneticists, ethicists, lawyers, historians, philosophers, associations of people with genetic diseases), they are all united by the field of gene editing. Yet, their own specialization may have an impact on the multimodality of the presentation. While in the humanities the role of visual support may be nominal (Swales 2004), the biomedical field demands it either to explain abstract concepts or to illustrate laboratory work. Given the interdisciplinary nature of the Summit, this is an interesting starting point for an analysis, and it has been taken into consideration in the study design (see Section 3).

Normally, conference speakers tailor their presentations to the level of expertise, cultural and linguistic background of the audience in terms of its *ideational content* (what they are presenting), its *textual content* (how they organize the presentation) and its *interpersonal content* (how they relate to the topic and the audience), representing the *tenor* in SFL (Morrell 2015, p. 140). Moreover, conference speakers exploit a wide range of ways and channels of knowledge representation and/or their combination (i.e. *mode* in SFL) to facilitate communication and to build a logical structure for their discourse (Rowley-Jolivet 2002; Morrell 2015).

In the biomedical field, Dubois (1980) was among the first to report on the broader role of nonlinguistic visual devices (diagrams, charts, graphs, tables, photographs of laboratory animals and experimental procedures) and the use of slides (Morell 2015, p. 138). The visual mode either accompanied the speech to arouse more interest or was the main object of discussion. Frequently, speakers left the burden of decoding visual information to the attending public, without providing a verbal explanation (Dubois 1980).

Rowley-Jolivet (1999, p. 134) observes that "[i]n the scientific presentation, whatever the discipline, the visual channel of communication is a major resource for meaning making", reflecting a more general observation of the increasing visualization of modern scientific communication (Kress, van Leuween 2006, pp. 30-31). In a later study, Rowley-Jolivet (2002, pp. 20-21) posits that visual frames of PowerPoint presentations play a key role in distinguishing the genre of conference presentation among other research genres, or to quote Swales (2004) in the academic "genre chain". More recent studies reiterated the decisive role of the non-verbal mode in knowledge communication (Moreno, Mayer 2007; Rowley-Jolivet 2012; Bucher, Niemann 2012; Morrell 2015). Yet, in general scientific communication, Kress and van Leuween (2006, p. 31) advise against an over-reliance on a single mode, even in the shift from verbal to visual, so conference presentations need to be perceived multimodally and to combine the condensed expressions in slides with the extended presenter's commentaries (Rowley-Jolivet 2012).

Research on multimodality generally distinguishes between a number of different modes in conference presentations. Morrell (2015, pp. 140-141), building on previous research, identifies the following modes:

1) The spoken mode
   (1) *linguistic* (connecting words, meanings to express)
   (2) *paralinguistic* (tone, intonation, stress)
2) the written mode
   (1) *linguistic* (what is written on the slides)
   (2) *paralinguistic* (how the text is written: bold characters / different font colour / text organized in bullets, coming out simultaneously or consecutively)
3) the visual mode of non-verbal materials, that is pictorial representations of knowledge (Moreno, Mayer 2007), e.g., graphs, tables, bar charts, images or videos.
4) Body language, which stands for the omnipresent temporal and spatial distribution of the body (Morrell 2015), including facial expressions of the speaker.

It emerges that conference presentations, particularly those in the biomedical field, have complex multimodal semiotics. A useful concept to navigate through the multimodal structure of conference presentations is that of *semiotic spanning* (Ventola 2002), i.e. the switching of modes between various sections or moves (Swales 1990) of the presentation, further developed by Charles and Ventola (2002) in their analysis of video-recordings of conference presentations. This concept is used here to analyze how the unfolding of a video-recorded PowerPoint presentation provides adaptive choices for integrating different modes, such as reading written text on a slide, listening to a commentary on a pictorial slideshow, watching the presenter, etc. In terms of the analytical possibilities of such complex materials, Bateman *et al*. (2017, p. 221) emphasize the need to apply a so-called selective perceptual *slicing*, i.e. to focus on separate aspects of a given multimodal artefact. Such artefacts are described using the concept of *canvas*, i.e. "anything where we can inscribe material regularities that may then be perceived and taken up in interpretation" (Bateman *et al*. 2017, p. 87). Bateman *et al*. (2017, p. 215) posit that actions are unfolding within different canvases, "each of which would then support its own idea of multimodal investigation" (Bateman *et al*. 2017, p. 216); hence, despite a myriad of different perspectives (and opportunities) for multimodal analysis, it is important to adopt a selective approach. Following Bateman *et al*. (2017), this paper will focus predominantly on the interaction between various modes within the canvas of conference presentation. Space limitations do not allow to adopt a detailed slicing into sub-canvases of images or film which in themselves would be worth a separate investigation; however, mention will be made of these slices, where possible and relevant to the general discussion.

Finally, as all talks were centered around a PowerPoint presentation, I draw on Rowley-Jolivet's (2002) classification of PowerPoint slides into graphical, figurative, scriptural and numerical. In her taxonomy, graphical slides are juxtaposed to figurative slides by their semantic charge: graphical visuals are monosemic, whereas figurative visuals are polysemic. In graphical slides – containing graphs, diagrams and maps – every element has a definite meaning fixed in advance, whereas in figurative visuals – such as photographs, X-rays, scans, MRI - "the different visual components are open to several interpretations" (Rowley-Jolivet 2002, p. 27). Slides featuring scriptural visuals, according to Rowley-Jolivet (2002, p. 27), are text visuals that serve various pragmatic and interactive functions, such as presenting the plan of the talk or the summary of the main conclusions. They "act as a form of textual metadiscourse which '[organizes] propositional information in ways that will be coherent for a particular audience and appropriate for a given purpose' (Hyland 1997, p. 7)" (Rowley-Jolivet 2002, p. 31). I do not treat slides with bullet-points as pictorial in this paper, but as textual slides that activate the paralinguistic features of the written mode. However, if textual data are organized in graphical objects, such as tables or shapes, then I classify such frames as scripturals. Finally, there are numerical visuals that stand for mathematical formulae and numerical tables. Hybrid visuals are possible, too, for example, combining in one frame both graphical and figurative visuals, or figurative and scriptural elements.

3. Materials and study design

The possibility of editing the human genome has opened a large-scale public discussion, gathering together scientists, bioethicists, legal professionals and sociologists. In December 2015, an International Summit on Human Gene Editing was held in Washington D.C, with a view to creating a forum for discussion and dissemination of this information. As the international scientific community strived to disseminate this novel information to a vast public, the summit organizers employed a wide range of digital communication means. The summit featured a variety of conference paper presentations delivered by scientists (genetics, biomedicine) and academics (history, philosophy, ethics, law) for scientists and academics (the so-called intra- and inter-specialist communication) and for a wider public, i.e. with dissemination purposes. The digital communication of the event resulted in the creation of a specialized website presenting information through papers, conference proceedings, PowerPoint presentations and videos.

	Type of presenter	n. people	n. videos	n. slides	n. papers
DAY 1	moderators	4	4	1	2
	speakers	15	15	12	5
	discussants	5	5	3	1
	total	24	24	16	8
DAY 2	moderators	5	5	1	0
	speakers	20	20	15	2
	discussants	2	2	1	0
	total	27	27	17	2
DAY 3	moderators	2	2	0	0
	speakers	7	7	7	2
	discussants	0	0	0	0
	total	9	9	9	2
TOTAL		60	60	42	12

Table 1
Materials available from the Summit's website.

The data available on the Summit's website comprise 60 video recordings of 15-30 minutes each, 42 PowerPoint presentations and 12 commissioned papers (see Table 1). In other words, conference presentations delivered at the Summit are available through the video canvas in 100% of cases, through slides in 70% of cases and through papers in 20% of cases. The data shows that the Summit organizers relied on different semiotic codes for the dissemination of knowledge on human gene editing, yet a strong preference of the audiovisual canvas of video recording is evident.

Driven by the data available, this study aims to assess how different semiotic codes interact in the resulting multimodal artefact, and, specifically, how video recording of conference presentations contributes to the dissemination of scientific knowledge on human gene editing in slides and papers.

In order to answer these research questions, I downsampled the materials and selected for further analysis eight talks from different days. The downsampled corpus consists of eight videos for a total of 172 minutes, eight slide shows totaling 201 frames and seven papers with 18,391 words (Table 2). The latter contain text only, and no images, and generally do not follow the structure of a classical research article with subdivisions into Introduction – Method – Research – Discussion (Swales 2004). The commissioned papers, as it emerged from the close reading and comparison with videos, represent polished versions of talks delivered at the Summit, with the exception of one paper, where the author submitted a similar paper originally published elsewhere. Consequently, deletions and omissions – and generally any divergences between the commissioned papers and video transcripts are particularly interesting.

Slides	8 PowerPoint presentations	201 frames
Commissioned papers	7 papers	18,391 words
Videos	8 videos	172 minutes

Table 2
Corpus composition.

In the downsampled selection, attention was paid to maintaining the heterogeneous composition of Summit speakers in terms of their native or non-native command of the Summit language (English) and in terms of their gender. The downsampled talks[2] were delivered by two non-native speakers of English (one of French origin and one of German origin) and six native speakers of English (1 UK, 5 USA). Four speakers were male (3 native and 1 non-native) and four speakers were female (3 native and 1 non-native). As previous research suggested that the domain or discipline might exert some influence on the use of visuals (see previous section), the talks downsampled

[2] International Summit on Human Gene Editing. http://nationalacademies.org/gene-editing/Gene-Edit-Summit/. Reproduced with permission from the National Academy of Sciences, Courtesy of the National Academies Press, Washington, D.C.

were chosen from different domains. Five presentations were chosen from the scientific domain (biomedical-genetic) and three presentations were selected from other domains: one historical, one legal and one societal.

With a view to unveiling the multimodal interplay and meaning-making strategies in the artefacts, the analysis follows a bottom-up approach, starting from close reading of texts and a social semiotic close reading of multimodal artefacts (slides and videos). In order to facilitate the comparison between different semiotic codes, videos were partially transcribed and manually annotated to mark correspondences and divergences.

4. Findings and discussion

The structure of conference presentations analyzed follows a standard pattern, composed of

a) expressing gratitude to the organizers and acknowledgments (if any);
b) contextualization, consisting in putting one's work against the general conference background;
c) paper delivery, following the traditional IMRD structure (Introduction – Method – Results – Discussion; Swales 1990) in most cases;
d) thanking the audience at the end.

Interestingly, because of the montage, the focus shifts to different positions and shooting angles throughout the presentation. Different shooting angles show different information to the viewers. As Figure 1 shows, the initial move of thanks and acknowledgments is shot using a so-called long shot, when the camera takes the whole stage, showing the speaker(s), the slides and any co-speakers if it is a panel discussion. Alternatively, a master shot is used, which provides a closer yet still general picture, showing the stage and everyone on it. During the contextualization phase master shot changes into a close-up on the speaker, where the camera zooms on his/her bust, typically showing the speaker from head to waist. Close-ups are also used during the conclusions part and finally for thanking the audience.

Remarkably, the central part of the presentation offers a hybrid solution, alternating camera angles between close-ups on the speaker and zooming on the slides. Whenever the speaker is visible, the online viewer cannot see the slides and whenever the slides are shown the viewer can only hear the speaker's voice without seeing him or her. In the latter mode, the video resembles the genre of soundslide (Engebretsen 2014), which features a combination of a slideshow with a voiceover.

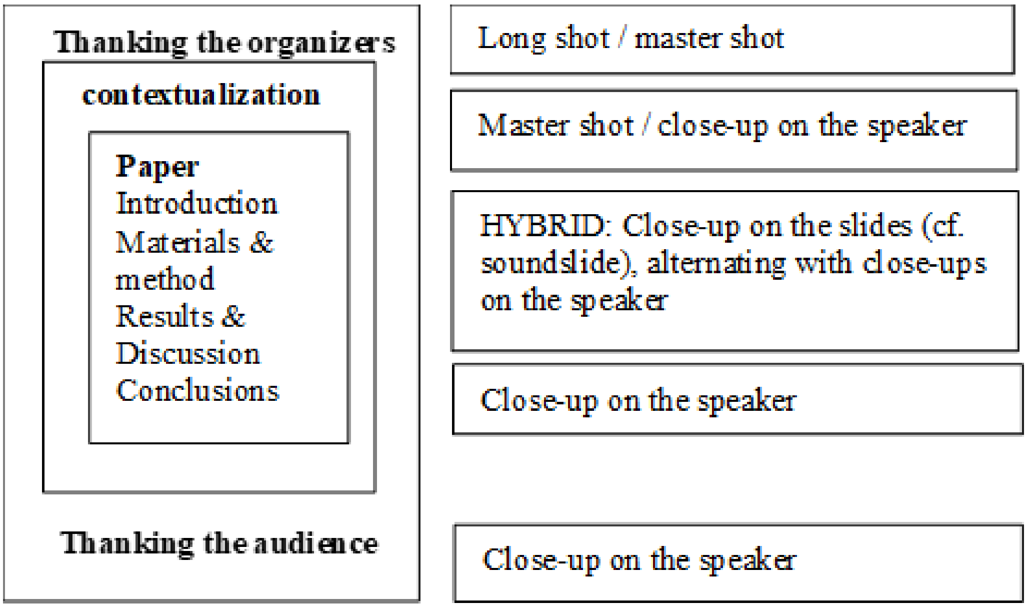

Figure 1
Generic structure of conference presentations and video recording.

Through cross-cutting between different camera angles without the possibility of maintaining both aspects, the video producers decide for the online viewer what mode should prevail and what kind of information is more important. This differs from the real life experience of the conference attendees, who make this decision on their own. It seems advisable to address this dichotomy for future productions of this type to increase the informational potential of multimodal meaning making in the video materials produced. Currently, the online viewer, who could be a lay person in need of clear and structured information, would be forced to look for supplementary data in other documents – papers and slides – uploaded to the Summit's website. The following sections address what data are available in different documents (videos, slides and papers) and how they are communicated from a comparative point of view.

4.1. Thanks and acknowledgments

Expressing gratitude and acknowledgments to the organizers is the expected politeness move at the beginning of scientific conferences. However, besides the conference etiquette, it conveys important information by establishing the interpersonal meaning in the SFL sense. This initial move shows the closeness or distance between the organizers and the speaker. For instance, in (1) the speaker refers to the members of the organizing committee by their first names, indicating a potentially close relationship with them. Similarly, in

(2) the speaker identifies himself as a member of the organizing committee during the thanks and acknowledgments stage.

> (1) [looks at the audience] It's an honour for me to start this session by talking about [looks at the screen to his right, with the title of his presentation] this subject. It was given to me by [while speaking, finds the clicker] David Baltimore and Ann Marie.
>
> (2) [looking at the notes] So, I am going to introduce our last speaker, which is me [looks at the audience, half-smile]. I am Eric Lander, I'm a member of the Organizing Committee, so I get to introduce myself. [looks at the audience; some people laugh] But I do want to thank other members of the Organizing Committee and our chair David Baltimore for all of the work he has done for this meeting and for a great set of sessions today.

In contrast to the last move – thanking the audience at the end – which meets the politeness requirements and marks the end of the talk, the interpersonal data of the initial acknowledgments stage may translate into a greater or lesser degree of trust towards the contents of the presentation. The online public, including the journalists who might want to quote some of the scientists when covering the event, will presumably rely on the sources that are "accredited" by their close link to the scientific community (Nobel Laureates, such as David Baltimore) and to the organizing committee. All talks in question start with this move, which is present in videos only, without any mention in papers or slides, thus confirming that the audiovisual canvas effectively conveys additional data in this part of the presentation.

4.2. Contextualization

Contextualization is the second move identified in all talks analyzed. It is used to put one's talk against the general context of the Summit, foregrounding relevant links to other talks and legitimizing one's work. Contextualization is typically achieved multimodally in this corpus and through a variety of canvases. In videos, contextualization is realized through the spoken mode, with emphasis given by means of voice and body language. The speakers usually make verbal (by such contextualization cues as "here", "this", etc.) or non-verbal (hand gestures) reference to slides. The frames at this stage are typically textual, where the cover slide with the talk's title is shown (see (3a) and (3b)).

> (3a) Human interest in genetic improvement has a very long history. For example, in the *Book of Genesis in the Bible* there is a reference to […] [Paper]

(3b) It was given to me by [while speaking, finds the clicker] David Baltimore and Ann Marie. They didn't specifically say [points the clicker and looks at the big screen] from *biblical times*, [looks down to his notes] but that is where, where the things started [looks up to the screen, clicks, slide changes – "*Book of Genesis"* written on the slide] [video]

Contextualization is found also in commissioned papers; however, it is significantly reduced in comparison with the video (see (4a) and (4b), where the coinciding information is italicized).

(4a) My assignment today from the organizing committee is *to look at the genetic basis of human disease and to ask how does it inform our thinking about germline editing*. [Paper]

(4b) I am gonna wrap up today by just providing scientific background which could be used in some of the discussions over the next two days. So… I am gonna… [speaks quickly] as member of the Organizing Committee, not attempt to take any policy position. [looks at the audience from right to left]. We've heard a lot of really thoughtful and diverse policy positions But I'd really like to *look at the genetic basis of human disease*. And I ask: *how does it inform our thinking with respect to human germline editing?...* I'll just dive right in… Sorry, I need that [takes and tries the clicker]. [Video]

In terms of semiotic spanning, at the contextualization stage several modes of information transmission are activated. These include the spoken mode, both linguistic (the actual words) and paralinguistic (voice modulation), the written mode, both linguistic (written on the slide) and paralinguistic (writing appears simultaneously with speech), the non-verbal mode, including body language (looking at the screen, hand gestures, using and referring to the use of the clicker), voice modulation and the visual support of the slides. As the contextualization stage is quite brief, typically all these modes are activated simultaneously.

As it emerges from the comparison between the papers and the transcript of the respective videos, (see (3a) and (3b), (4a) and (4b)), contextualization has a more prominent role in oral conference presentation than in the written text. It seems to belong to the conference "buzz" (Swales 2004, p. 197), i.e. those implicit rules that govern scientific conferences. Interestingly, the speakers felt confident in saying what they said during the conference presentation, yet they chose to omit or significantly reduce contextual information in the commissioned papers, probably because the mere inclusion of such papers in conference proceedings served the contextualization function.

4.3. Paper delivery

While acknowledgments and contextualization represent the fringes of a conference presentation, paper delivery is at its core. In all cases under analysis speakers made use of slides to deliver their talks. Consequently, the slides permanently accompanied the speaker's monologue. In contrast to the purely textual commissioned papers, slides exploited different semiotic codes and spatio-temporal organization of data.

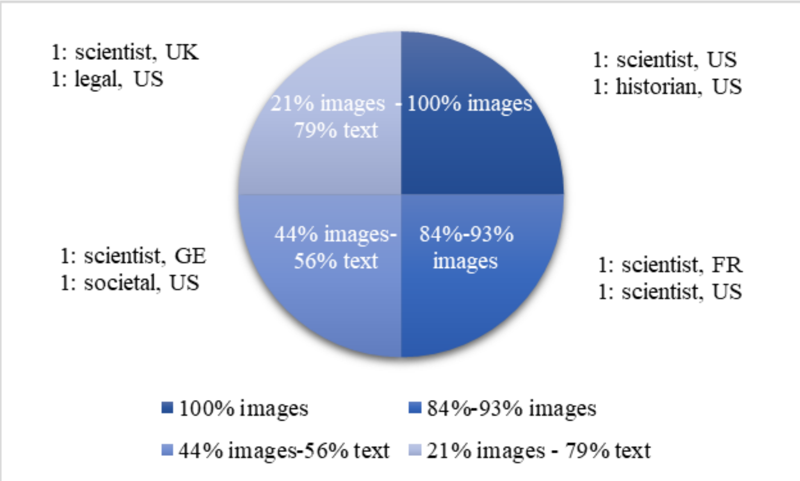

Figure 2
The use of verbal and pictorial materials in the slides.

Figure 2 shows the distribution between pictorial and textual slides, indicating the speaker's background aside. It emerges that in 50% of cases analyzed, the visual composition prevailed over the textual one, with 84% to 100% of slides being images (including all pictorial frames; for the distinction between different frame types, see Table 3 below). The prevalence of visual frames over the textual ones could be tentatively explained by the domain-specificity of presentations, confirming the hypothesis that presentations belonging to different domains or disciplines exhibit a different text-image balance. Three of these presentations were delivered by scientists-geneticists and one by a historian. The latter talked about eugenics and showed images referring to the early 20th century when the eugenics movement was active. The images used by the historian were all of the figurative type and offered an illustration rather than a different knowledge structure, whereas scientists used graphical, figurative and hybrid frames, relying on a different knowledge structure. Three were native speakers of English (US) and one was a non-native speaker of French origin with an excellent command of English. Rowley-Jolivet (2002, p. 38) stated that "[t]he English language is not the only international 'language' of science: the visual mode of discourse also fulfils this role". This statement applies to this corpus, too, as most scientists relied heavily on visual modes of knowledge dissemination. This tentatively confirms previous research on the dominant character of visualization in scientific intra-specialist communication.

In a quarter of the cases analyzed the distribution between images and text was almost equal, with a slight predominance of the textual "slice". These speakers were a non-native scientist of German origin with a good command of English, and the only non-academic in the sample: the chairwoman of an association for people with rare genetic diseases, advocating their point of view on the possibilities to treat such diseases with gene editing. The former seemed to rely on the textual slides due to some language-related constraints, and the latter reported on a survey, which envisages the use of the verbal mode. As concerns semiotic spanning, these speakers, especially the scientist, used different modes consecutively: first reading the texts on the slides, and then showing an image. Typically, if the image required extensive commentary, the camera showed the speaker, who commented on it using simultaneously the spoken mode, body language and voice modulation.

Only two speakers opted for the predominantly textual format of their presentations. The first was a scientist from the UK, who acted as a moderator of a panel discussion and read out statements (verbal mode, written on the slides, 79% textual frames and 21% figurative-scriptural) by other discussants. The second was a lawyer from the US, who compared legislative situations across various countries with regard to gene editing (62% textual frames; 15% graphical frames; 23% figurative or figurative-scriptural frames). Although she did not read the text on the slides, but commented on them, the slides themselves had to be textual in light of the data discussed. It has to be specified that those slides that used the verbal channel, through a combination of the written and the spoken modes, conveyed additional information exploiting the semiotic possibilities of spatio-temporal visual composition of the slide (e.g. bullets popping up, organization in tables or columns) and used colour coding to underline the most important items. Although Rowley-Jolivet (2002) defines such slides "scriptural" or "text visuals", in this paper I treat them as textual, acknowledging that they perform a range of pragmatic functions and pursue interactive or organizational purposes, and call "scriptural" only those slides that contain text in graphical shapes. Had I adopted fully Rowley-Jolivet's (2002) classification, all frames in the sample would have been classified as pictorial.

The prevalence of pictorial representations of knowledge in biomedical speeches in this corpus confirms earlier findings (Dubois 1980; Moreno, Mayer 2007; Rowley-Jolivet 2012; Morrell 2015). However, the knowledge dissemination potential of pictorial slides alone is quite limited, as graphs and images used by scientists have to be explained to a non-specialist public in order to be understood. Table 3 below shows different types of frames in the PowerPoint presentations analyzed. Cover frames and end frames containing contact information, if any, were discarded for this part of the analysis.

Type of frame	No. of frames	% out of total
textual	62	32%
graphical	66	35%
figurative	39	20%
graphical-figurative	8	4%
figurative-scriptural	6	3%
scriptural	9	5%
numerical	1	1%
total	191	100%

Table 3
Types of frames in the PowerPoint presentations analyzed.

Figurative frames, although undoubtedly bestowed with some iconographic value, functioned predominantly as attention-drawing devices. In fact, often they were used to mark various presentation's parts together with a short heading. In this study figurative frames are understood as those containing a photograph and a slide title, if any. If any further text is added, such slides are categorized as figurative-scriptural. In reality, the number of figurative slides was slightly skewed because one speaker – the historian – used only this type of frame in his presentation. Otherwise, figurative frames would have accounted for 8% only of all frames, and this number would have corresponded to their function: marking various presentation parts, where they were used to signal the beginning of a new subtopic.

Frames with a graphical element were categorized as such independently of a textual legend present on the slide. These were the most widespread category and the most enigmatic from the layman's standpoint, as they typically conveyed highly specialized knowledge. Consequently, graphical frames required a verbal explanation. The commissioned papers, peculiarly, did not contain any pictorial elements; therefore, it was challenging to draw a parallel between what was depicted on a slide and what was written in a paper.

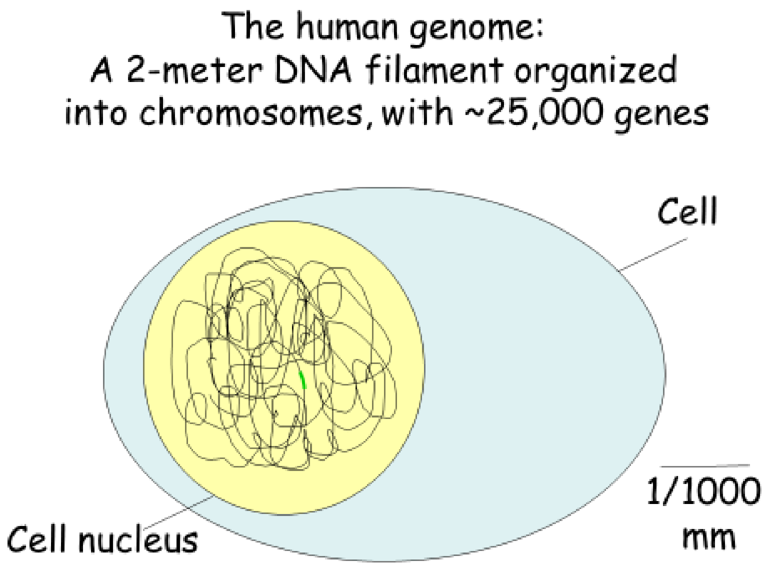

Figure 3
Example of the missing correspondences between the slides and the paper.

For instance, the graphical frame in Figure 3 does not find a straightforward correspondence and explanation in a paper. While it is quite easy to understand that the image represents a cell and a cell nucleus, the relationship between them, the human DNA filaments and changes introduced by gene editing remain unclear. The paper does not provide an explanation (5a), which could be easily understood by the lay public, stating merely that these are some basic notions of genetics and repeating the legend written on the slide (in italics). In other words, the expectation that "the accompanying verbal text explains what is not made clear visually" (Kress, van Leuween 2006, p. 61) is not met in the written text. By contrast, the video (5b), which shows just the slide and functions thus as a soundslide at that particular moment, adds a crucial element for the decoding of this specialized item: it explains that the DNA filament is situated within the cell nucleus and indicates – using the pointer – where the segment to be modified is placed (underlined). Consequently, the conference presentation genre – here more closely represented by the video recording – tends to have a higher popularization and dissemination potential than the paper or the standalone slides. This dissemination purpose is stressed by the speaker himself (5b in bold).

> (5a) I want to review some of its basics. *The human genome is a 2-meter DNA filament organized into chromosomes* in the cell nucleus and encoding about *25,000 genes*. [Paper]

> (5b) Now **I was told to talk to lay people**, so I apologize to the experts here, but I will be, **I'll try to very simply explain** some of the things we have just

> discussed. This is a cell, with a, with a nucleus that is of this size. In the nucleus [th th th th th,] *the DNA filament organized in chromosomes with about 25,000 genes* aligned on this filament. And here's one of those genes which we want to modify. [Video]

Remarkably, albeit 100% of presentations delivered at the Summit were available as recorded webcast, the videos alternated between the recording of the speaker and the soundslide format. Both regimes are multimodal: the former activates only the body language mode and the spoken mode, and the latter activates the spoken mode (a voiceover explaining slides under the form of the speaker's monologue) and either the visual or the written mode of data presentation on the slides. The soundslide allows the viewer to listen to the explanation in simpler terms and to look at the pictorial / textual slide simultaneously; however, it deprives the viewer from perceiving additional meanings, typically conveyed by the speaker's body language.

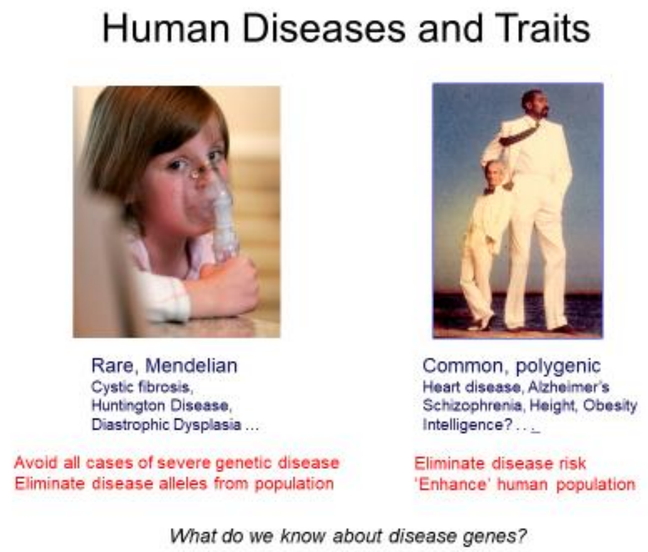

Figure 4
Slide that explains the differences between different genetic diseases.

Figure 4 above shows the slide "Human Diseases and Traits" from one of the scientific talks delivered at the Summit. The frame is classified as figurative-scriptural because it contains two photographs meant to illustrate "Rare, Mendelian" and "Common, Polygenic" diseases and lists of examples below with different colour-coding. This slide was projected for three and a half minutes, as the speaker explained its meaning. In the video, after a minute and ten seconds showing just the slide with a voiceover explaining the former category of genetic diseases, the camera shifted towards the speaker for the explanation of the second category – common polygenic diseases. Examples (6a) and (6b) below refer to the explanation of this category in the paper and in the video. As can be seen, the paper (6a) presents the list of diseases from the slide and a commentary (italicized).

> (6a) Second, we have a large number of common diseases, which are, for the most part, polygenic. These include heart disease, Alzheimer's disease, and schizophrenia. *We have identified genetic factors that play a role in these conditions, but each is only one of many factors that contribute to these conditions, and they are by no means determinative. There is a locus that has a significant effect, although by no means determinative, of Alzheimer's*. [Paper]

> (6b) They're just the opposite of the rare Mendelian inheritance pattern [rhythm as if dictating, gesture as if drawing the pattern] that you've learned about in high school. [hand in the air, looks above the glasses at the audience]. Heart disease [hand up to stress, rise-fall pitch] falls into that category [looks down at his notes] Alzheimer's disease [again at the public, stress] There is all [hand gesture] locus that has a significant factor, but by no means [looks at the audience from right to left, then to the center] determinative of Alzeheimer's. And then [hand gesture to indicate continuation of the list] a bunch of other things [hand up with fingers moving like a crawling spider], a long tail. *Schizophrenia that clearly [rising pitch, inverted commas sign with a hand, raising eyebrows] "runs in families", but does not Mendelize in any particular way*. [Speech]

In the video, however, extra information is conveyed through the body language of the speaker, in addition to his voice modulation. When the speaker explains that polygenic diseases are the opposite of the rare Mendelian diseases, he uses a dictating voice and a gesture imitating drawing the pattern on a blackboard to stress the idea that this knowledge is basic, the one that "you've learned about in high school" (6b). He uses further on a rise-fall pitch that indicates a continuation of the list of diseases, stressing this idea with a hand gesture. However, the real difference between the slides, the paper and the video commentary showing the speaker can be perceived looking at the segment italicized in (6b). All three documents mention schizophrenia among common polygenic diseases. The slides mention it as part of the list, and the paper provides a brief commentary. However, only in the video can we see the speaker's attitude towards information available about the disease and, consequently, possibilities to treat it with gene editing: he makes a sign of inverted commas with his hands when saying that schizophrenia "runs in families", raises his eyebrows and his tone to stress the impossibility to apply gene editing to this disease. All this information is not present in the slides or in the paper.

5. Conclusions

The analysis confirmed the shift from the textual monomodal communication of science to the prevalently audiovisual and multimodal knowledge dissemination effort during the International Summit on Human Gene Editing, with 70% of all slides and 100% of all videos rendered available to the public at large compared to only 20% of commissioned papers. As a result, the video recording of conference presentations confirmed to be the "most inclusive canvas" (Bateman *et al.* 2017, p. 214) to represent and spread knowledge on gene editing, with the canvases of slides and papers embedded in it. The semiotic spanning between different modes occurred simultaneously in 75% of downsampled cases, while in the rest of the sample different modes were used consecutively, e.g. first the text was read, then an image was shown, then it was commented using the possibilities of body language and voice modulation.

Remarkably, interpersonal information contributing to the popularization purposes appeared mainly in the videos. The speakers shifted tenor in order to attribute different interpersonal meaning to their statements, and this information was accessible through the video canvas solely. Surprisingly, interpersonal markers were often absent from the commissioned papers, when compared to the transcript of the video. This effectively reduced the disseminating and popularizing potential of papers. In addition, no images were present in the papers to illustrate the abstract concepts discussed. One can hypothesize thus that the papers did not pursue popularization goals, but rather were meant for inter-specialist discussion. Similarly, the PowerPoint slides, especially those dealing with topics of genetics and biomedicine, were not readily comprehensible to an outsider on account of their pictorial nature. The graphical slide frames conveying specialized meanings using graphs, maps and diagrams often required extensive verbal comment to decipher the pictorial content and to enable the participation in the discussion of lay public and specialists from other fields.

In general, attempts to get information on the Summit only through PowerPoint slides (predominantly visual canvas for scientific slides) or only through papers (textual canvas), without the combined multimodal input of videos would leave the online user with many details unclear for a layperson. This stresses the importance of multimodal communication of science relying on multiple semiotic codes and their simultaneous or consecutive spanning.

As such, audiovisual communication of specialized knowledge seems to take on great prominence in international science conferences – and, in general, in the dissemination of scientific knowledge – on account of its versatility and all-encompassing nature. This multimodal way of communication is particularly well suited for linguistically and scientifically heterogeneous global audience. However, the videos manifested a limit as they gave the online viewers no possibility to watch the speaker and the slides simultaneously. It is advisable to address this limitation for the next summit editions. Further research into the combination of verbal (spoken and written), pictorial, non-verbal (kinesics) and paraverbal (intonation, voice) elements will help evaluate how these multimodal resources enhance the dissemination of scientific knowledge.

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"MULTIPLE G. S.WS TO THE CHEST. B.P. 90 OVER 60. PULSE IN THE 120S. PUSH 1 OF EPI!" A preliminary study on the representation of spoken medical English in *Grey's Anatomy*

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Abstract – This paper explores the representation of spoken medical English in *Grey's Anatomy* (Rhymes 2005-still running), a very popular American TV series set in a hospital environment. Given the shortage of authentic materials portraying spoken medical interactions, medical dramas, which are becoming increasingly accurate, globally acclaimed, represent a useful source to study oral communications in this professional domain. The analysis is based on a sample of episodes in which four main recurrent types of medical-related situations were isolated featuring both expert-to-expert and expert-nonexpert conversations: i) the arrival at ER, ii) the discussion of the clinical case between physicians, iii) the discussion of the clinical case between doctor and patient and iv) the medical procedure. The qualitative assessment of the medical sequences pertaining to the four situational contexts, of which doctor-doctor interactions came out as the most represented ones, revealed some recurrent linguistic usages and attached pragmatic functions. Such results constitute an interesting basis for studies on the authenticity of the representation of oral medical discourse in televisual products.

Keywords: televisual language; specialised TV series, English for specific purposes, spoken medical English.

1. Introduction

The present research attempts to identify and describe some distinguishing linguistic traits of oral communication in medical contexts in one of the most successful contemporary American TV medical dramas, i.e. *Grey's Anatomy* (Rhymes 2005-still running). Given the lack of authentic materials showcasing spoken medical interactions, such an analysis could provide a useful insight for instructors in the field of medical English, who could exploit these materials in their language classrooms. Therefore, this pilot study could be seen as an initial step, within a wider research framework, aimed at evaluating the authenticity of the representation of specialised discourse in TV medical dramas.

The ongoing global acclaim of American TV series, as indicated by the rise of TV networks such as HBO, AMC, Showtime, and online distributors such as Netflix and Amazon Prime, whose catalogues are mainly composed of series, has made these TV products particularly appealing not only for researchers interested in the TV-mediated representation of language (Richardson 2010, Piazza *et al*. 2011, Bednarek 2018 *inter alia*), but also for applied linguists interested in the study of how audiovisual materials could be exploited in language classrooms in particular (Bruti 2015; Bonsignori 2018; Canepari 2018). As Mittmann (2006, p. 575) states “the language used in TV series and films can […] become an influential model for learners”. In other words, these audiovisual products contain strands of language occurring in conversational contexts that can work as models to be imitated by foreign language students.

The dialogues represented in TV series are a peculiar type of scripted speech, similar to that of films (see Bednarek 2010 and 2018 for the linguistic differences and similarities between these two fictional audiovisual genres), which is written with the principal aim of being as close as possible to the native speakers’ oral production, i.e. featuring a natural and idiomatic use of language (unless the narrative requires the portrayal of a non-native speaker). This intrinsic attempt to mimic authentic spontaneous speech is one of the features that makes some TV series an extremely valuable source for language learners as well as for educators who wish to use them in their language modules (Kaiser 2011; Bonsignori 2018), because, as Kaiser (2011, p. 233) claims, despite their fictional character they are “authentic source material (that is, created for native speakers and not learners of the language)”. This similarity with spontaneous face-to-face conversation has been empirically demonstrated especially for film dialogues (Forchini 2012), and for TV series (Quaglio 2009; Bednarek 2018).

Nonetheless, as Bednarek (2018, p. 13) states, “from an applied linguistic perspective it is vital to know the input that learners are exposed to”. This warning clearly stresses the pivotal importance of acquiring an exhaustive knowledge of the linguistic nature of TV series before using them in language classrooms. In the light of that, the analysis proposed in this paper is an essential starting point that needs to be addressed before resorting to sequences from medical TV dramas in the preparation of teaching materials and learning units.

1.1. TV series and specialised TV series

A format peculiarity that distinguishes TV series from films is that the episodes of a series are in some way connected one to another and, therefore, the audience generally need to have seen the previous episodes in order to follow the general storyline. It is especially thanks to this feature that serial television is considered so very engaging. Moreover, scriptwriters of TV series have more space to depict compelling characters: this is probably another reason that contributes to the creation of strong viewer involvement.

Television series may span across different genres, for example sitcoms, action series, police series, science fiction series, detective series, fantasy series, prison series, mystery dramas, soap dramas, etc. According to Bednarek (2010, p. 13), a more general division could be drawn between "drama" and "comedy" oriented TV series, which sometimes turn into a mixture of both called "dramedy".

Within this vast panorama of series, among the most acclaimed ones are those rooted in reality, staging events that take place within workplace environments and professional communities. A characteristic that sets aside these TV shows from family dramas or sitcoms, apart from the representation of specific professional practices and procedures, is embodied in the conversational contexts they depict. In effect, when considering language use only, scriptwriters of specialised TV series face a double challenge in reaching an effective illusion of reality: not only do they have to faithfully represent oral language features ("written-to-be-spoken-as-if-not"; Gregory, Carroll 1978, p. 42), but also the specialised discourses at stake in the professional environment staged by the show (see Shevell, Thomas, Fuks 2014; McGann 2015).

Matamala and Lozano (2009) rightfully maintain that specialised languages in fictional television are not primarily meant to communicate specialised professional information, as happens in real contexts, but are used to characterise the dramatic scene where the protagonists interact, contributing to a more realistic portrayal. Hence, professional dialogues help to simulate authenticity in order to reach the viewers efficiently, convincing them of the verisimilitude of what is airing.

Despite being a very popular genre, well received by the public and acclaimed by the critics, linguistic studies devoted to specialised TV series are still very few. Suffice it to say that in the 23-page Bednarek and Zago's (2019) bibliography of linguistic research on fictional television only a couple of case studies focus on specialised TV series (e.g. Sorlin 2015, 2016, 2018 on political TV series).

The present research concentrates in particular on medical dramas, as there is a shortage of authentic materials exemplifying spoken medical English in hospital environments (Bonsignori 2019). Specialised TV series staging this professional domain could profitably be put to good use to fill this gap. Medical dramas have been a staple of primetime television in English speaking countries since the birth of the craft. The earliest TV medical dramas, such as Dr Kildare (1961-1966) and Ben Casey (1961-1966) struggled to balance reality with drama, featuring doctors as heroes who hardly ever failed. Consequently, medical accuracy was of little importance compared to drama.

A turning point for the genre was represented by the series *ER* (1994-2009), whose overall tone was more light-hearted and humorous, with doctors portrayed with human weaknesses, fears and also occasional failures (Vandekieft 2004). In the words of Chiaro (2008, p. 276), nowadays medical dramas reflect the trend of “mixing-genres” so as to meet the requirements of the audience. Dramatic and romantic moments are stitched together with a faithful representation of the professional environments, and a consistent number of humorous sequences. The TV series under analysis in this paper, i.e. *Grey’s Anatomy*, is a typical example of this hybrid juxtaposition of styles and discourses, being rather gritty and displaying doctors committed to their profession, but who have their personal problems and demons to face.

Thus, the present paper qualitatively assesses some recurrent characteristics of specialised medical English in a popular TV drama revolving around hospital interactions. More specifically, it investigates the usage of some linguistic features of spoken medical interaction in four communicative events identified as defining of medical-centred conversations in the medical drama under analysis (see Section 3.1. in this paper). These sequences are i) the arrival of the patient at the emergency room, ii) the discussion of the clinical case with the patient, iii) the discussion of the clinical case between peers, and iv) the medical procedure in the operating room. Such a descriptive and exploratory analysis should constitute an earlier stage within a deeper investigation into the reliability and authenticity of specialised dialogues in the TV series under analysis.

2. Dataset and approach

Given the preliminary nature of this study, which entails a thorough manual check of the data, working on the complete TV series, to date counting 16 seasons and 338 episodes, would have been beyond the present scope. That is why a random selection of ten episodes was taken as a representative sample. All the *Grey’s Anatomy* episodes collected come from the 10th season of the show (2013/2014). The TV series episodes were orthographically transcribed (see Bonsignori 2009 for the rationale used for transcriptions) and organised in tables, which were then stored together with their corresponding audio/video files. Table 1 offers an overview of the materials included in this study.

Grey's Anatomy (2005- still running)		
Episode	Running time	Word tokens
10x01 Seal Our Fate	44 min.	11,284
10x02 I Want You With Me	43 min.	6,159
10x03 Everybody's Crying Mercy	43 min.	6,616
10x04 Puttin' on the Ritz	43 min.	6,249
10x05 I Bet It Stung	42 min.	7,101
10x06 Map of You	43 min.	6,550
10x07 Thriller	43 min.	6,947
10x08 Two Against One	43 min.	6,585
10x09 Sorry Seems to be the Hardest Word	43 min.	6,986
10x10 Somebody That I Used to Know	43 min.	6,462

Table 1
Dataset overview – *Grey's Anatomy*.

Grey's Anatomy (Rhimes, ABC, 2005–still running) is a contemporary American medical drama. The show, which debuted in 2005, is currently in its fifteenth season and airs on Thursday nights on the ABC network in the United States, and is one of its highest-grossing TV shows of all time, and also the longest running prime-time US medical drama. The series features an ensemble cast of doctors (both residents, interns, and attendings) working at Seattle's Grey Sloan Memorial hospital and especially focuses on members of a surgical residency programme. In particular, the show follows the career and the personal life of Meredith Grey, who is also the narrating voice performing voice-over moments that frame the episodes at the beginning and/or at the end. In general, physicians (or, more precisely, surgeons) in this TV drama have to cope both with the daily issues of the medical profession, and with the challenges of personal relationships complicated by the problems related to a stressful working environment. Each episode generally features different patient encounters with the hospital staff, which typically are interspersed throughout the fifty minutes of airtime.

Once the dataset was arranged, the analysis started off qualitatively: the transcripts of *Grey's Anatomy* were carefully read and evaluated by also watching their corresponding videos, with the aim of singling out the types of conversational medical situations represented. After classifying these medical-related encounters into four principal types: i) the arrival at the ER, ii) the discussion of the clinical case with the patient, iii) the discussion of the clinical case between peers, and iv) the medical procedure, an attentive categorisation and analysis of the most recurrent spoken English traits (Biber *et al*. 1999) as well as the specialised characteristics of oral medical discourse (Gotti, Salager-Meyer 2006; Ferguson 2013; Salager-Meyer 2014) defining each of these situations was carried out. Therefore, linguistic features such as specialised vocabulary, speech acts, and register variation traits were investigated and described.

2.1. Spoken medical English

Even though English medical discourse has been mainly studied in its written form, for example in medical posters (Maci 2016) or research articles (Nwogu 1997) research on oral medical discourse is also getting more and more attention among linguists working in the field (Gotti 2015; Gotti, Salager-Meyer 2006; Merlini 2009; Ferguson 2013), who recognise the key importance of correct oral communication in the health services. Generally speaking, analysts of oral medical discourse make use of the analytical tools of linguistics to study the connection between language, health issues and, most importantly, the contexts of use. In this regard, some data that are frequently employed for the analysis of spoken medical discourse are interactions between doctors and patients, interviews with physicians, or people's retrospective accounts of their illness (Robinson 2016; Franceschi 2018).

From a linguistic perspective, medical discourse can be considered a particular type of professional, i.e. specialised, discourse as it is generated in working environments to exchange information and communicate within a community of practice (Eckert, Wenger 2005; Gotti 2015). According to Linell (1998, p. 143), professional discourse is divided into three major kinds: i) "intraprofessional discourse" (i.e. communication among specialists of the same profession); ii) "interprofessional discourse" (i.e. communication between specialists from different fields); iii) "professional-lay discourse" (i.e. communication between specialists and laypeople). Linell's (1998) classification can profitably be applied to medical discourse as well. For instance, an encounter between a physician and a patient is an example of professional-lay discourse. As the following analysis shows, all these situations are represented in medical dramas, and in particular in *Grey's Anatomy*, making this show decidedly suitable for improving the knowledge of different kinds of spoken English medical interactions.

Looking at oral medical English in more detail, researchers generally agree that it is a very complex register as it is particularly dense from a lexico-grammatical point of view (Maglie 2009). However distinguishing linguistic features can be identified also at the semantic, pragmatic, and discourse levels. Some key grammatical and syntactic characteristics are the high use of reporting verbs, e.g. 'The patient reported severe side-effects', the use of verbs in the imperative form e.g. 'get me the labs' to give directions, and the use of modal verbs expressing obligations (e.g. 'must', 'ought to') or possibility (e.g. 'may', 'might'). Concerning the lexis, the use of a sectorial medical terminology whose origin chiefly comes from Greek and Latin (e.g. 'nervus', 'carcinoma', 'atrium', etc.) is particularly distinctive and pervasive (McMorrow 1998), as such words are precise, semantically monoreferential, and, thus, internationally comprehensible (Nagy 2010). This set of words that makes up the core of medical interactions is essentially constituted by proper medical terminology and sub-medical terms, the choice depending on the audience and on the context. Indeed, in many cases, the proper specialised medical term has a sub-medical and less specialised variant e.g. 'myopia/shortsightedness' or 'hemorrhage/bleeding'. Another lexical feature denoting medical English is the presence of noun strings plus different collocating adjectives (less often verbs and adverbs) forming a concept through a single speaker's choice (i.e. compounds such as pace-maker, or collocations such as 'impaired knee injury'). As Berghammer (2006, p. 42) states "the fast growth of scientific knowledge in the past half century has generated many new terms, particularly multiterm words, such as 'chronic obstructive pulmonary disease'".

A further great bulk of medical terms that is worth mentioning is constituted by abbreviations, both in the way of clipped forms (e.g. 'polio' for 'poliomyelitis') and initialisms (e.g. "MRI" standing for 'Magnetic Resonance Imaging' or acronyms (e.g. "CAT" standing for 'Computerised Axial/Computer-Assisted Tomography') (Mattiello 2012).

Moving on to some pervasive discourse phenomena, studies focusing on doctor-patient interactions in particular have highlighted the recurrent presence of personal stance expressions, hedges and mitigating devices, as well as exact descriptions, standardised methods of reporting, and hypothesising (McMorrow 1998). Especially in these expert-nonexpert conversations, a strong tendency towards popularisation has been highlighted, meaning that medical jargon is explained through a series of rhetorical devices (e.g. similes, paraphrasis, etc.) in order to make specialised discourses more accessible to lay people (Laudisio 2015).

Therefore, the analysis of this complex and multilayered register that follows is useful both in identifying the abovementioned linguistic features characterizing medical communications and in raising awareness of their pragmatic functions which vary according to the basis of the communicative contexts.

3. The analysis

3.1. Different types of medical situations

Given that the present research addresses the representation of medical English in dramatised hospital encounters in *Grey's Anatomy*, the analysis began by individuating and defining what kinds of medical related conversations are exemplified in the dataset taken as a sample of the TV show. Hence, the transcripts were carefully read while watching the corresponding video with the aim of describing the interactional context in which the topic of conversation was medicine. The pie chart in the figure below (1) summarises the outcomes of this preliminary exploration[1].

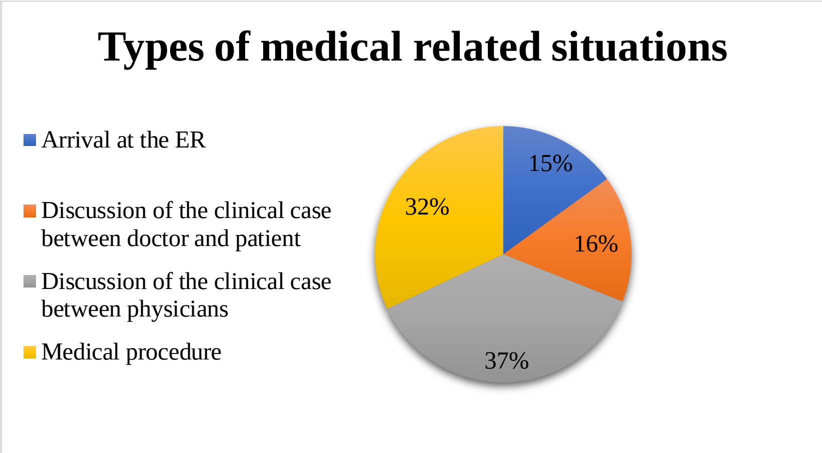

Figure 1
Types of medical related situations in *Grey's Anatomy*

Overall, we could observe that four principal medical contexts are represented in the dialogues. The most represented situation is the moment of the discussion of the clinical case between peers i.e. expert physicians (37%). Then, in 32% of cases, medical discussions occur between surgeons (i.e. experts) during the medical procedure both in the operating room or, sometimes, in the emergency room. The third most represented type of sequence consists of expert-nonexpert exchanges which occur in the form of doctor-patient discussions about the patient's clinical situation itself (16%). To quite a similar extent (15%) medical-centred dialogues take place on arrival at the emergency room. In this case, the interaction can be both between experts (i.e. paramedic to doctor or doctor to doctor), and between experts and nonexperts (i.e. doctor to patient or doctor to patient's relatives). The next paragraphs discuss in detail the linguistic features defining each of these situations.

3.1.1. The discussion of the clinical case between physicians

The first situation under investigation is when physicians talk to each other to discuss how to handle and treat the clinical cases they are working on. Generally speaking, in those expert-to-expert communications there is an exchange of information and advice on how patients should be treated, until some kind of decision is reached. In the table below (2), some typical linguistic acts recurring in these situations (first column), together with their

[1] The percentages given in the pie chart (Figure 1) were calculated on the total amount of medical related situations, therefore discussion of personal matters between physicians were left out of these counts.

corresponding linguistic features (second column), and the attached pragmatic functions (third column) are reviewed.

Linguistic act	Linguistic feature	Pragmatic function
Explanation/ description	- complete (long) sentences - ellipses - specialised terms/collocations	- describe a medical procedure or state, express one's opinion justifying it
Abbreviation	- initialisms and acronyms, - clipped forms, - syntax fragmentation	- effective communication within shared knowledge (doctor-doctor) - brevity due to lack of time
Aggravation	- vocatives - modal verbs - imperatives - colloquialisms	- argue and convince on how to treat the patient
Question	- standard and non-standard questions	- ask for advice, consultation
Informality	- sarcastic comments, jokes, hyperboles	- lighten the atmosphere, engage and entertain the audience

Table 2
Breakdown of the most distinguishing features defining expert-to-expert discussions of the clinical cases.

The two following dialogue transcriptions (Examples 1 and 2) exemplify these dynamics in action.

Example 1

Grey's Anatomy S10-E04: IN THE HOSPITAL - Dr Jo Wilson (a resident) is talking to Dr Alex Karev (an attending), about a patient		
1	Dr Jo Wilson	Taryn's labs show a slightly elevated white count, some of her electrolytes are off, her pulse is weak, and she is reporting abdominal pain. Should we keep her here overnight? It's just that her dad wants to know if he should change his flight
2	Dr Alex Karev	Yeah, labs show his 8-year-old daughter has a potentially surgical abdomen and she needs a CT, she's in pain. Her father must change his flight
3	Dr Jo Wilson	Dude, what is your problem? I know you think he's an ass, but he's not. He's not your dad
4	Dr Alex Karev	Don't even…
5	Dr Jo Wilson	What? Pretend that you're not angry and hurt and about to explode? I've been doing that. It's not working. Tell me what I can do to make this better
6	Dr Alex Karev	Just get a CT, now!

Example 2

Grey's Anatomy S10-E02: IN THE HOSPITAL - Dr Stephanie Edwards (a resident) is updating Dr Owen Hunt (an attending) about a clinical case they are handling together		
1	Dr Stephanie Edwards	Dr Hunt, Lydia's desatting, BP's dropping, decreased breath sounds on the left, rigid abdomen
2	Dr Owen Hunt	What?
3	Dr Stephanie Edwards	Sharpie lady. I throw in a chest tube?
4	Dr Owen Hunt	Dr Yang is gonna take over that case
5	Dr Stephanie Edwards	Why? I can handle a chest tube

One of the pivotal features of peer-to-peer discussions of clinical cases is their being highly dense (especially from a lexical point of view) and informative. From a discourse point of view, this translates either into the use of descriptive long and complete sentences, or of more elliptical, but very specialised, statements. The first sentence in turn 1 from example 1, in which Dr Jo Wilson, a resident, reports to Dr Karev, an attending, on the condition of a young patient, illustrates an example of a rather long and descriptive sentence: "Taryn's labs show a slightly elevated white count, some of her electrolytes are off, her pulse is weak, and she is reporting abdominal pain". Indeed, it contains 25 words, with Biber *et al*. (1999) claiming the average sentence length for spoken English ranges from 10 to 15 words. As can be observed, there are multiple coordinate clauses that are used to sketch the patient's clinical picture in front of a colleague before asking for consultation: "Should we keep her here overnight?" The resident's answer to this articulate presentation is again highly descriptive, adding an explanatory reading of the labs results: "Yeah, labs show his 8-year-old daughter has a potentially surgical abdomen and she needs a CT".

As anticipated, in some cases peer-to-peer descriptions and explanations can also take the form of elliptical sentences, in which some parts are left implied. For instance, in turns 1 and 3 of example 2 Dr Stephanie Edwards seeks advice from Dr Owen Hunt as one her patients is not feeling well and needs to be treated with a certain urgency: "[her][2] BP's dropping, [she's got] decreased breath sounds on the left, rigid abdomen", "[should] I throw in a chest tube?" In her sentences Dr Edwards omits, respectively, the possessive adjective [her], the subject and the verb [she's got], and the modal verb [should] resulting in some telegraphic, but still very informative, sentences that are easily understood by the members of the medical community.

Moving on to the lexical content of these sequences, examples 1 and 2 show that they are very rich in specialised and technical terms and word combinations pertaining to medical jargon. For example, there are sectorial

[2] The words between square brackets are those that were omitted in the dialogue.

terms coming from Greek and Latin (e.g. "electrolytes", "abdomen", and "abdominal"), technicisms (e.g. "surgical, "desatting"), and specialised adjective-noun collocations (e.g. "white count", "abdominal pain", "surgical abdomen", "rigid abdomen") or noun-noun collocations (e.g. "breath sounds", "chest tube"). A further very recurrent lexical peculiarity of real expert-to-expert medical discussions as well as of the dataset under analysis is the usage of morphological abbreviations especially in the form of initialisms (e.g. "CT" standing for 'computed tomography', and "BP" standing for 'blood pressure'), and clipped forms (e.g. "labs" coming from 'laboratory work').

As example 1 illustrates, discussions between colleagues sometimes can also be quite adversarial. In turn 2, Dr Karev uses the modal verb "must" expressing a strong obligation in response to Dr Wilson's request for a consult formulated with the modal "should". The antagonistic nature of the exchange is also confirmed by the use of the informal and sarcastic vocative Dr Wilson uses in her answer in turn 3 of example 1"dude", and by imperative forms such as "just get a CT, now!" in turn 6 of example 1. These kinds of aggressive expressions are particularly recurrent in *Grey's Anatomy* as their impoliteness contributes to the creation of register humour (Dynel 2017) and may make medical exchanges more dramatic and palatable to the audience who also seek entertainment.

3.1.2. The medical procedure

The second most represented medical situation in *Grey's Anatomy* is the moment of the actual medical procedure. These parts are the most 'spectacular' ones in the show, in which the viewers see surgeons performing surgeries and medical treatments in the operating room, and, sometimes, in the emergency room. These sequences generally represent dialogic moments as surgeries are performed by teams of physicians and nurses. Hence, they represent peer-to-peer dialogues, with the patient not normally awake, or at least not directly involved in the conversation. Table (3) showcases some linguistic phenomena that according to the dataset analysed appear to characterise these professional exchanges, and examples 3 and 4 illustrate some of these dialogues.

Linguistic act	Linguistic feature	Pragmatic function
Explanation/ description	- complete (short) sentences - ellipses - specialised terms/collocations	- informational function/teaching
Abbreviation	- initialisms and acronyms, - clipped forms, - syntax fragmentation	- effective communication within shared knowledge (doctor-doctor) - brevity due to lack of time
Directives	- imperative - requests	- instructional function
Questions	-standard and non-standard questions	- ask for patient's statistics
Informality	- vocatives - colloquialisms - small talk	- lighten the atmosphere - show involvement

Table 3
Breakdown of the most distinguishing features defining physicians' exchanges during medical procedures.

Example 3

Grey's Anatomy S10 E01: IN THE OR - Dr April Kepner (an attending) is operating on a severely injured patient with Dr Owen Hunt (an attending)		
1	Dr April Kepner	He's bleeding through the packing, and there's still stool coming out
2	Dr Owen Hunt	Damn it. We need to take it out and resect more intestines
3	Dr April Kepner	How's his I.N.R.?
4	Dr Knox	The last one was 6
5	Dr April Kepner	Okay, give him factor VII, F.F.P.s and platelets
6	Dr Owen Hunt	Faster, Kepner
7	Dr Knox	He's having arrhythmias
8	Dr Owen Hunt	Talk to me, damn! His pulse?
9	Dr April Kepner	He's in P.E.A.
10	Dr Owen Hunt	Starting compressions

Example 4

Grey's Anatomy S10 E04: IN THE OR - Dr Derek Sheperd (an attending) is performing a brain surgery with a resident, Dr Shane Ross		
1	Dr Derek Sheperd	I'm hearing changes in his rhythm 10-blade. I need you to turn up the heart monitor, please. Suction. Mannitol. Rhythm's getting very erratic, and B.P.'s rising. Damn it. Fast! All right. Reverse the paralytics. All right, let me check his gag reflexes. Oh, no, Mickey. Come on.
2	Dr Shane Ross	Dr Shepherd, there's no brain activity.

As emerges from table (3), what particularly differentiates medical procedures from discussions of clinical cases is the high use of directives with a clear instructional function. It is generally the attending in charge of the patient who gives the orders to the team of doctors and assistants he/she is working with on how to treat the patient.

In examples 3 and 4 we can appreciate that directives are generally given through succinct direct requests (i.e. "faster Kepner", "Can you get his pulse" in example 3 and "10-blade", "suction", "mannitol" and "damn it, fast" in example 4) and indirect requests (i.e. "We need to take it out and resect more intestines" in example 3 and "I need you to turn up the heart monitor, please" in example 4) or, sometimes, through imperative constructions (i.e. "give him factor VII, F.F.P.s and platelets" in example 3 and "Reverse the paralytics" in example 4). These directives are extremely specialised as they are given to people who belong to the same professional environment, in fact they are scattered with lexical items of the medical jargon (e.g. "packing", "resect intestines", "factor VII", "arrhythmias" in example 3 and "heart monitor", "suction", "paralytics" "getting erratic", "gag reflexes" in example 4) and with abbreviations especially in the form of initialisms (e.g. "INR" for 'international normalised ratio', which is a measure of blood clotting, or "PEA" for 'pulseless electrical activity', referring to 'an organised cardiac electrical activity without a palpable pulse' in example 3 and again "BP" in example 4).

Brevity and the necessity to keep the pace of conversation quite high is also reflected in syntax, especially when the situation gets critical and the need to pass along information as quickly as possible is of primary importance. Exchanges, thus, lean towards a concise style with short, and sometimes very elliptical, sentences where only the informative noun phrase is left (e.g. "10-blade" for 'pass me the 10-blade' that is a type of scalpel, or "suction" for 'I need suction' and "mannitol" for 'give him/her mannitol' in example 4). Questions exchanged between physicians as well are often non-standard and characterised by the usage of ellipses (e.g. "His pulse?" in example 3).

Notwithstanding that, complete sentences are also present during medical procedures, though they are generally shorter than those used during clinical discussions. This happens in particular when there is not a situation of emergency and the performing surgeon describes to his colleague what he is doing to the patient, or the situation he is seeing (e.g. "He's bleeding through the packing, and there's still stool coming out" in example 3 and "I'm hearing changes in his rhythm" in example 4). These kinds of descriptions and explanations of specialised contents seem to be particularly representative of specialised TV series (Laudisio 2015). In *Grey's Anatomy* they often work as popularising sequences that can help the audience at home to follow and get involved with the technical passages that are shown on screen.

Another very recurrent aspect defining dialogues during medical procedures in *Grey's Anatomy* is informality. Surgeons very often resort to informal markers, such as vocatives (e.g. "Oh no 'Mickey' come on" in example 4) that may help to reduce the tension, or aggravating expressions showing strong involvement (e.g. "damn!" in example 3 and "damn it!" in example 4), and colloquialisms in general employed to lighten the atmosphere. In fact, more relaxed medical procedures, sometimes, also become very dramatic sequences, where short conversations between peers are carried out and personal affairs prevail over the professional setting.

3.1.3. The discussion of the clinical case between doctor and patient

The third situation is constituted by doctor-patient discussions concerning the patient's clinical status. In these conversational moments, a doctor, or a team of doctors, directly addresses the patient, who is generally in his/her hospital room waiting for a diagnosis or to be treated. Thus, it is an expert-nonexpert interaction essential for the physician to obtain information from the patient, which will later be used for diagnosing and treating the patient, or for the patient to understand his/her condition.

The following table (4) sketches the main linguistic features defining this situation as represented in *Grey's Anatomy*. Example 5 illustrates the features described in the table.

Linguistic act	Linguistic feature	Pragmatic function
Description/explanations	- long (complete) sentences	- informational function
Mitigation	- hedges - vocatives, - politeness markers	- expression of sympathy
Popularization	- metaphors - similes - paraphrasis - colloquialisms	- make technical terms accessible to the patient
Questions	-standard and non-standard questions	- get information about patient's status - patients asking about their condition

Table 4
Breakdown of the most distinguishing features defining expert- nonexpert discussions of clinical cases.

Example 5

Grey's Anatomy S10 E05: IN THE HOSPITAL ROOM – Dr Jackson Avery (an attending) is talking to a patient and his wife about his pathology		
1	Dr Jackson Avery	That is Zenker's diverticulum. Now, these muscles here should be working together to push food down the oesophagus. But unfortunately, Dalton's are working against each other. So the wall forms a sort of sack, and that's where the food's getting caught.
2	Patient	I always feel like I have something caught in my throat. Is that normal?
3	Patient's wife	He got pneumonia once from getting food in his lungs.
4	Patient's wife	He's a mess.
5	Patient	I'm a mess.
6	Dr Jackson Avery	Well, don't worry, I'll be cutting into the lower muscle, so that'll allow the food to pass right through. And the walls will tighten up on their own.
7	Patient's wife	Anything we should worry about?
8	Dr Jackson Avery	Well, of course, with all surgeries there are some slight risks. Worst case being stroke or even death. However, these are all very minimal in this case. There is a small risk of damage to the vocal chord nerves, though.
9	Patient	What, like I won't be able to talk?
10	Dr Jackson Avery	That's the worst case.

The linguistic features that mostly differentiate this conversational situation from the others are mitigating devices and popularising sequences. Turns by doctors tend to feature long and complete sentences, as they are not talking in a situation of emergency, instead it is a moment in which descriptive clarity and empathy are more crucial than brevity and conciseness. In example 5, turn 1 and turn 8 by Dr Jackson Avery display some descriptive sentences. In particular, in example 5 after presenting the technical name of the disease affecting the patient (i.e. "Zenker's diverticulum"), the physician describes it by resorting to a simpler and plainer register and avoids using technical terms. In particular, he refers to the muscles involved by pointing at them through spatial deixis (i.e. "here") instead of using their technical names, he uses informal phrasal verbs (i.e. "push food down the oesophagus", "working against each other") or verbs that do not prototypically pertain to a medical environment (i.e. "food's getting caught), and he uses a simile (i.e. "the wall forms a sort of sack) to picture what he is talking about. These linguistic features, generally used as paraphrasing tools, represent the doctor's attempt to make the scientific information accessible to the patient in order to make sure he/she understands his/her condition. Similar strategies can be described also in turn 6 and turn 8 by Dr Avery, in which he explains the surgical approach he intends to take and the risks connected with the procedure.

In *Grey's Anatomy* these popularised expert-nonexpert accounts of the patients' status are generally scattered with mitigating devices. In example 5 this linguistic act takes the form of adversative particles (e.g. "however" in turn 8), used by the doctor to introduce a reassuring statement after having described the patient's possible surgery risks, of hedges "But unfortunately" in turn 1, and "some slight", "Worst case", "all very minimal" and "small risk of" in turn 8. These hedging expressions are employed by the physician to express sympathy with the patient and attenuate the force of what he/she is claiming.

The patients' turns, instead, are often questions in which they ask for further information or supplementary explanations about their clinical status. For instance, in turn 9 the patient responds to Dr Avery's explanation of one of the risks he is going to face in surgery (i.e. "damage to the vocal chord nerves" at the end of turn 8) by asking for a further level of popularisation removing any technicism: "What, like I won't be able to talk? .

3.1.4. The arrival at the ER

The last medical context under analysis is the patient's arrival at the ER. Most of the time, patients, who may be either conscious or not, arrive at the hospital by ambulance and are taken inside on a gurney by paramedics. Dialogues are prototypically between paramedics (i.e. expert-to-expert), who brief the doctors on the patient's status, and physicians who try to acquire as much information as possible on the patient to treat him/her easily and quickly. Hence, these situations are characterised by a certain level of emergency, which is inevitably reflected in language use. Table (5) lists some of the most defining linguistic traits of dialogues in this situation, which are exemplified in examples 6 and 7.

Linguistic act	Linguistic feature	Pragmatic function
Description	- short sentences - ellipses, syntax fragmentation - specialised terms/collocations	- informational function/teaching
Abbreviation	- initialisms and acronyms, - clipped forms,	- brevity due to emergency
Directives	- imperatives - requests	- instructional function
Questions	- non standard questions	- get information about patient's status - patients asking about their status

Table 5
Breakdown of the most distinguishing features
defining patient's arrival at the ER.

Example 6

Grey's Anatomy S10 E07: IN THE ER - A paramedic brings a severely injured patient. The interns (Dr Kepner, Dr Avery and Dr Hunt) and the residents (Dr Murphy, Dr Edward) are getting information and treating him		
1	Paramedic	Victor Brown, 30 years old, mauling victim. Vitals stable.
2	Dr April Kepner	Get him to trauma! What happened?
3	Paramedic	Multiple G. S.Ws to the chest. B.P. 90 over 60. Pulse in the 120s. He's on something.

Example 7

Grey's Anatomy S10 E03: IN THE ER - A paramedic brings a severely injured patient. Dr Kepner (an intern) and Dr Murphy (a resident) talk to the paramedic and to the patient and his relatives to get some information about his condition		
1	Dr Leah Murphy	What we got?
2	Paramedic	Kathleen Kane, 38, human pincushion. Woman vs. shattered baseball bat. Puncture wounds to the chest and what looks like a distal radius fracture. B.P. 85 palp, pressure 135.
3	Patient's relative	The batter was jammed with a fastball, and the bat…
4	Patient	It just exploded, you know? My jersey's really messed up.
5	Patient's relative	Don't worry about that, baby.
6	Dr April Kepner	Okay, everybody. Ready? On my count. One, two, three. I'm here. Decreased breath sounds on the right. We need X-ray stat!
7	Dr Leah Murphy	Right away!
8	Patient	I'm dizzy. It's dark. I'm dying?
9	Dr Leah Murphy	No, ma'am. Her systolic's down to 78.
10	Dr April Kepner	2 of lorazepam and 5 of Haldol!

The gravity and emergency driving these communicative events are expressed by syntactic and morphological reductions, which lead to a very elliptical and condensed exchange of medical details. This is clearly shown in examples 6 and 7, where paramedics are providing basic information about the patient they are transporting. At the beginning of the two examples, it can be noticed that paramedics use a series of elliptical sentences to provide only the most salient information about the patient (e.g. "Victor Brown, 30 years old, mauling victim. Vitals stable" in turn 1 of example 6). These paratactic presentations are extremely recurrent and seem to follow a preestablished order in the way information is transmitted to the physicians. Both in turn 1 from example 6 and in turn 2 from example 7, the paramedic says the patient's first name, his/her age, his/her type of injury, and some succinct information about his/her current condition (e.g. "vitals stable" in turn 1 of example 6, where there is a deletion of the verb). Interestingly, the description in example 7 features a series of metaphorical expressions (e.g. "human pincushion" in turn 2) which are not only used to report on the patient's condition, but also to perform another communicative function, i.e., lightening the atmosphere and amusing the audience. The same tendency towards brevity is also mirrored in the morphological abbreviations that are used to describe the patient (e.g. "vitals" standing for 'vital signs' in turn 1, "G.S.W's" standing for 'gunshot wounds' in example 6, and "BP" and "palp" standing for 'blood pressure' and 'palpitations' in turn 2 of example 7.

The other pivotal linguistic act defining these frenetic situations is the use of directives, which have an instructional function as they are used by interns or (when present) by attendings to give orders to residents, nurses, or paramedics on what should be done to treat the patient. Brevity is generally the main drive in conveying directives which therefore result in straightforward commands such as imperative constructions (e.g. "Get him to trauma!" in turn

2 of example 6) or indirect and elliptical requests (e.g. “We need X-ray stat!” in turn 6 of example 7, with the deletion of the article). In the latter case, it is interesting to notice that the hectic pace of conversation is also reinforced by the clipped form “stat”, which is a very common medical abbreviation of the Latin word ‘statum’ for ‘urgent’ or ‘rush’, thus implying the need to act as promptly as possible. The emergency of the request is clearly understood by the resident, who answers “right away”. In some cases, directives are also expressed simply by listing the medicines to be given to the patient, using noun phrases containing medical terms and quantities (e.g. “2 of lorazepam and 5 of Haldol!” in turn 10 of example 7).

Questions also have a central role during the arrival at the ER sequences, as they are used by the team of doctors who attend to the patient upon arrival to get as much information as possible about his/her status. These are normally non-standard questions testifying to the emergency situation (e.g. “What we got?” in turn 1 of example 7 with the elision of the auxiliary verb ‘have’). Sometimes they are also asked by patients to doctors (e.g. “I’m dying?” in turn 8 of example 7 where the question is asked just by using intonation). Interestingly, we can notice that Dr Murphy’s answer (i.e. “No, ma'am”) is rather different from doctors’ answers during doctor-patient discussions of clinical cases as it is very direct and informal lacking mitigating devices. This reflects, again, the slant towards morphosyntactic reduction and linguistic economy called for by the situation.

4. Concluding remarks

As anticipated in the introduction, this study represents the first stage of a larger enquiry on the authenticity of the representation of spoken medical discourse in the TV show under study.

The paper offered a qualitative linguistic analysis of some characteristics of fictional spoken medical discourse occurring in different medical contexts in a very popular American TV medical drama set in a city hospital. The research focused in particular on dialogues, i.e. on verbal language, but the initial manual reading of the transcripts, aimed at establishing which kinds of medical contexts were represented in the show, was also corroborated by a careful viewing of the corresponding audiovisual files. Four main types of medical-centred interactions were singled out in the episodes. Furthermore, it emerged that peer-to-peer discussions of clinical sequences were the most represented medical situations, followed by interactions between surgeons during medical procedures, doctor-patient discussions/diagnosis, and finally exchanges between physicians taking place immediately on the patient’s arrival at the ER.

The subsequent analysis of these different spoken medical interactions considered in particular the situational context of the exchanges (e.g. the level of emergency, the participants' role, etc.) and eventually attempted to map linguistic forms with pragmatic functions.

In general, dialogues in peer-to-peer discussions of clinical cases were highly descriptive, specialised, and lexically dense. Complete and long sentences featuring nouns as the most important, because informative, parts of the turns were the most typical linguistic tools employed in this situation. In some cases, communications seemed to get heated as physicians attempt to affirm their clinical points of view on how to treat a patient. This is linguistically attained through the usage of aggravating devices and expressions of strong attitudes to affirm one's opinions.

In medical procedures the language used by surgeons was generally concise and essential, but retaining a very high degree of complexity both at the lexical and syntactic levels, with specialised and abbreviated medical terms, as well as elliptic and telegraphic directives as the most typical linguistic acts.

The third most represented medical setting, i.e. the discussion of the clinical case between doctor and patient showed a compromise between being as informative as possible while keeping the register plain and accessible on the part of physicians. Moreover, they very often accompanied their claims with linguistic expressions of tact and support that sometimes mitigate the bad news they are giving to the suffering patient. Patients were also active in the question-making part in these dialogues, as they generally want to understand as much as possible about their condition. That is why they repeatedly ask for clarifications and further explanations, very often through non-standard questions.

Finally, the arrival at the ER, being the most frenetic moment, was characterised by dialogues driven by emergency. Descriptions and explanations were, therefore, often reduced as much as possible, only leaving space for specialised terms and directive acts that get the message across efficaciously and rapidly. This is generally possible because of the shared knowledge between physicians and paramedics.

In conclusion, this preliminary study brought to the fore that *Grey's Anatomy* provides a wide repertoire of medical contexts which portray medical interactional exchanges both between medical professionals and between doctors and patients. Given the potentialities of the data that emerged throughout the analysis, especially for the teaching of specialised English in the field of medicine, a possible next step would be to ascertain the validity and the authenticity of the TV show under scrutiny. For example, some comparative quantitative and qualitative studies involving other medical TV series (e.g. *Dr. House*, which was recently used by Taibi *et al*. (2019) to compile a large corpus of fictional medical English) as well as other TV genres such as medical documentaries, in which, as the recent volume by Maley and Tomlinson (2017) claims, the degree of authenticity is higher.

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PART 3 TOURISM DISCOURSE

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SPECIALIZED AND CULTURE-BOUND KNOWLEDGE DISSEMINATION THROUGH SPOKEN TOURISM DISCOURSE
Multimodal strategies in guided tours and documentaries*

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Abstract – The distinctive features of most instances of tourism discourse are their predominantly low specialization and their hybrid generic and semantic nature. Tourism discourse draws from a range of genres and specialized domains, including but not limited to art, history, economics, architecture, and geography to name but a few. Through its communicative strategies, it leads the tourists and their "tourist gaze" (Urry 2002) in their real or imaginary journey, it mediates the tourist experience and contributes to closing the gap between their culture and the destination's culture. These leading and mediating operations are performed by making culture-specific knowledge and specialized concepts accessible to the general public (Cappelli 2016; Cappelli, Masi forthcoming). For this reason, tourism discourse offers an ideal vantage point to investigate popularization and knowledge dissemination strategies. Much linguistic research on written tourism discourse has been carried out over the past two decades. However, to the best of our knowledge, spoken genres remain largely unexplored with few exceptions. Our study intends to contribute to closing that gap by investigating the way in which multimodal semiotic resources are exploited in oral communication in tourism to make specialized and culture-bound concepts accessible to the audience. First, we present the data obtained by the analysis of a small sample of clips of guided tours and documentaries representing various domains. Then, we illustrate the way in which verbal and non-verbal strategies are used to create accessibility in a genre-specific way. Finally, we propose a classification of the data analysed as belonging to three strictly interconnected and yet distinct genres, namely documentaries, "docu-tours" and guided tours, and we provide some conclusions regarding the relevance of the study for professional development and pedagogical applications.

Keywords: accessibility; ESP; genre; multimodality; tourism discourse.

* Although the research was carried out jointly by the two authors, Veronica Bonsignori wrote sections 3.2., 4., 4.1., 4.2. and 4.3.; and Gloria Cappelli wrote sections 1., 2., 3.1., 5. and 6.

1. Introduction

Tourism discourse encompasses a wide range of communicative contexts, ranging from specialist-to-specialist interaction (e.g. corporate business-to-business communication) to “layman-to-layman” exchanges (e.g. travel reviews and other user-generated contents). This has made the language of tourism, its features and its nature as a type of LSP widely debated topics over the past three decades (Dann 1996; Gotti 2006; Cappelli 2007; Maci 2013; Francesconi 2014; Nigro 2012, inter alia).

Our study focuses on instances of expert-to-non-expert tourism communication. The distinctive features of this type of discourse are its high accessibility and hybrid generic and semantic nature (Gotti 2006; Cappelli 2012, 2016; Cappelli, Masi 2019; Nigro 2006; Maci 2013). More specifically, we investigate the way in which multimodal strategies are used in interactions between professional and non-professional documentarists and tour guides (i.e. “the industry”) and real or potential tourists to help the latter make sense of possibly unfamiliar culture- or domain-specific concepts.

The language of tourism draws from a range of genres and specialized domains, including but not limited to art, history, economics, architecture, and geography to name but a few. Through its communicative strategies, it leads tourists and their “tourist gaze” (Urry 2002) on their real or imaginary journey, it mediates the tourist experience and contributes to closing the gap between the tourists’ culture and the destination’s culture (Fodde, Denti 2005). These leading and mediating operations are performed by making culture-specific knowledge and specialized concepts accessible to the general public (Cappelli 2016; Cappelli, Masi 2019). For this reason, tourism discourse offers an ideal vantage point from which to investigate popularization and knowledge dissemination strategies.

Much linguistic research on written tourism discourse has been carried out over the past twenty years (see inter alia, Cappelli 2007; Maci 2013; Francesconi 2014; Manca 2016, 2018). However, to the best of our knowledge, spoken genres remain largely unexplored with few notable exceptions (Rosypalova 2012; Lopriore 2015; Fina 2018; Francesconi 2018) and are only just starting to receive the attention of linguists (see CHROME Project,[1] Origlia *et al*. 2018). The intention of our study is to help close this gap by discussing a specific aspect of the instances of spoken tourism communication present in our corpus, namely the way in which multimodal semiotic resources are intentionally exploited in oral communication to

[1] The CHROME project is led by a group of researchers whose main aim is “to define a methodology of collecting, analysing and modelling multimodal data in designing virtual agents serving in museums” (see http://www.chrome.unina.it/).

disseminate knowledge. More specifically, we present data obtained through the multimodal analysis of a small sample of clips of guided tours, documentaries and what we have named "docu-tours" representing various domains. We discuss the way in which verbal and nonverbal strategies are used to create accessibility in our dataset and their largely genre-specific distribution. We propose that a continuum between three strictly interconnected and yet distinct genres can be identified (i.e. documentaries, "docu-tours" and guided tours) according to the ways in which the intentional use of multimodality enhances accessibility. Finally, we provide some concluding remarks about the limitations of the study and its relevance for professional development and pedagogical applications.

2. Theoretical background

Much has been said about the ways in which written tourism materials such as guidebooks, brochures or websites select and portray the relevant aspects of destinations for their audience (Cappelli 2007; Cappelli 2016; Cappelli, Masi 2019). Besides this "leading function", they have been investigated in order to highlight the other much debated and prominent functions of tourism discourse: its power to offer cross-cultural representations of the destination, to reduce the cultural gap between the tourist's home culture and the local culture and, as a consequence, to foster a process of socialization and enculturation of the traveller (see Cohen 1985; Dann 1996; Urry 2002; Dybiec 2008, among others). This is also known as the "mediating function" of the language of tourism. The way in which such "mediation" operates is by creating cultural accessibility for travellers through a range of diverse communicative strategies, both verbal and nonverbal (Cappelli 2016, also Agorni, Spinzi 2019).

The term "accessibility" is used here to indicate the measure of the ease with which mental representations and pieces of stored information are retrieved from memory so that relevant aspects of the target culture become understandable and, therefore, accessible (see Ariel 2001, 2006 and its adaptation in Cappelli 2016 and Cappelli, Masi 2019). The language of tourism is often shaped by this need to provide interpretive tools for tourists by helping them integrate their culturally predicated expectations and needs with the destination's culture, as well as to create connections between the "known" and the "new". In expert-to-non-expert communication, the industry often has to help tourists make sense of what is new and unfamiliar to them and ascertain the importance of the items selected as culturally relevant (e.g. knowledge of specific concepts essential for the understanding of local art, history, geography, language, traditions, etc.). To do this, it often takes advantage of available mental representations and adapts them to make new representations that are easier to grasp.

As in other specialized domains, specific concepts are made accessible through popularization strategies, which allow for the reformulation and recontextualization of expert discourse so as to meet the needs, tastes and background encyclopaedia of non-expert readers (see Calsamiglia 2003; Calsamiglia, van Dijk 2004; Gotti 2003, 2006, 2013, 2014; Myers 2003; Hyland 2005). In this sense, we can argue that through its mediating function, the language of tourism used in specialist-to-non-specialist communication promotes knowledge dissemination, and our claim is that this is one of its defining features regardless of the medium used for the interaction.

Another important issue at stake relates to multimodality. Indeed, communication is essentially multimodal (see Kress, van Leeuwen 1996; Norris 2004; Scollon, Levine 2004; O'Halloran 2004), since various semiotic resources are intertwined and altogether contribute to making meaning in a given situational context. This is particularly true in the case of guided tours, which are in presentia and where the situational context is thus shared, but also in the case of audiovisual products such as documentaries and docu-tours, where both aural and visual elements are fundamental in order to convey and fully interpret a message. More specifically, a communicative event in a given and specialised situational context cannot be analysed solely by taking into account the verbal element, as nonverbal cues such as hand gestures, gaze direction, proxemics in general, sounds, and images greatly contribute to supporting, integrating and creating meaning. Therefore, sections 4.1., 4.2. and 4.3. report on the analysis of the strategies used in the spoken genres investigated for cultural mediation and accessibility creation and focus on the intentional use of multimodality for the explanation of culture or domain specific concepts and specialized lexical items.

3. Material and methods

3.1. Data

The multimodal corpus built for the present study has been developed within a PRIN project financed by the Italian Ministry for the University. It was inspired by *Lumière* (originally known as the Library of Foreign Language Film Clips)[2] developed at the University of California at Berkeley, which is an ongoing project aimed at promoting the learning of language and culture

[2] https://lumiere.berkeley.edu/login

through films. More specifically, it is a component of a larger multimodal corpus that collects video clips representing six specialised discourse domains of interest to ESP students, i.e., Medicine and Health, Business and Economics, Technology, Tourism, Political Science and Law, in different genres such as Ted Talks, films, TV series, TV interviews, etc. Our dataset comprises 34 clips that were selected and cut from 20 audiovisual documents of three different genres, namely 2 guided tours, 13 docu-tours and 5 documentaries, in the aforementioned domains (see Table 1). Each clip lasts from 1 to 5 minutes, so that our multimodal component is approximately 1 hour long and totals 10,663 words.

Title	Clips	Genre	Domain
The city of Edinburgh with Kim	9	Guided Tour	Tourism
Edinburgh Castle with Frank	1	Guided Tour	
Rick Steves – Lucca	3	Documentary	
Hunterian Museum with S. Chaplin – Medical London	3	Docu-tour	Health & Medicine
Gordon Museum of Pathology, King's College London	1	Docu-tour	
Old Operating Theatre with Mark Pilkington – Medical London	1	Docu-tour	
Medical Oddities from the Bowels of Mutter Museum	2	Docu-tour	
Philadelphia's Mutter Museum	1	Documentary	
Mutter Museum – Easy Documentaries	1	Documentary	
Roger's tour of Wall Street	1	Docu-tour	Business & Economics
Wall Street trader's NYSE tour	1	Docu-tour	
Young explorers – A brief history of money (British Museum)	2	Docu-tour	
Inside the NY Stock Exchange	1	Documentary	
UK Parliament tour: Houses of Parliament	1	Docu-tour	Political Science
UK Parliament tour: House of Commons Chamber	1	Docu-tour	
UK Parliament tour: House of Lords Chamber	1	Docu-tour	
What's inside the White House	1	Documentary	
The Crown Court	1	Docu-tour	Law
Courtroom for children (USA)	1	Docu-tour	
Chicago Museum of Science and Industry	1	Docu-tour	Technology
Tot.	**34**		

Table 1
Our component of the multimodal corpus.

A few words on this classification are in order. To the best of our knowledge, although travel documentaries and videos have received some attention for their role in the remediation of the tourist experience or of the image of the destination (Francesconi 2011; Lopriore 2015; Francesconi 2017; Muhoho-Minni, Lubbe 2017; Leotta, Ross 2018; Terzidou *et al*. 2018), no distinction between documentaries and what we have named "docu-tours" has been discussed in the literature on tourism discourse. Neither have these two genres been compared to guided tours (Burdelski *et al*. 2014; Thurlow, Jaworski 2014; Dumitrascu, Maruntelu 2016; Fukuda, Burdelski 2019), even if they share the same informative nature and could be seen as the spoken counterparts of guidebooks and travel-related websites.

Discussing the features of documentaries in general and travel documentaries in particular (see Lopriore 2015 for a thorough review) or of guided tours is not the aim of this chapter. Moreover, although part of a larger effort aimed at identifying the distinctive features of the spoken genres of tourism discourse, the investigation whose findings are reported and discussed in this article was not intended to lead to a global description of the latter. A word of caution is therefore necessary. The operational tripartite classification that we propose here is yet largely intuitive and based on the preliminary observation of some macroscopic differences between the samples collected, including but not limited to the use of voiceover, the scripted vs. spontaneous nature of the interaction, the montage techniques, and the role of the speaker in the clips (Cappelli, Bonsignori 2019). The research we present below specifically focused on one aspect of these complex communicative events and products, namely the strategies used to ensure the comprehension of possibly difficult or unfamiliar key concepts. In spite of the limited size of the corpus and the somewhat arbitrary distinction made between documentaries and "docu-tours" due to the fuzzy boundaries between some instances of the two genres, the observations we could make from the analysis of the data seem to unveil some distinctive characteristics of three different genres and this may eventually contribute to their global description and definition.

3.2. Methods of analysis

The 34 selected clips were carefully watched and then wholly transcribed. Firstly, the verbal component was analysed to identify culture-specific expressions and specialised vocabulary. Secondly, the popularization strategies employed for accessibility creation were retrieved and classified. Calsamiglia and van Dijk (2004, p. 370) describe popularization as

> "a vast class of various types of communicative events or genres that involve the transformation of specialized knowledge into 'everyday' or 'lay' knowledge [...]. This means that popularization discourse needs to be formulated in such a way that non-specialized readers are able to construct lay versions of specialized knowledge and integrate these with their existing knowledge".

Popularization discourse has received much attention over the past few years and many linguistic strategies have been identified as typical (see Calsamiglia

2003; Calsamiglia, van Dijk 2004; Gotti 2013; Kermas, Christiansen 2013; Luzón 2013; Semino *et al*. 2013; Scotto di Carlo 2014; van Dijk 2014; Diani 2018; Laudisio 2018; Sezzi 2019 inter alia). The most widespread ways to popularize knowledge seem to be the use of narration and figurative language, and explanation in all its various forms, such as definition and exemplification, metaphors, descriptions, comparison, and analogy. They are all meant to help language users relate new representations to old representations (Gotti 2013), that is, they make sure that new concepts become "accessible" to the reader.

The most common verbal strategies found in our dataset in association with terminology or culture-specific concepts are the following: explanation (through denomination, description, definition, analogy, exemplification, and paraphrase), anchoring to the reader's background and time, and attribution (e.g. mentioning the source of the information reported by the guide or the documentarist).

Finally, a multimodal analysis with the annotator software ELAN[3] (Wittenburg *et al*. 2006) was carried out, which allows for the integration of verbal and nonverbal cues such as images, gestures, gaze direction, graphic aids, and sounds. Such a holistic description is provided by the creation of multiple tiers in the software, which can be filled with various analytical information through the use of labels, i.e. "controlled vocabulary", in their abbreviated and extended form. This system enables the analyst to visualise all the different elements that occur together in the communicative event alongside the video, which is streamed on the upper left side of the ELAN document window (see Figure 1 as an example). Table 2 below shows an example of the multitiered analysis created in the software for one of the clips in the multimodal component of the corpus.

In detail, the first tier is the Transcription tier, where speech is transcribed in synchronization with the video. Gestures are described in the Gesture_description tier, based on Querol-Julián's (2011) model, and their function is indicated in the Gesture_functions tier, following the classifications drawn by Kendon (2004) and Weinberg, Fukawa-Connelly and Wiesner (2013). The Verbal strategy tier comprises those labels that refer to the strategies used for accessibility and popularization purposes, while other information regarding gaze direction and prosodic stress is inserted in the corresponding tiers. Finally, important elements regarding camera angles, for example, are annotated in the Notes tier. If the speaker is not on camera but can only be heard in voice-over, this becomes relevant in the analysis and should thus be taken into consideration (see Bonsignori 2016).

[3] ELAN (Version 5.7) [Computer software]. (2020). Nijmegen: Max Planck Institute for Psycholinguistics, The Language Archive. Retrieved from https://archive.mpi.nl/tla/elan

Tiers	Controlled vocabulary	
	Description	**Abbreviation**
Transcription		
Gesture_description	opening palm up	OPu
	palm down	Pd
	palm down over other hand	PdoH
	hand on fist	HoF
	rotating hands	RHs
	palm down sinuously moving forward	PdSMf
	hands in ball shape	HsBS
Gesture_function	to indicate position	indexical
	to express certainty	modal
	to mark different units within an utterance	parsing
	to indicate the kind of speech act	performative
	to represent an object/idea	representational
	to emphasise/highlight importance	social
Verbal strategy	Description	desc
	Paraphrase	paraph
Gaze	Down	down
	Out	out
	looking at interlocutor	LaI
Prosody	paralinguistic stress	stress
Notes	description of camera angles	

Table 2
Example of the annotation framework created in ELAN from clip 01e_Guided tour_Kim_volcano2.

4. Analysis

The following sections illustrate the multimodal analysis of the three different genres of the guided tour, docu-tour and documentary. Each section provides an example from a selection of clips where strategies for accessibility and popularization are employed, either verbally or nonverbally. This type of analysis was carried out on all the clips included in the corpus.

4.1. The guided tour

The cases presented in this section are taken from a guided walking tour of Edinburgh, where a group of tourists follow their tour guide, Kim, who takes them around the city to visit the most important sites.

Clip 1 lasts 00:01:02 and features the tour guide surrounded by tourists at Hutton's Section, one of the most famous geological sites in Edinburgh. In this clip, she tells them about the important discoveries made by Scottish geologist James Hutton and attempts to describe various types of rocks and their formation, particularly of sandstone, as shown in the excerpt in (1) below. In the transcript, specialised vocabulary is highlighted in bold, words used to express a certain strategy for accessibility are in italics followed by the corresponding label within square brackets, while the symbol "[Ꞔ]" indicates that a gesture is performed:

> (1) Clip 1 from 1e_Guided tour_Kim_volcano2
> Because he made a very important discovery here. See, here at Hutton's Section, James Hutton worked out what **igneous**, *or volcanic* [paraphrase], rocks, are. Because, when he was alive, during the 1700s, people generally thought that all rocks were formed the same way. So same way as a **sandstone**, for instance: *you get a layer of sand* [Ꞔ], *another layer of sand* [Ꞔ], *another layer* [Ꞔ]. *Squish it down to form a rock* [Ꞔ] [description].

As can be seen in example (1), the specialised term *igneous* is explained with the paraphrase *or volcanic* in order to make it understandable for an audience of non-specialists, whereas the term *sandstone* is explained through the description of its formation on the verbal level and with the use of a series of gestures accompanying words and performing a representational function. Figure 1 shows the multimodal analysis of this passage.

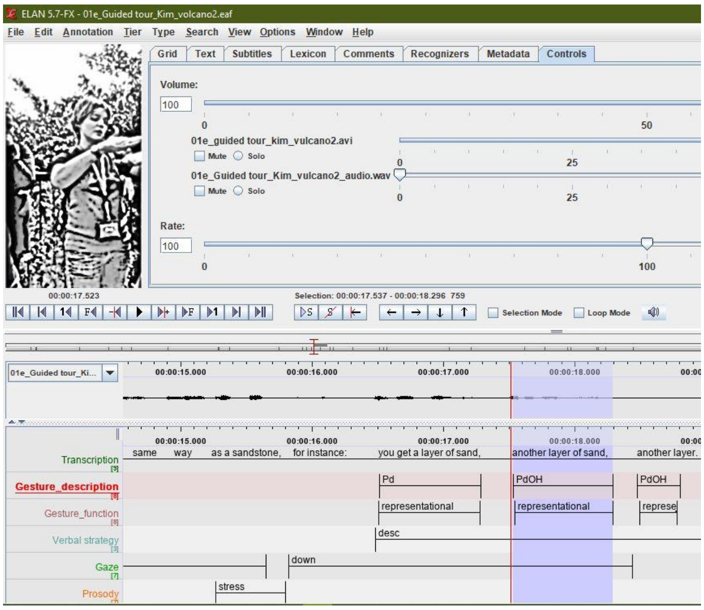

Figure 1
Multimodal analysis of the description of *sandstone* in clip 1.

Figure 1 also incorporates the still image of the tour guide performing the gesture labelled as "PdoH" (i.e. "Palm down over other hand") while uttering the words *another layer of sand* and looking down. In this case, the gesture highly contributes to supporting and integrating the meaning expressed by words.

Clip 2 is taken from the same tour of the city of Edinburgh, but in a different area, namely James's Court, down the Royal Mile, where famous personalities such as philosopher David Hume once lived. In this clip, the tour guide describes the typical features of the streets in this old part of the city through the verbal strategies of denomination and exemplification, as shown in the transcript below:

> (2) Clip 2 from 1d_Guided tour_Kim_Royal Mile
> Alright, then. This area here is called *James's Court* [C_1] [denomination]. Now, the Royal Mile has what's called *a* ***"herringbone" street pattern*** [C_1] [denomination], so, you know, *like the bones in your fish they've got the spine* [C_1] *and lots of little bones going on either side of it* [C_1] [exemplification]*?* That's kind of what the Royal Mile looks like, you've got the main high street [C_1], lots of little streets going on either side of it [C_1]. Now, down some of these streets, you've got *narrow passageways* [description] *called "**closes**"* [denomination]. There's one there [C_1], and we'll go through another one in a few moments.

More specifically, the guide tries to explain what the typical *herringbone street pattern* consists of by taking the example of a fishbone and using a series of gestures mainly with a representational function in an attempt to concretely show the audience of tourists what her words mean. Indeed, apart from the first and the last gesture, the other 5 gestures perform a representational function, as the one visible in the still image in Figure 2, which accompanies the words *lots of little streets going on either side of it* and which is described as "PsdmaSs", that is, "palms down moving alternatively to the sides".

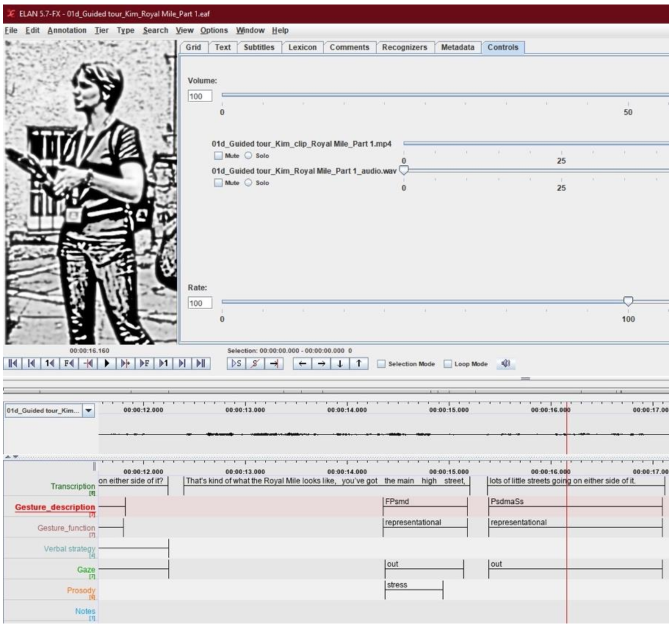

Figure 2
Multimodal analysis of the explanation of the *herringbone street pattern* in clip 2.

Finally, when she refers to a specific type of street, namely *closes*, she employs the strategies of description and denomination and uses a gesture, described as “Ff”, i.e. “forefinger forward”, in the Gesture_description tier in the screenshot in Figure 3, to show tourists an example, which is visible from where they are standing. This gesture, thus, performs an indexical function.

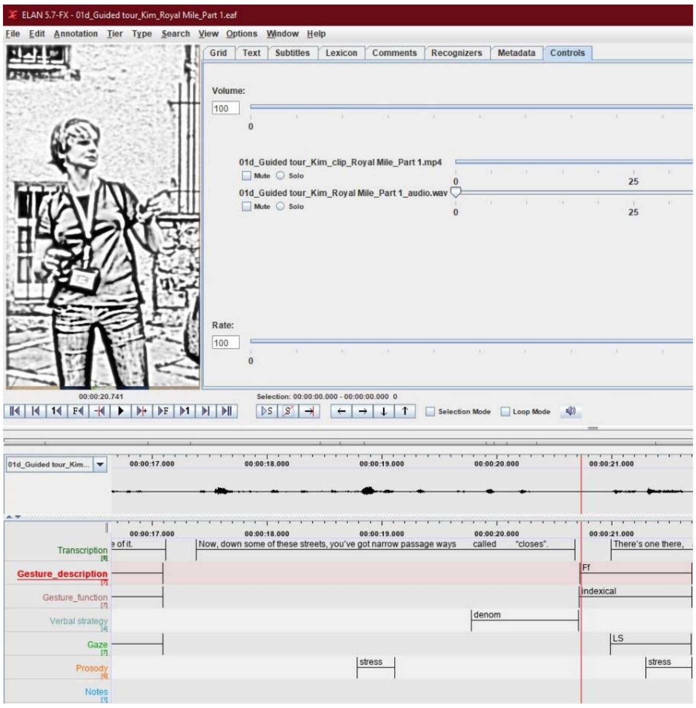

Figure 3
Gesture performing an indexical function in clip 2.

4.2. The docu-tour

As briefly mentioned in section 3.1., the genre of the docu-tour is quite fuzzy, as it shares some of the features of the documentary and some of the guided tour.

In the second part of clip 3, Simon Chaplin, the curator of the Hunterian Museum, which is a historic museum of medicine in London, talks about how teachers of anatomy used to work with their students, that is, by using what he calls *preserved specimens*, a technical term that he explains verbally through two paraphrases, as indicated in the transcript below in (3):

(3) Clip 3 from 3_Hunterian Museum_Part 02
Because bodies were so hard to come by, of course most teachers would also use preserved **specimens** [image], *or preparations* [paraphrase], in their lectures, so *bits of body pickled in alcohol or dried and varnished as dry preparations* [Ç] [paraphrase], and they would pass these around [Ç] in their lectures for their students to look at.

Actually, the multimodal analysis of this clip shows that when the curator uses the first paraphrase, i.e., *or preparations*, he is off screen and the viewer can see examples of specimens in the image, which shows the display cases, as annotated in the Notes tier in Figure 4.

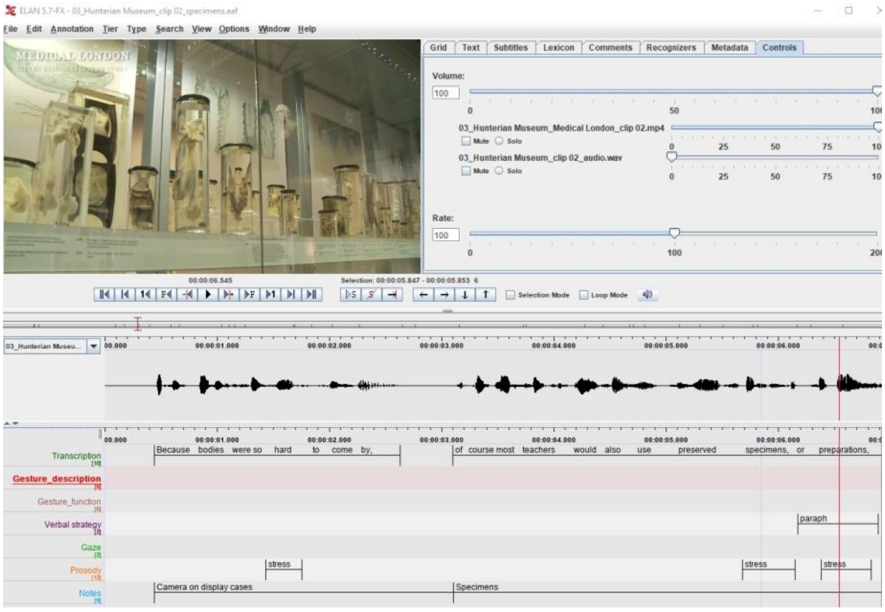

Figure 4
Image of *specimens* in clip 3.

Then, the camera focuses on the curator while he is explaining the term using the second paraphrase. While doing so, he also uses a gesture to represent the concept, thus allowing the viewer to access meaning (see Figure 5).

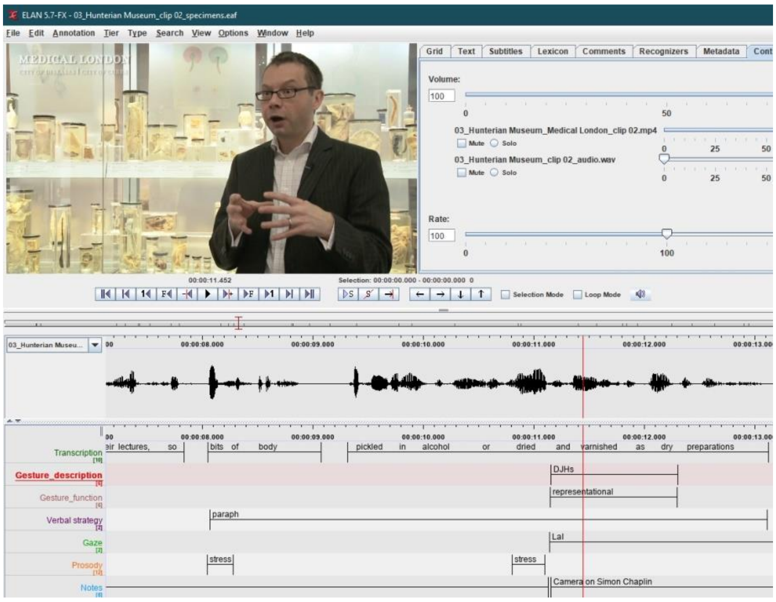

Figure 5
Verbal and nonverbal strategies to explain the term *specimens* in clip 3, part 2.

Interestingly, while speaking, he does not look directly at the camera, but at his interviewer (as indicated in the Gaze tier in Figure 5), who plays the role of the third viewer.

Another interesting example of the different strategies that can be employed for accessibility refers to the explanation of the term *body snatchers*, which occur in two docu-tours about historical medicine in London. In the first part of the clip about the Hunterian Museum (here clip 4), the curator introduces the problem of getting hold of bodies to teach anatomy in the 18th century, and then he highlights the importance of the *resurrection men* to this end. Therefore, in this case, Simon Chaplin explains the term using two verbal strategies, namely a series of paraphrases, i.e. *the grave robbers, the body snatchers,* accompanied by an explanation, as shown in the transcript in (4). It is worth noting that, while speaking, he uses a series of gestures with a merely social function, that is, in order to emphasise the key concepts (see Figure 6).

(4) Clip 4 from 3_Hunterian Museum_Part 01
So, they were having to rely on private deals with hospitals [Ç], with work houses [Ç], with prisons… [Ç] But most of all, with the [Ç] ***resurrection men*** [Ç] [denomination], *the* ***grave robbers*** [Ç], *the* **body snatchers** [Ç] [paraphrase], *who supplied all of the private anatomy schools in Georgian London with the* **corpses** *they'd need* [explanation].

Figure 6
Gesture with a social function while explaining the term *body snatchers* in clip 4.

By contrast, in clip 5, taken from the Old Operating Theatre in London, the curator, Mark Pilkington, talking about the *Barrow Boys*, uses verbal cues, namely a definition that includes the term *body snatchers*, followed by an explanation, which is supported by an image, that is, a painting showing exactly what *body snatchers* stands for. In this last case, when the screen shows the painting in question, the curator’s voice can only be heard in voice over, i.e. “v.o.” in the transcript in (5), (see Figure 7).

(5) Clip 5 from 5_Old Operating Theatre
And interestingly, this whole region of Southwark was well known as the home of the *Barrow Boys* [denomination], *who were a particularly notorious group of* ***body snatchers*** [definition], and it wasn’t until 1832 that the body snatching laws came into effect, so for a good ten years it’s quite likely that the *bodies being dissected here had been* (v.o.: *pinched from neighbouring churchyards, perhaps even been the victims of murders by the Barrow Boys themselves*) [explanation] [image].

Figure 7
Verbal and nonverbal cues to explain the term *body snatchers* in clip 5.

The use of gestures and of images as strategies to help the viewer understand the meaning of technical terms or cultural elements are employed also in other docu-tours from other domains. For instance, in clip 6 from Roger’s tour of Wall Street, which pertains to the business domain, when Roger as a guide talks about the *ticker*, he simply shows it to the camera (and the viewer) with an indexical gesture (see Figure 8 on the left), whereas when he tells about the formation of the NY Stock Exchange, he mentions the *Buttonwood tree* using the strategy of anchoring and showing an image of it in a painting (see Figure 8 on the right).

(6) Clip 6 from 6_Roger’s tour of Wall Street
“Hi! I’m Roger Phillips, I’m at AIG American International Groups Corporate Treasury. I’m standing here in front of the *New York Stock Exchange* [image]. Right behind me is *the* ***ticker*** *and the entrance to the New York Stock Exchange* [Ꞔ] [image] on Wall Street. The New York Stock Exchange was formed in 1792 *under the Buttonwood tree that stood here at one time* [anchoring] [image – painting].

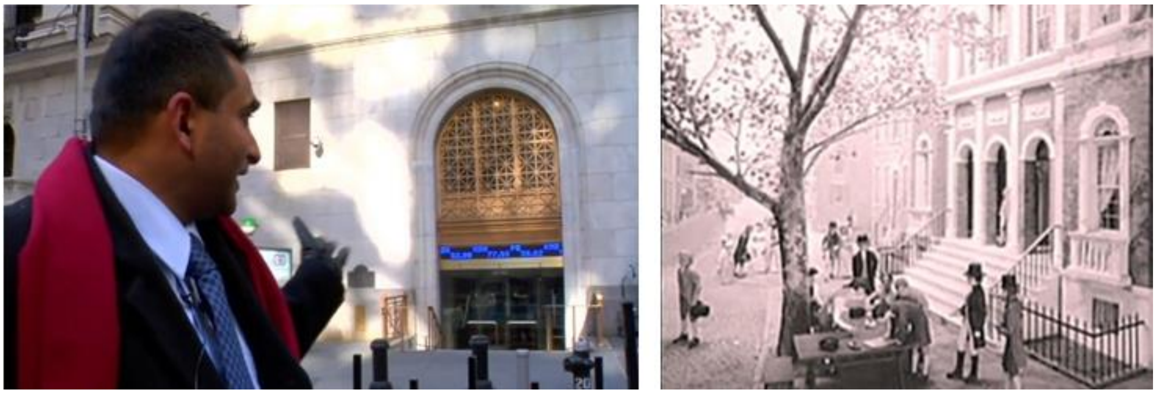

Figure 8
Indexical gesture and painting in clip 6.

However, other strategies can be used in the docu-tours we have analysed so far. For instance, labels can be superimposed on the screen when referring to certain concepts or ideas. This is the case of the caption *Goldman Sachs* that appears on the screen in clip 6 when Roger introduces this new topic to the viewer and shows the building on camera (example 7, Figure 9 on the left). Another example is from clip 7, a docu-tour about the Crown Court, thus pertaining to the legal domain. Here, the judge takes the role of the guide and speaks directly to the viewer, describing the components of the British Crown Court and their role. As shown in the excerpt in (8), he employs the verbal strategy of denomination, i.e. *Prosecution Barrister and Defence Barrister*, and then a label appears on screen next to each professional, so that the viewer can clearly understand (see Figure 9, on the right).

(7) Clip 6 from 6_Roger's tour of Wall Street
Here in front of us is [C_1] *the corporate headquarters of* ***Goldman Sachs*** [image] [label], *one of the most important and bluest of blue chips investment banks* [definition].

(8) Clip 7 from 15_The Crown Court
All the people present during a trial at the Crown Court are *the* ***Prosecution Barrister*** *and the* ***Defence Barrister*** [denomination] [label], usually with **solicitors** behind them [label] *taking notes* [image].

Figure 9
Use of labels in clip 6 and 7.

4.3. The documentary

The last genre we investigated is the documentary. In the following paragraphs, excerpts from the clips cut from Rick Steves' Lucca documentary (i.e. in the domain of tourism) are analysed as an example of this genre.

The first thing worth noticing is the large use of voice over and the presence of classical music in the background throughout the whole video. In clip 8, Steves talks about the famous and beautiful *ramparts* that enclose the city in a scripted language characterised by an extensive use of adjectives and adverbs (see transcript in 9). The description is entirely performed in voice over and what is interesting is that he lets images explain what ramparts are (see Figure 10). More specifically, it is through images that he creates the synonymic relation between the specialised term *ramparts* and the more general word *walls*. In this way the viewer can easily follow Steves' description and access the specialised meaning.

(9) Clip 8 from 13_Rick Steves_Lucca_part 1
(v.o.) Beautifully preserved Lucca is contained entirely within its iconic **ramparts** [image]. Most cities tear down their **walls** to make way for modern traffic [image]. But Lucca, kept its **walls**, [image] effectively keeping out both traffic and, it seems, the stress of the modern world.

Figure 10
Use of images in clip 8.

In the same way, in the next example in (10), specific terms such as *Romanesque*, *piazzas* and *pedestrian drag* are explained solely with the help of images, while verbal cues are hardly ever explanatory (see Fig11).

(10) Clip 9 from 13_Rick Steves_Lucca_part 2
(v.o.) **Romanesque churches** [image] seem to be around every corner. As do inviting **piazzas**, [image] busy with children at play. The main **pedestrian drag** [image] is Via Fillungo.

Figure 11
Use of images in clip 9.

Finally, in the two examples in (11) and (12) Rick Steves is, first, on top of the Guinigi tower enjoying the view of Lucca (Figure 12), and then in the Church of San Giovanni among the audience at a concert (Figure 13, on the left). In this way, through experiencing he becomes himself an example of what it means to visit Lucca and to enjoy its culture.

(11) Clip 9 from 13_Rick Steves_Lucca_part 2
(v.o.) Those making the climb are rewarded with commanding **city views**, all in the shade of its amazing trees.

Figure 12
Self-experience in clip 9.

At the very end of clip 10, this idea is strengthened by the quite long performance of the singer, who, together with the classical music played by the pianist, allows the viewer in some way to live the same experience.

(12) Clip 10 from 13_Rick Steves_Lucca_part 3
(v.o.) Nearby, the church of San Giovanni [image] hosts nightly **concerts** celebrating the music of hometown composer Giacomo Puccini. [sound]

Figure 13
Self-experience in clip 10 and use of sounds.

5. Findings

The analysis of the clips confirms that multimodality is central in making potentially "difficult" concepts accessible in spoken tourism discourse, and therefore has a pivotal role in popularization and knowledge dissemination. Documentarists and tour guides resort to both verbal and nonverbal strategies when they need to make sure that their audience understand terminology and culture- and domain-specific references. However, the materials investigated show a different distribution pattern of such strategies across genres. Interestingly, such patterns seem to reveal specificities which contribute to the definition of three distinct although sometimes overlapping genres: documentaries (D), docu-tours (DT) and guided tours (GT).

Overall, nonverbal strategies (i.e. images, gestures, sound effects, labels and graphic aids) are more commonly used than verbal strategies (i.e. paraphrase, explanation, exemplification or anchoring). This is confirmed by the analysis of the three genres, which also evidences that a possible continuum can be identified with respect to the feature investigated. Table 3 and Figure 14 show the global vs. the specific percentage of the use of the different strategies.

	Nonverbal strategies	Verbal strategies
Global count	60%	40%

Table 3
Percentage of use of verbal and nonverbal strategies in the corpus.

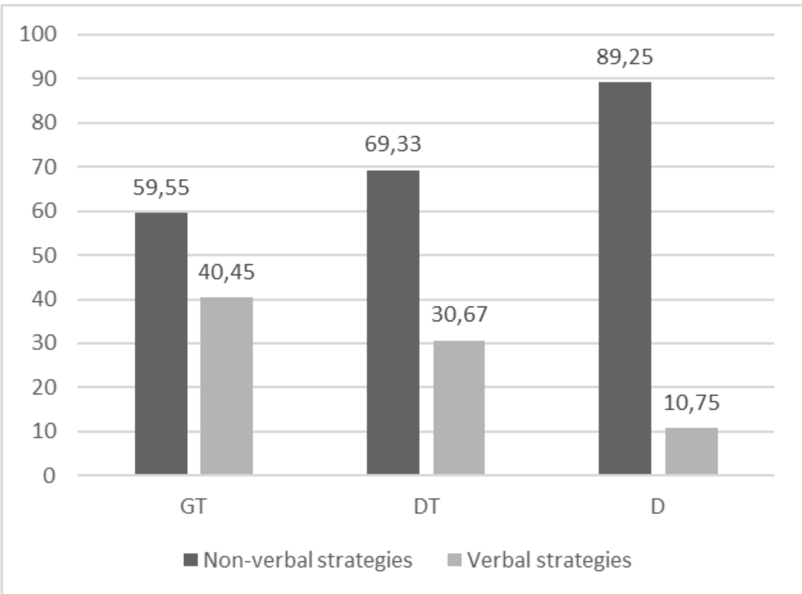

Figure 14
Global distribution of strategies in the three genres.

As is evident, verbal strategies are preferred in guided tours, whereas their prominence progressively decreases in the two audiovisual genres. This was expected because, as Lopriore (2015, p. 221) states, in documentaries "the spoken text has to back up visuals rather than overpower them" and narration should be "kept as simple and as clear as possible to allow images to speak". Moreover, documentaries are planned, scripted and edited and therefore the authors can pair nonverbal elements and terminology in an effective way to ensure maximum explanatory power.

The same tendency is observed in docu-tours, where, however, nonverbal strategies often overlap with verbal strategies. Thus, in a style that is similar to that of guided tours, the speaker offers a verbal explanation of unfamiliar concepts while, at the same time, images (static or in the form of short narrative videos) echo his or her words as in a "canonical" documentary. Finally, in guided tours, although nonverbal strategies still look preponderant, it is actually the verbal component that plays the major role in creating accessibility, as the only nonverbal resource available to tour leaders is usually the use of gestures as Figure 15 shows.

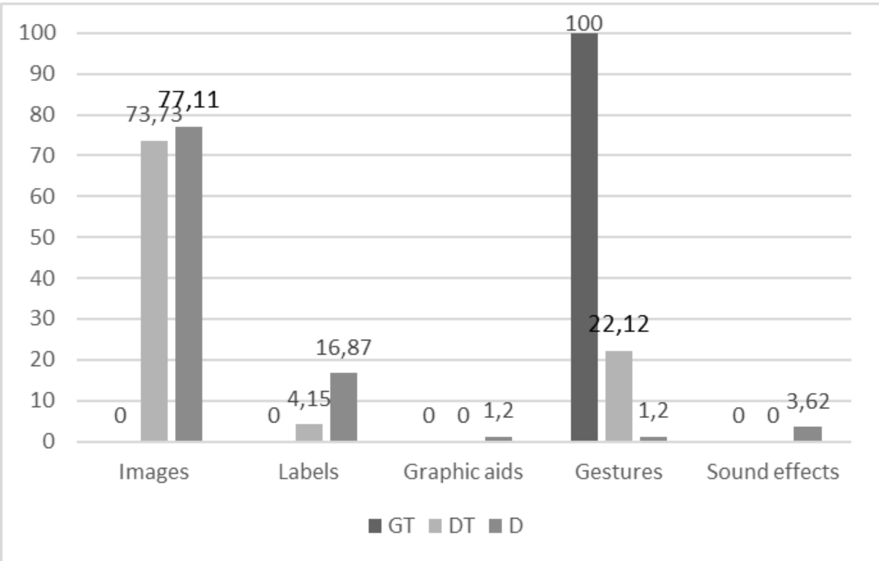

Figure 15
Distribution of nonverbal strategies across genres.

Images are almost equally common in documentaries and docu-tours, while labels, graphic aids (e.g. arrows and animations) and sound effects were only found in the former, as they are typically added in the editing phase. The hybrid nature of docu-tours is again evidenced by the fact that, besides resorting to visual resources like documentaries, gestures are also typically used by the speakers on camera to enhance understanding, just as tour guides do in "real life" situations.

The use of verbal strategies too reflects the scripted vs. non-scripted continuum along which the three genres can be ideally placed. Figure 16 provides an overview of the distribution of the individual types in the corpus and Figure 17 details the distribution in each genre.

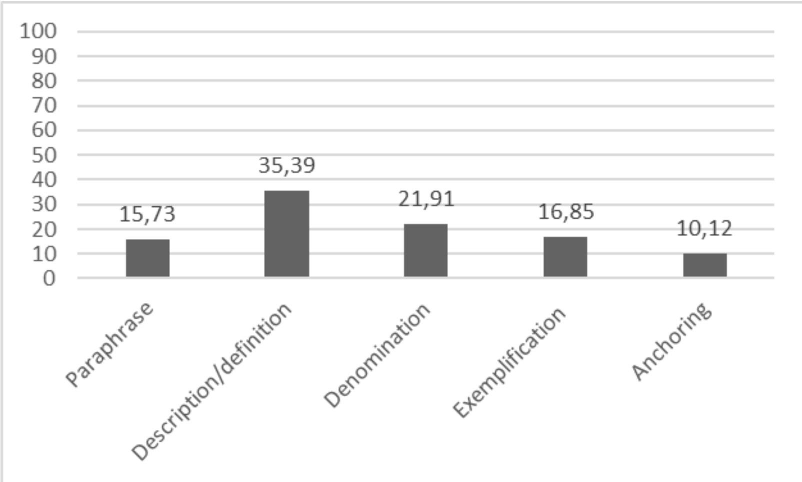

Figure 16
Global count of verbal strategies.

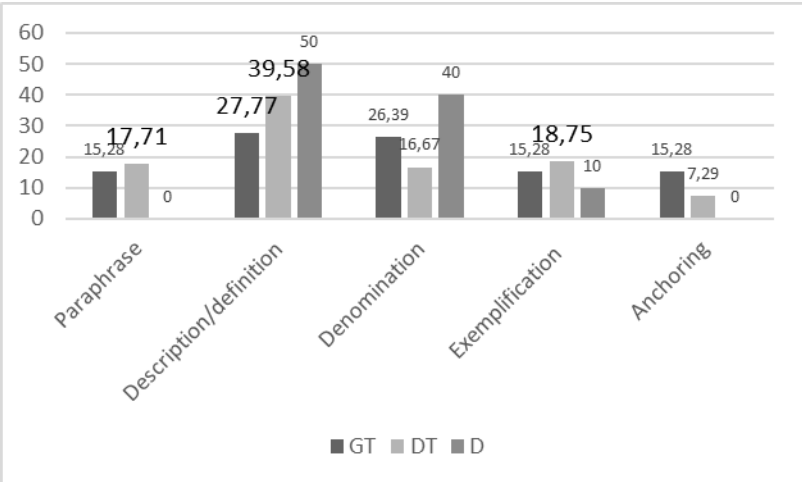

Figure 17
Distribution of verbal strategies across genres.

All the strategies identified were found in guided tours and docu-tours, whereas only those which reveal proper planning (e.g. description, definition, exemplification) were retrieved in documentaries. Paraphrase was mostly found in the form of rephrasing, which is more typical of spontaneous spoken communication than planned written language. It is therefore not surprising that it is quite common in guided tours, although we did not expect it to be as frequent in docu-tours. The same holds for exemplification. This reinforces the idea that docu-tours can be seen as a hybrid genre, where accessibility is achieved through the sometimes redundant overlap of multiple verbal and nonverbal strategies. This is probably due to the fact that, contrary to what happens in documentaries, the verbal component precedes the visual component (Lopriore 2015), and thus docu-tours preserve some of the characteristics of the more spontaneous nature of guided tours.

6. Concluding remarks

The authors are aware of the limitations of the study. The small size of the dataset should invite some caution in the claims we can make and does not allow us to generalize the conclusions. The documentary and guided tour component should be expanded to include a variety of sources and types so as to avoid assumptions from possibly idiosyncratic preferences of only a few documentarists and guides. Another possible limitation is the aforementioned intuitive nature of the operational classification of the clips into the three genres.

Nevertheless, we believe that, as long as no systematic analyses of the latter are available, individual studies like this one can advance our understanding of the distinctive features of the language of tourism and of the ways in which it contributes to knowledge dissemination. The observations that emerge from our multimodal analysis point towards the plausibility of the generic classification we propose, and, at the same time, add to what we know about popularization strategies in spoken specialized discourse.

It is our conviction that this type of research should not remain confined to the academic debate, and that, as a more general objective, it should promote research-based reflection on the method of effective tourism communication in the English-speaking world. For this reason, it could provide stimuli and inspiration for the design of materials for the teaching of this type of English for specific purposes, as well as for professional development (Cappelli, Bonsignori 2019).

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A MULTIMODAL AND CROSS-CULTURAL ANALYSIS OF FARMHOUSE HOLIDAYS WEBSITES
A comparison between Italy, Germany and Austria

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Abstract – This project aims to analyse the language of tourism as a specialized discourse as well as to investigate the way cultural orientations affect tourists' choices in the before-travelling stage. To this end, a multimodal approach has been applied to the promotion strategies implemented on websites of farmhouses in Italy, Germany and Austria. Websites as hybrid media (Antelmi 2007, p. 218) are particularly worth investigating due to their multimodal nature. Not only words, but also nonverbal elements play a crucial role in producing meaning and are here thereby taken as useful tool to decode culture. A corpus-based investigation of the texts from the websites will then integrate the data of the multimodal analysis, in order to make assumptions about the persuasive strategies within the two cultures and their linguistic realisations. Findings have been interpreted through the framework of 'Cultural Communication Grammar' (Manca 2016b), which provides a classification of the ways cultures express different strings of meaning in communication and relies on other theories provided by intercultural studies (Hofstede 2001; Hall 1982, 1983). Early results already reveal significant differences between the cultural systems involved and also in reference to how verbal and nonverbal language are at work in the promotion of farmhouse holidays in the countries involved.

Keywords: multimodality, tourism, websites, cross-culture, communication.

1. Introduction and previous work

Thanks to the increasing prominence of digitalisation, opportunities for information exchange have grown considerably, and the Web has accordingly become a powerful tool for marketing purposes. Because of these features, the Internet plays a crucial role also in the tourism and hospitality industry at various levels. On the one hand, the growth of the online tourism domain has clearly allowed tourism organisations and agencies to build up direct relationships with potential customers. On the other hand, the Internet has become a valuable source of information available to potential travellers in the planning stage of their journeys.

Furthermore, recent literature has convincingly shown that tourism is not simply a leisure activity (Manca 2016a, p. 1). A journey allows people to cross the borders of cultural systems (Ehlich 2014, p. 15), thus leading to intercultural encounters (Hofstede 2010, p. 392). Although the bond between tourism and culture is largely recognised as strong, doubts can be raised as to whether tourist destinations consider cultural factors while developing their promotion strategies. Admittedly, culture-oriented presentations of travel destinations are acknowledged as key elements in persuasion processes. As suggested by de Mooji (2010, p. 67), in order to establish a successful relationship between consumers and brands, advertising as a cultural artefact must also reflect the consumers' cultural values. Since it implies the direct engagement of potential readers, tourism promotion falls under the label "High Involvement Advertisement" (Janich 2005, p. 25). Likewise, tourist destinations are "High Involvement Products" (Ricci Garotti 2016, p. 19) due to their close interrelation with the needs of the recipients.

In this respect, the investigation of the tourism discourse conveyed through websites implies a new understanding of textual features. Due to their dynamic structure and multimodal nature, websites qualify as hybrid mediums (Santulli *et al.* 2007, p. 218), inasmuch as they are "not only made up of language, but also of a set of culturally and functionally dependent modes which all contribute to the overall meaning, and make the text function as a full system of communication" (Manca 2016a, p. 5). Their characteristics ultimately present a tourist product from different perspectives in its overall complexity (Giacomarra 2005, p. 132).

Hence, while studying the impact of tourism promotion on readers, it is essential to focus on how different modes of communication transform interests and desires in the urge to visit a specific destination (Boyer, Viallon 1994, p. 7). Over the past decades, several scholars have applied the multimodal approach to tourism discourse analysis (Francesconi 2007, 2011, 2012, 2014; Maci 2013; Denti 2012; Manca 2016a, 2016b). To my knowledge, exception made for one study on the construction of the image of Italy on catalogues targeting German-speaking tourists (Ricci Garotti 2016) and two linguistic investigations of *agriturismi*[1] promotion in Germany (Magris 2010; Palmisano 2010), no published research has investigated websites advertising farmhouse holidays to tourists from German-speaking countries from a multimodal and cross-cultural perspective.

Our analysis mainly involves websites advertising farmhouse holidays in Italy, Germany and Austria. The choice of this specific tourist domain is justified by the strong impact of *agriturismi* on the economy of the tourist

[1] "Agriturismi" is the Italian word for "farmhouses".

industry in Italy.[2] In addition, tourist flows from German-speaking countries to Italy are a well-established phenomenon in history.[3] It can therefore be assumed that a detailed analysis of this specific intercultural contact is particularly worth investigating. Since this research project is still in progress, merely preliminary results will be discussed here, as to describe general tendencies in tourism promotion in the analysed countries.

2. Research questions and aim of the study

The paper offers an overview of the most relevant theoretical frameworks and proceeds with a contrastive analysis of Italian, German and Austrian farmhouses websites from an intercultural perspective. Two research questions are relevant here:

1. Are the promotion strategies adopted in the Italian websites advertising farmhouses appropriate for tourists coming from Germany and Austria? Do the features of the Italian promotion mirror those identified in German and Austrian websites advertising local farmhouses?
2. Can possible differences between Italian, German and Austrian farmhouse websites in terms of language and visuals provide evidence about how culture influences the perception of the potential destination in the advertisement process?

The paper combines quantitative and qualitative analyses and focuses on the formal features of the homepages as well as on the investigation of their linguistic realizations. As for the homepages, in order to gain insight into how primary information is transmitted, special attention has been devoted to their layout structure and to the way images activate persuasion. The evidence ensuing from this first part has been then integrated with a closer examination of language. To this end, a corpus-based analysis of the texts included in the websites has been carried out and relevant similarities and differences between the German, the Austrian and the Italian promotion have been assessed.

The overall results have been interpreted through the framework of Manca's Cultural Communication Grammar (2016b), which combines

[2] According to a study conducted by Agriturismo.it, in 2018 the demand in this sector increased by 12%. One third of the requests came from foreign tourists, among which German-speaking tourists in the highest number (http://www.travelquotidiano.com/enti_istituzioni_e_territorio/agriturismo-boom-richieste-nel-2018-testa-la-toscana/tqid-338030 , last accessed June 2019).

[3] Italy has been one of the most attractive tourist destinations in the German-speaking cultures since the 15th century, with relevance after Goethe's journey to Italy in 1786 (see Ricci Garotti 2016, p. 16).

Multimodal analysis (Halliday 1978, 1985; Kress, van Leeuwen 2006) and Intercultural studies theories (Hofstede 2011; Hall 1984, 1989). Concluding remarks will outline the importance of the multimodal approach to decode culture in tourism promotion and the need of effective and culture-oriented promotion strategies.

3. Theoretical background

In this section, a general overview is provided on the theories and models which are relevant for the present research. It is widely accepted that people communicate by using different communication channels, such as writing, speaking, gestures, images, and videos, sometimes simultaneously. Hence, multimodality can be defined as "the combination of different semiotic modes […] in a communicative artefact or event" (van Leeuwen 2005, p. 28). Given the increasing development over the last decades in the combination of various modes of communication, several scholars have focused on multimodal discourse analysis from a social-semiotic perspective. Most of these studies draw upon Halliday's Systemic Functional Grammar (Halliday 1978, 1984). Moving from the core assumption that language is "a systemic resource of meaning" (Halliday 1985, p. 192), Halliday's framework identifies three simultaneously operating metafunctions which can be applied to clause analysis:

1. the *ideational metafunction*, which describes how our experiential world is construed by language (Halliday 2004, p. 30) and sees clauses as representations;
2. the *interpersonal metafunction*, which considers the interpersonal relationships between speaker and hearer and sees clauses as exchanges;
3. the *textual metafunction*, which is related to the flow of information within a text and sees clauses as messages.

Within this social-semiotic perspective, Kress and van Leeuwen (2006) have been able to extend the application of Halliday's model to other semiotic modes, including visual modes. Because of the different characteristics of the visual mode with respect to the linguistic one, Kress and van Leeuwen (2006) have adapted Halliday's metafunctions and renamed them accordingly: the representational, the interpersonal and the compositional meaning. They have provided an insightful tool to read images and relate them to verbal elements.

In this respect, Kress and van Leeuwen's *representational meaning* closely corresponds to Halliday's ideational metafunction and stands for the representation of human experience through every semiotic mode. More precisely, in visual communication, meaning is said to be expressed through two different kinds of images. Accounting for the first type, *narrative images* depict participants involved in different actions and vectors are used to connect them. Conversely, *conceptual images*, which have no vectors, represent participants "in terms of their more generalized and more or less stable and timeless essence, in terms of class, or structure, or meaning" (Kress, van Leeuwen 2006, p. 79).

Furthermore, the *interpersonal meaning* accounts for how visual elements, viewers, and producers are interrelated. While in the verbal mode this meaning is realised through statements, questions and offers, in the visual mode there are specific techniques to establish different relationships with the viewer. Following Moya and Pinar (2008), these features can be summarised as follows:

- the absence or presence of a direct contact with the viewer by means of facial expressions or gestures, which may suggest two different orientations: a demand to carry out a particular action / to behave in a specific way or an offer of information / of concrete things;
- specific choices in terms of perspectives and angles, which determine the level of involvement between the viewer and the depicted participants[4];
- processes such as close up, medium and long shot, which express the degree of social distance between the represented participants and the viewers;
- colour saturation, depth, illumination, brightness, which refer to the status of participants and their correspondence to what is real.

Finally, the *compositional meaning* accounts for how elements are placed in images. In this case, relevance is borne by elements such as information value (where elements are placed in the images), salience (foregrounding/backgrounding, size, contrast in colour), and framing (use of dividing lines, frame lines, etc.).

An important contribution to multimodal discourse analysis from a cross-cultural perspective has been given by Manca (2016b). While relying on Halliday's (1978, 1985) and Kress and van Leeuwen's (2006) models, she developed a tripartite framework to investigate how culture affects multimodal communication. Independently from the employed mode, the exchange of information is to be seen then as an interactive cultural event. Every communication mode has its own structure which is influenced by values and conventions typical of each culture (Manca 2016b, p. 7). Starting from these core assumptions, Manca (2016b) identifies three strands of cultural meaning, each of which is expressed by means of different systems. Interestingly, Manca (2016b) relates the different configurations of the three meanings to specific cultural orientations, as identified by Hall (1982, 1983)

[4] Concerning the meaning of different angles in pictures, see Royce (2007).

and Hofstede (2001). Cultural orientations provide insights into the common attitude of a group of individuals in relation to a specific subject. This attitude is influenced by their shared core beliefs and values, and contribute to certain behaviours, particularly in communication.

First, the *expressional meaning* deals with the expression of cultural orientations, relying on the systems of *Doing* and *Being* (Manca 2016b, p. 8).[5] Doing-oriented cultures mainly focus on the object of communication itself: facts and explicitness are of utmost importance in the interaction. These features are typical of "individualistic cultures" (Hofstede 2001), which emphasize the individual and his own goals rather than the interests of the whole group. In terms of communication style, cultures who realize the expressional meaning through the system of Doing are likely to be "Low-Context Cultures" (Hall 1982). In this case, communication needs to be explicit in order to avoid misunderstanding, since the members of these cultures share less knowledge. Whenever meaning is mainly configured through the system of *Being*, instead, reality is expressed through implicitness and personal feelings, and in the visual communication of that culture a high presence of conceptual images is usually recorded. In this case, cultures are very likely to be "collectivistic" (Hofstede 2001), that is to say, the goals of the group are prioritized over the needs of individuals. Cohesion and relationships among individuals represent a core value. Cultures with a tendency towards collectivism can also be defined as "High Context Cultures" (Hall 1982). Because of the shared knowledge and context, explicitness is not required in communication. Impersonal expressions are instead preferred, and the way information is conveyed is more valuable than the content itself.

The second strand of meaning is the *liaisonal metafunction*, which describes how information is exchanged between participants in a communicative act. Cultures may express this meaning through *directness*, for instance by means of dialogic style, salutations, and engagement markers. In this case, pictures usually depict human participants, thus establishing a direct contact with the viewer. Cultures which show a tendency towards *indirectness* use conversely impersonal expressions, indirect addressing, and declaratives. As for images, they tend not to feature human participants. Manca (2016b, p. 10) suggests that these interactional features also imply different orientations of cultural systems with respect to the "Power Distance dimension" (Hofstede 2001), that is to say the extent to which members of a community deal with an equal or unequal distribution of power. The communication style of cultures with a low Power Distance tends to be more

[5] Manca's systems of *Being* and *Doing* derive from the orientation of Action first introduced by Brake *et al.* (1995, p. 39) following Kluckhohn (1961), Hofstede (1991) and Hall (1982, 1983).

informal and direct, whereas implicitness, formality and declarative forms suggest that the degree of Power Distance is high.

The third and last meaning, the *structural* one, refers to "the way modes of communication are culturally structured to convey meaningful messages" (Manca 2016b, p. 10). This metafunction brings to the fore the systems of *linearity* and *circularity* (Manca 2016b). As the word itself suggests, the linearity system leads to messages structured according to the KISS[6] principle (Katan 2004, p. 267). On the other hand, circularity is exemplified by expressions typical of the KILC[7] style (Katan 2004, p. 267), which is instead writer oriented.

Manca (2016b) applied this model to the analysis of the official tourist websites of Italy, Germany, France and New Zealand. In that case, the Cultural Communication Grammar has proved to be a very useful framework to highlight similarities and differences between the analysed websites in the way culture is at work in the promotion. Similarly, her framework will be useful here to provide a qualitative interpretation of our findings in relation to the theory of cultural dimensions.

4. Data and methodology

Our analysis involves websites of Italian, German and Austrian farmhouses. In a first stage, the investigation focuses on the formal features of the homepages through an analysis of the visual communication. Later, the verbal language used in order to activate persuasion has been considered. Table 1 contains an overview of the regions in which the farmhouses are located.

Country	*Regions / Bundesländer*	Scrutinised websites
Italy	Marche, Puglia, Tuscany, Umbria, Veneto	1,154
Austria	Carinthia, Styria, Tirol, Vorarlberg	1,139
Germany	Baden-Württemberg, Bavaria, Lower Saxony, Schleswig-Holstein	1,167

Table 1
Location of the farmhouses in the three countries.

The scrutinised websites have been selected according to specific criteria: the geographical location, in order to include in the investigation regions with different characteristics; the economic importance of farmhouse holidays in

[6] The acronym KISS (Katan 2004, p. 267) stands for 'Keep it short and simple'.
[7] The acronym KILC (*ibidem*) stands for 'Keep it long and complex'.

the selected regions; the presence of at least three pictures in the homepage and of three different sections in the website. Table 2 shows the key data used for the formal investigation of the websites.

	Scrutinised pictures	**Scrutinised taglines**
Italian *agriturismi*	3,279	815
German *Bauernhöfe*[8]	3,215	636
Austrian *Bauernhöfe*	3,627	753

Table 2
Key data of the formal investigation of websites.

The methodological approach for the analysis of verbal language used in the websites bases on Corpus Linguistics. The language used for promotional purposes has been investigated in terms of frequent words, collocations and semantic preference. Our data are derived from a set of three comparable corpora in German and Italian containing texts downloaded from the Italian *agriturismi* websites and the German and Austrian *Bauernhöfe* websites. Table 3 contains an overview of the analysed corpora.

Corpus name	***Tokens***	***Regions / Bundesländer***
AgrIT	648,982	Marche, Puglia, Tuscany, Umbria, Veneto
AgrAT	623,549	Carinthia, Styria, Tirol, Vorarlberg
AgrDE	612,854	Baden-Württemberg, Bavaria, Lower Saxony, Schleswig-Holstein

Table 3
Key data of the three comparable corpora AgrIT, AgrAT, AgrDE.

Once selected, the texts have been downloaded and stored in different folders, according to the website's sections:

A – Homepage: general introduction to the facility focusing on the history and the owners themselves;

B – Services and facilities: overview of the opportunities available to guests to enjoy their time at the farm and of the activities proposed by the farmhouse;

C – Food and local products: during their stay, tourists have the possibility to taste local food and wine, much of which is produced at the farmhouse itself;

[8] "Bauernhöfe" is the German word for "farmhouses".

D – Rooms and accommodation: detailed description of rooms and apartments in terms of furniture and available services inside the accommodation;

E – Surroundings: information about what to do outside the facility together with tour proposals and neighboring cities worth visiting.

Once assembled, the three corpora have been analysed by using *WordSmith Tools 7.0*, a software for linguistic analysis by means of which frequencies and concordances were retrieved and compared across the three sets of

5. Formal structure of the homepages and visual communication

The study of visuals presented in this section focused on three elements: homepage structure, pictures, and taglines. The investigation of the homepage structure takes into consideration how information and nonverbal elements are organised in the webpage, while the analysis of pictures places emphasis on those nonverbal elements which contribute to activate persuasion. The ensuing findings are then combined with a closer examination of taglines, that is to say, the short catchphrases that express the farmhouse's philosophy, as well as its core values. Concerning the Italian *agriturismi* websites, the frequently occurring features in their homepages are represented in Figure 1.

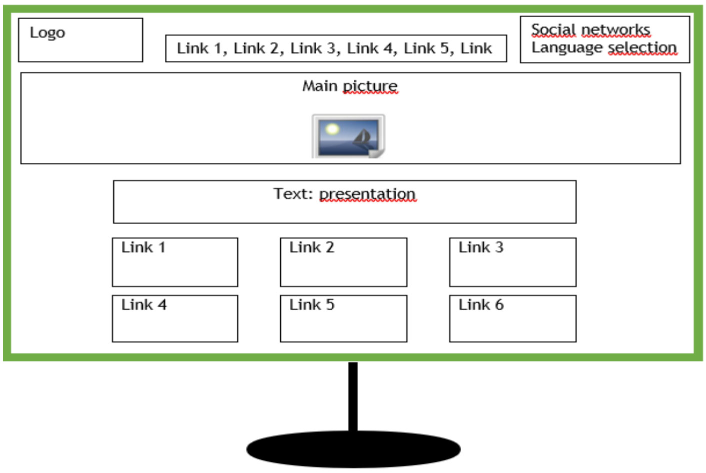

Figure 1
Structure of Italian *agriturismi* homepages in 73% of the scrutinised websites.

The *agriturismo*'s name and the logo are normally placed at the top left. The top bar usually contains the following links [to other pages in the website]: Home, *La nostra azienda* [Our farmhouse], *I nostri prodotti* [Our products] *Attività e servizi* [Activities and services], *Camere* [Rooms], *Dintorni*

[Surroundings], *Contatti* [Contacts]. At the centre of the page, most of the screen space is given to a big cluster displaying a side-scrolling gallery with different pictures. Scrolling down the page, one finds the same links featured in the top bar, now together with pictures and small captions introducing the section. Consequently, visitors are given the possibility to access different sections according to their own purposes, thus enhancing an open narrativity.[9]

The Austrian websites show opposite features. Figure 2 displays the most frequent homepage structure:

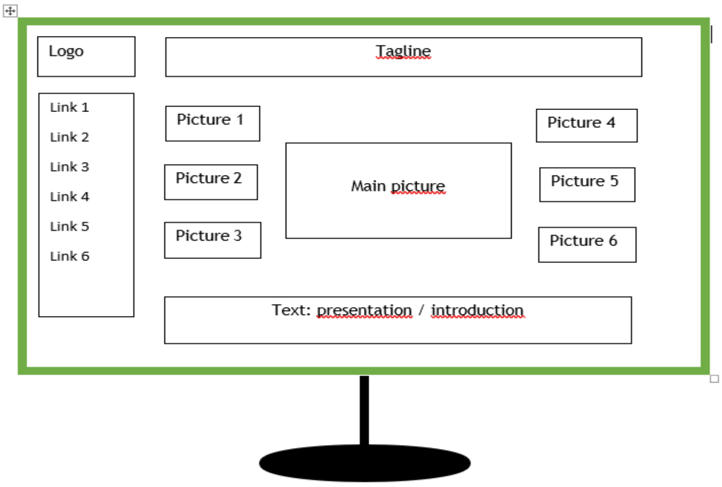

Figure 2
Structure of the Austrian homepages in 68% of the scrutinised websites.

The Austrian *Bauernhöfe* homepages tend to feature a very small amount of text. Here the narrative provides a logical path for the visitors to follow. The number of pictures in this case is higher than in the previously scrutinised Italian websites, although they are much smaller. Featuring similar contents compared to their Italian counterpart, no significant differences have been recorded with respect to the links in the left bar.

As to German homepages, in a continuum where Italian and Austrian websites occupy the two extremes, they stand in the middle. The websites of farmhouses located in Northern Germany (Lower Saxony, Schleswig-Holstein) share several features of the Italian homepages (see Figure 1), whereas the ones located in the South (Baden-Württemberg, Bavaria) are very similar to Austrian homepages, as illustrated in Figure 2.

Further confirmation of these results has been provided by the analysis of the pictures featured in the homepages. The images have been manually

[9] The concept of narrativity of websites has been well investigated by Volli (2005). He points out that the most important effect is the inclusion of the recipients. For instance, the pointer allows people to interact with multimodal texts by opening, closing or zooming windows (Volli 2005, pp. 57, 60).

sorted out according to the depicted subject, and six most frequent participants have been identified. Figure 3 illustrates the significant differences in the distribution of the participants depicted in the pictures available on the websites considered for analysis:

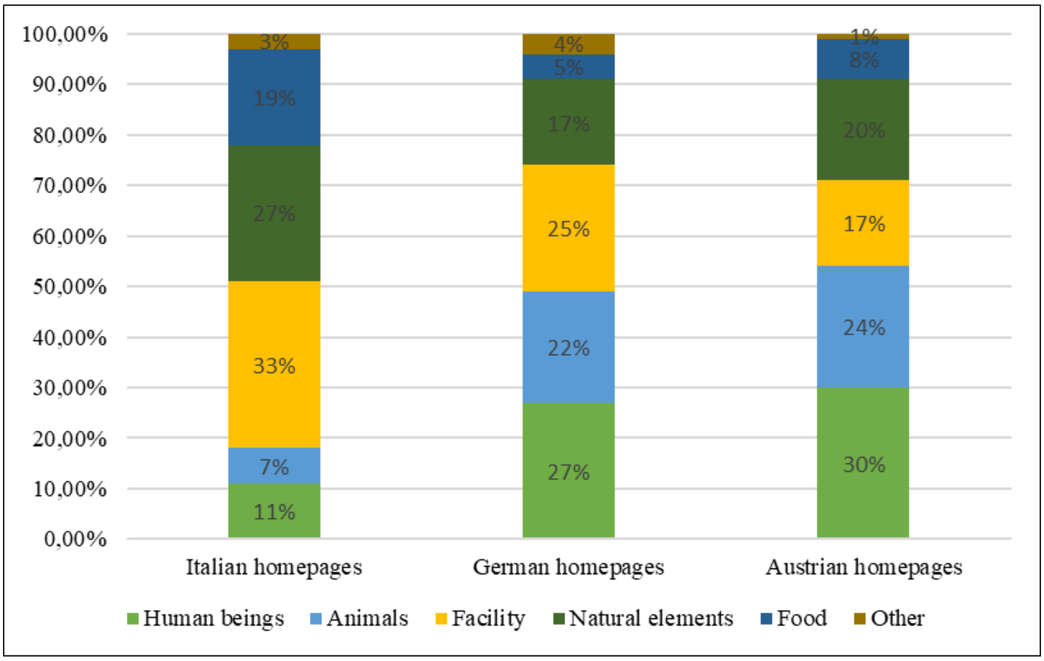

Figure 3
Represented participants in the homepages of Italian, German and Austrian farmhouses.

Italian homepages tend to focus on the presentation of the tourist product and on what is available for guests in the facility. This is confirmed by the high frequency of pictures featuring single parts of the farmhouse, such as the rooms (36%), the swimming pool (22%), and the restaurant (25%), whereas the most depicted elements in German and Austrian homepages are the garden (31%), the courtyard (24%), and the stables (21%).

In all three cases, single elements of the facility are depicted from a low-down angle, highlighting the importance of the represented participants, whereas pictures of the whole facility and the surrounding area are taken from the top-down angle, thus enhancing the view of the website visitor. Furthermore, a high number of images featuring natural elements and the countryside in general has been recorded across the spectrum. These are equally present in all homepages, mostly from a top-down angle, as to involve viewers (Manca 2016a, p. 53). However, Austrian and German homepages often embed natural elements with human participants in the same picture and put them at eye-level. The subject of food is often featured in the Italian homepages and sometimes also in the Austrian homepages, but, whereas the Italian pictures mainly show locally-grown products, such as oil and wine (43%), Austrian and German websites feature pictures of breakfast buffets (42%) or picnics (21%).

The most significant difference between the analysed systems is the presence or absence of human participants in the pictures. Italian homepages usually do not feature animated participants. Conversely, the most frequent subjects in Austrian homepages are families with children and animals. These are actively involved in the farmhouse activities: children play in the garden with animals from the farm, whereas adults are mainly depicted while walking and exploring, and sometimes playing with children.

These results suggest that the Austrian promotion targets the strong involvement of interactive participants. This is also proved by the use of the eye-level angle, which establishes equality between interactive and represented participants and enhances the stimulation of interest, as well as the identification of the website visitor as potential guest. Similar features have been identified also in the German homepages, although human beings occur as subjects with a lower percentage and mostly in symbolic pictures.

The different levels of interaction used in the promotion of a farmhouse holiday has been investigated and compared analysing taglines, whose main aim is to catch the attention of website visitors. These phrases are usually located close to the farmhouse's logo or at the centre of the homepage. Figure 4 shows the results classified by sentence types:

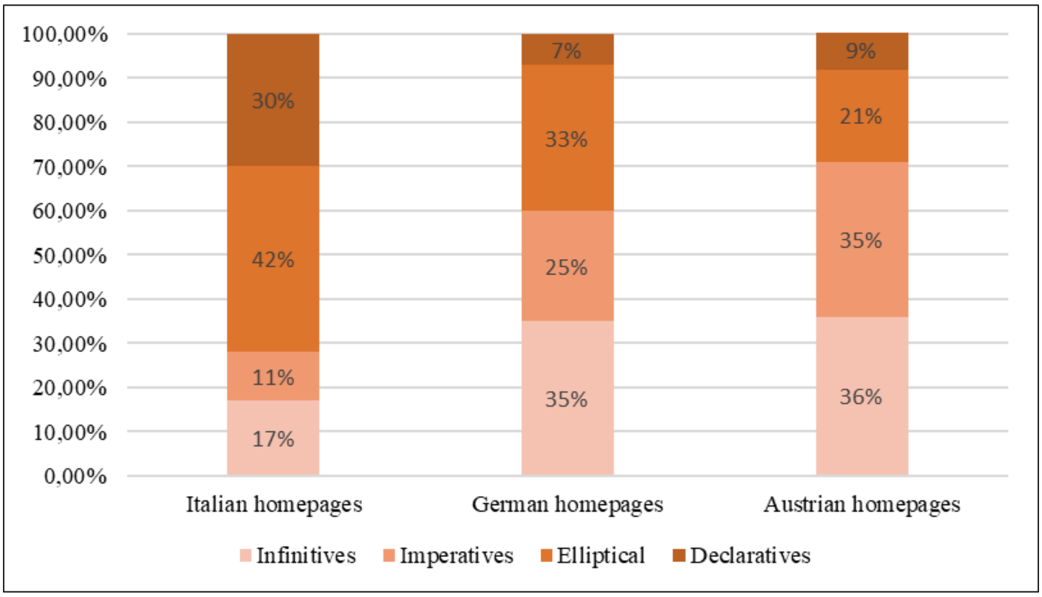

Figure 4
Sentence types in the homepages of Italian, German and Austrian farmhouses.

Elliptical and, to an extent, declarative sentences are predominant in the Italian homepages. As these types of sentence aim mainly to give information, it can then be concluded that interactivity is not the main goal of the Italian type of promotion. Elliptical sentences are also present in the Austrian and German homepages, although verbal communication here is mainly developed through imperatives, infinitives, and direct questions to the reader. In these cases, recipients are addressed more directly. The frequent use of pronouns (46% in German homepages, 57% in Austrian), for instance, enhances a highly dialogic interaction. These tendencies match those identified for visual communication and seem thus to confirm the assumption according to which language and visuals work together to create persuasion.

Table 2 summarises the identified features across the homepages.

	Italian homepages	***Austrian homepages***	***German homepages***
Homepage structure	Several clusters Informative	No clusters Interactive	Few clusters Informative / Interactive
Images	Symbolic	Conceptual	Symbolic and conceptual
Language	Declaratives, Ellipses	Imperatives, Infinitives, Ellipses	Ellipses, Declaratives, Infinitives

Table 2
Main features of the scrutinised homepages in terms of structure, pictures and language.

In the next section, we will integrate these results with a corpus-based analysis of the language in the single websites.

5. Verbal communication: corpus analysis and results

A corpus-based analysis of the texts found in the websites was carried out in order to explore the way persuasion is at work in the systems involved. In the following sections, a list of the most frequent words will be provided for each corpus. The lists will be compared in order to identify similarities and differences in the way verbal language is used in the three cultural systems for promotional purposes.

6.1. Contrastive analysis of frequency lists

Because the first most frequent words in a corpus are usually function words, for the purposes of this study these have been excluded and only content words (nouns, verbs, and adjectives) have been selected.

Table 4 displays the first fifteen most frequent content words in the scrutinised corpora.

	AgrIT	%	AgrAT	%	AgrDE	%
1	*agriturismo* [farmhouse]	0.42	*Bauernhof* [farmhouse]	0.33	*können* [can]	0.46
2	*Toscana* [Tuscany]	0.42	*Urlaub* [holiday]	0.31	*Hof* [farmhouse]	0.44
3	*camere* [rooms]	0.29	*können* [can]	0.30	*Kinder* [children]	0.33
4	*ospiti* [guests]	0.29	*Hof* [house]	0.30	*Urlaub* [holiday]	0.29
5	*mare* [sea]	0.23	*Kinder* [children]	0.22	*Wohnung* [apartment]	0.23
6	*piscina* [pool]	0.22	*genießen* [enjoy]	0.22	*bieten* [offer]	0.21
7	*prodotti* [products]	0.21	*Natur* [nature]	0.20	*finden* [find]	0.20
8	*soggiorno* [stay]	0.21	*Familie* [family]	0.18	*großen* [big]	0.18
9	*terra* [land]	0.20	*Zimmer* [rooms]	0.17	*Platz* [space]	0.18
10	*servizi* [services]	0.20	*Gäste* [guests]	0.16	*genießen* [enjoy]	0.18
11	*natura* [nature]	0.18	*bietet* [offers]	0.16	*Familie* [family]	0.18
12	*olio* [oil]	0.18	*Balkon* [balcony]	0.15	*Gäste* [guests]	0.18
13	*azienda* [farm]	0.16	*Wohnung* [apartment]	0.14	*zur Verfügung* [available]	0.17
14	*ristorante* [restaurant]	0.15	*Sommer* [summer]	0.14	*Tiere* [animals]	0.16
15	*grande* [big]	0.14	*finden* [find]	0.14	*freuen* [be happy]	0.15

Table 4
List of the first 15 content words in AgrIT, AgrDE and AgrAT.

An initial observation of the three wordlists uncovers significant differences among the analysed corpora. The first fifteen words contained in the AgrIT corpus mainly feature unanimated participants. They refer, indeed, to the accommodation itself, such as *agriturismo* [farmhouse], *camere* [rooms], *piscina* [pool], *soggiorno* [stay], *servizi* [services], *azienda* [farm]. Additionally, nouns belonging to the semantic fields of ‘natural elements’ (*mare* [sea], *terra* [land], *natura* [nature]) and ‘food’ (*prodotti* [products], *ristorante* [restaurant]) are recorded as prominent. Furthermore, particularly worth pointing out is the fact that, except from the adjective *grande* [big], the AgrIT wordlist features exclusively nouns among the most frequent words.

Let us now look at the AgrDE and the AgrAT. As for nouns, the results are partially similar to the Italian ones. The semantic field of ‘accommodation features’ is also here widely represented: *Bauernhof* / *Hof* [farmhouse], *Urlaub* [holiday], *Zimmer* [rooms], *Balkon* [balcony], *Wohnung* [apartment], *Platz* [space]. Few references to natural elements are included in the AgrAT wordlist only (*Natur* [nature], *Sommer* [summer]). Despite these similarities, it is interesting to notice that AgrAT and AgrDE wordlists prominently feature also nouns belonging to the semantic field of 'animated participants' (*Kinder* [children], *Familie* [family], *Gäste* [guests], *Tiere* [animals]). These first results suggest that promotional strategies used by the Austrian and German websites and those used by the Italian ones do not focus on the same aspects of the farmhouse experience. While the Italian promotion is mainly based on the description of the facility and of the surrounding nature, the German and the Austrian ones are geared towards potential tourists, trying to attract them more directly.

Further support to this finding is provided by the analysis of verbs. These latter are believed to play a crucial role in tourism promotion inasmuch as they carry the persuasive function which defines all tourist texts (Manca 2016, p. 78). Nevertheless, the Italian frequency list does not contain any verb. In the German language corpora, while the verb *bieten* [offer] is used to describe the facility and the services offered, verbs such as *genießen* [enjoy], *finden* [find], *sich freuen* [be pleased about / look forward to something] describe actions which can be performed only by potential tourists. Additionally, the high engagement of readers is clearly exemplified by the strong frequency of the modal verb *können* [can] mostly used in the present tense. Frequency list analysis ultimately confirms the insight gained through the previous investigation of nonverbal elements. In order to provide further evidence to our hypothesis, we will extend our quantitative approach to the collocational profile of some words related to the participants more frequently depicted in the pictures available on the websites selected.

5.2. Concordances

In this section, we will present the linguistic profile of some lemmas in the corpora, which are displayed according to the KWIC[10] format through the tool *Concord*. This allows us to investigate the immediate context on the left and on the right of the selected node word. Interestingly, the AgrAT shares many features with the AgrDE, while significant differences have been recorded between the German and the Italian texts.

[10] The acronym KWIC stands for 'Key Word in Context'.

5.2.1. "Family"

*Familie**[11] [family] is one of the most frequent words in the AgrAT (0.18%). A common collocation of this word is the adjective *ganz** [entire] (13%) in expressions such as *für die ganze / mit der ganzen Familie* [for / with the entire family]. In Austrian farmhouses, families are suggested to spend time together, as exemplified by patterns such as *Zeit mit der ganzen Familie verbringen* [spend time with the entire family], *Urlaub mit der ganzen Familie genießen* [enjoy the holidays with the entire family]. During their stay, they share different experiences [*Erlebnis*], relax [*Erholung*] and have fun [*Spaß*]. Moreover, the identity of the farmhouse's owners is of utmost importance in this promotion, as they usually introduce themselves to the reader. This is visible from the co-occurrence of the possessive pronoun *unsere* [our] (16%) and *Ihre* [your] (12%) followed by a surname to establish a close and friendly relationship with potential guests. Analysing the co-text to the right of the node word, the word shows to be frequently co-selected with *oder* [or] (14%) followed by *Freunde* [friends] in expressions such as *Familie oder Freunde* [family or friends], opening the farmhouse experience also to other categories of guests. Similar results have been found for the same node word in the AgrDE (0.18%). It can nevertheless be concluded that both German and Austrian websites put families and the available activities at the centre of their promotion.

Conversely, *famiglia* [family] occurs in the AgrIT in 0.4% of the instances. While 59% of the occurrences refers to potential guests (*per tutta la famiglia* [for the entire family], *vacanza in famiglia* [family holiday]), several entries of *famiglia* also refer to the farmhouse owners (46%), such as in *gestito dalla famiglia* [managed by family + surname] and *la nostra famiglia* [our family]. Sorting the context to the right, collocates are *amore* [love], *autenticità* [authenticity], *genuinità* [genuineness], *tradizione* [tradition]. These collocations are related to specific core values of the Italian culture, and convey the idea that family-run farms are a guarantee for all those tourists who want to experience a true and authentic *agriturismo*.

5.2.2. "Children"

As the findings of the visual analysis suggest, children play a crucial role in the Austrian and to an extent also in the German farmhouse promotion. In the AgrAT, the word *Kinder** occurs in 0.22% of the instances. Sorting the context to the left, a frequent collocation with the conjunction *und* [and]

[11] The use of asterisks in this analysis indicates that the node word has been analysed in its different flexed forms (singular, plural, dative case, etc.).

(16%) can be found. This collocation refers to a joint farmhouse experience together with *Erwachsene* [adults] and *Eltern* [parents]. The frequent co-occurrence of the preposition *für* [for] (15%) embedded in expressions such as *für die Kinder / für Ihre Kinder* [for children / for your children] attracts the following collocates: *Spaß* [fun], *Platz* [place], *Abenteuer* [adventure], *Attraktionen* [attractions], *Erlebnisse* [experiences], as well as the adjective *ideal* [ideal]. Besides, *Kinder** usually co-occurs with the possessive pronouns *unsere** [our] (11%) and *Ihre** [your] (10%). The use of *unsere* works as a welcoming message, as to suggest that guest children will be fully "adopted" by the farmhouse and welcome to take part actively in the farmhouse activities. Analysing the co-text to the right, the word *Kinder** is frequently associated with the German phrase *gibt es* [there is] (12%), followed by a list of available activities for children.

As for verbs, due to the flexibility of the German sentence structure, they frequently collocate with our node word both on the left and on the right. Relevant examples are: *finden* [find], *erleben* [experience], *genießen* [enjoy], *entdecken* [discover], *spielen* [play], *sich austoben* [romp around], *bauen* [build]. Furthermore, the modal verbs *können* [can, be able to] and *dürfen* [may, be allowed to] frequently co-occur with these verbs, as well as in expressions such as *Kinder können / dürfen Kinder sein* [children can be children]. Modality is also expressed through the pattern *haben die Möglichkeit* [have the opportunity]. Promotion addressing children also focuses on feelings and emotions, as in the phrases *Kinderherzen schlagen* [children's heart leap for joy], *Kinderlachen* [smile on children's faces] and *Kinder lieben Tiere* [children love animals]. One might then conclude that the large amount of activities in a *Bauernhof* gives the possibility to "go back to the roots" and enjoy childhood in its full essence. Moreover, the *Bauernhof* vacation is closely linked to the discovery of animals, inasmuch as children and adults may observe them in their own environment and interact with them, as previously emphasised by the visual analysis.

A similar linguistic behaviour can be observed with *Kinder** in the AgrAT. The patterns identified are very similar, even though the expression *für Kinder gibt es* is more frequent in the AgrDE (16%). The importance of children in the Austrian farmhouse is also evident in the following frequent compounds: *kinderfreundlich* [children-friendly], *Kinderbauernhof* [children farmhouse].

Let us now look at the concordances of *bambini* [children] in the AgrIT. Besides the differences in terms of frequency (0.08%), in this case the word refers to the accommodation in 39% of the instances (*appartamento per famiglie con bambini*) [apartment for families with children]. and co-occurs with *genitori* [parents] or *adulti* [adults] in few instances (5%, 6%). Furthermore, besides a general reference to playgrounds (*parco giochi per* *bambini* [kids' playground]), concrete activities for children are not mentioned. The 3rd person plural form of the Italian modal verb *potere*, that is, *possono*, frequently co-occurs with our node word (14%), significantly only in relation to the general semantic field of 'fun' (*divertirsi* [have fun], *giocare* [play]).

Results suggest that, whereas the German and Austrian promotion strategies are children-oriented and focus on activities and leisures available to them, in Italian farmhouses children are mainly mentioned with reference to a general idea of fun. In addition, the *agriturismi* promotion uses different persuasion strategies addressing children and parents, which are exemplified by different collocations and phrases.

5.2.3. "Nature"

A contrastive analysis of the word nature in the language of tourism can also produce useful insight concerning cultural differences (see Tognini Bonelli, Manca 2004). The word *Natur* [nature] is very frequent in the AgrAT (0.20%) and often co-occurs with adjectives (36%) such as *frei* [free], *herrlich* [magnificent], *unberührt* [untouched], *wunderschön* [wonderful], thus conveying a sense of purity and creating desire of experiencing nature. Another frequent collocation is the modal verb *können* (22%) in association with verbs such as *erleben* [experience], *genießen* [enjoy], *erkunden* [explore], *entdecken* [discover]. The same collocational profile has been identified for *Natur* in the AgrDE (0.14%). In this case, the word nature functions as object and not as subject of the clause. It is therefore to be assumed that nature is presented as a 'leisure activity' available to guests in this promotion. This assumption is also in line with the pictures used in the Austrian and German websites where human beings are often depicted involved in activities in a natural environment.

In the AgrIT, the word *natura* is also very frequent and related to emotions and feelings (0.10%). Once again, the purity connotation is described by the adjective *incontaminata* [unspoilt] (22%). In the description of nature, Italian websites often rely on metaphors, as in the expression *immersione nella natura* [immersion in nature]. As already described in the previous literature (Manca 2012, 2016), in the Italian promotion, nature is presented as an abstract entity and it often features collocates from the semantic field of the five senses (37%). This is exemplified by collocations such as sounds [*suoni / rumori della natura*], scents [*profumi della natura*], and colours [*colori della natura*]. Concerning the collocation of *natura* with verbs, it is interesting to notice that *natura* is always the subject of a clause, as suggested by the strong collocation with the verb *circondare* [surround] (26%) in the 3rd person singular *circonda* [surrounds] and the adjective *circostante* [surrounding]. It can therefore be argued that, differently from the

German-speaking websites, the powerful role played by nature in the Italian tourism promotion develops upon a relation based on subjugation (see Kluckhohn, Strodtbeck 1961).

6. Discussion of findings, cultural interpretation of the results and future developments

In the light of the data investigated so far, it is clear that German, Austrian and Italian websites adopt different promotion strategies to advertise farmhouse holidays in the respective countries.

Concerning homepage layout and nonverbal elements, the Italian *agriturismi* homepages are usually characterised by the presence of several clusters. Pictures are often conceptual and symbolic, as they mainly depict parts of the facility, rooms and services, and the farming landscape. No human participants are depicted in the images. As for language, a high number of declarative and elliptic sentences has been recorded in the taglines and in the introductory text of the homepages. This tendency towards a descriptive promotion based on offer has also been confirmed by the analysis of frequencies. The AgrIT contains highly-frequent nouns belonging to the semantic fields of 'accommodation and services' and of 'natural elements'. Furthermore, nature clearly plays a crucial role in the Italian promotional strategies. Its presence in the *agriturismo* is particularly enhanced through an emotional description of the surroundings and the use of metaphors. Tourists tend to establish a relationship with the surrounding environment by 'immersing themselves in nature' and going through a process of purification (Manca 2012, 2016). These promotional strategies tend to emphasise the uniqueness of the tourist experience. It is often advertised, for instance, that during their stay in the farm, visitors will have the opportunity to enjoy unspoilt nature, rediscover traditional farmhouse life, and enjoy local produce, culture and historical heritage. Thus, promotion in this case is oriented towards offer and no direct interaction with readers is established.

Conversely, the Austrian promotion is mainly characterised by persuasion through a direct invitation to take action. The *Bauernhöfe* homepages are organised through a well-defined structure and visitor-friendly paths. As for the pictures, despite their smaller size, they mostly feature animated participants, such as children playing in the garden with animals or riding a tractor, and they are mainly depicted while participating in activities characteristic of farmhouse life. People appear happy and often occupy the centre of the picture. This establishes a direct relationship with the viewer and also provides a much easier identification of the receiver with the people and experiences represented. The high presence of infinitives and imperatives in taglines and introductory texts validate the results of the preliminary visual and structural investigation. Moreover, the frequencies in the AgrAT show that the promotion here is highly interactive, since the actions described by the most frequent verbs are performed by directly involved tourists. All these features contribute to develop a promotional strategy based on demand.

Finally, visual and verbal communication are well balanced in the German *Bauernhöfe* websites. In the homepages, both interactive and conceptual images can be found. Natural elements are mostly preferred, and the presence of human and animal participants is limited, mainly referring to the farmhouses' owners. From a linguistic point of view, persuasion is achieved through imperatives and infinitives, and potential guests are addressed directly. Hence, persuasion is in this case achieved through an overall balance between demand and offer.

The wordlist and concordance analyses support these first insights. The lexical, grammatical and semantic attractions of the selected words show different tendencies in how tourists are involved in the holiday experience in the three farmhouse contexts. The linguistic differences are in line with previous studies in the same domain (see Magris 2014; Manca 2016b). With respect to our first research question, it can be concluded that the persuasive strategies adopted in the Italian promotion are different from those identified in German and Austrian websites advertising *Bauernhöfe*. Based on the above outlined linguistic and visual features, and with reference to Manca's Cultural Grammar model (2016b) described in section 3, the three cultures here investigated can be classified as follows:

	Italian homepages	**Austrian homepages**	**German homepages**
Expressional meaning	*Being*	*Doing*	*Being / Doing*
Liaisonal meaning	*Indirectness*	*Directness*	*Indirectness / Directness*
Structural meaning	*Circularity*	*Linearity*	*Linearity*

Table 5
Cultural Grammar framework applied to Italian, Austrian and German homepages.

Our findings confirm previous investigations pointing to the existence of a strong interrelation between language, images, and culture in the tourism discourse (Manca 2016a) and provide an answer to our second research question. Concerning the cultural interpretation of the results, Manca (2016b, p. 20) maintains that similarities and differences in the realisation of the three meanings of this framework are in line with the orientation of cultures towards specific dimensions, as identified by Hall (1982, 1983) and Hofstede (1980, 1991, 2001) and explained in section 3.

Evidence for this assumption was also provided by our results. The promotional features of Italian farmhouse websites confirm that Italy is very likely to adopt a high-context communication style. The communication relies on the use of declarative sentences which aim to describe the accommodation. Readers are not directly invited to take action and the promotion aims to create a relationship of trust through an indirect style. Because of the high score on Power Distance, Italian websites tend to use mostly impersonal expressions. Based on these findings and on previous research, it may be assumed that Italy tends to be a collectivism-oriented culture. Conversely, the direct communication style as well as the orientation towards Doing in Austrian websites confirm Hofstede's findings about this country (Hofstede 2001) in relation to its cultural dimensions: as an individualism-oriented culture and with a very low score on Power Distance, Austria relies on an informal promotional style. Readers are addressed directly, and the verb forms are mostly imperative. The explicitness in verbal language is justified by the low-context communication style. As for Germany, the present paper has shown that the promotional strategies adopted on German *Bauernhöfe* are well-balanced, thus standing almost in the middle between Italy and Austria with a tendency to share more similarities with the Austrian websites. Similar results have been provided by Hofstede (2001) in his scale of cultural dimensions: Germany stands in the middle between Italy and Austria in the scales of Individualism and Power Distance.

It goes without saying that a full validation of this hypothesis would require a more extended investigation. Nevertheless, it can be confidently argued that the combination of multimodal discourse analysis and corpus-based approach is useful for the identification of relevant cultural differences. On the other hand, in order to avoid generalisations, it is of utmost importance to elaborate a new model of cultural orientations specific to the tourism discourse, and accessible to everyone working in the tourist industry. The overall aim is, indeed, not only to avoid the potential pitfalls ensuing from the application of wider cultural dimensions' models, but also and foremost to reshape promotion strategies in a direct and efficient way.

Future developments of this study will include then the following steps:

- the investigation of other words in the corpora;
- the collection of a parallel corpus containing the translations into German of texts from Italian *agriturismi* websites. The contrastive analysis of translations and their source texts is assumed to be particularly insightful with respect to the strategies adopted by translators and the linguistic features of the target texts;

- the employment of other research methods, such as questionnaires to native speakers, to check if their responses confirm the results of the formal investigation of the scrutinised websites.

A long-term objective of this project is to provide translators, transcultural mediators and farmhouse owners with a general framework to be applied in the development of promotional strategies geared towards a specific set of cultural orientations for tourists coming from abroad, and thus significantly increase tourist flows.

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PART 4 BUSINESS DISCOURSE

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HOW TO CONSTRUCT CORPORATE IDENTITY AND REPUTATION
Is the 'About Us' page a micro-genre?

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Abstract – Multimodal resources and digital multimedia technologies have been modifying and remodelling social practices in any field over the last decades. In business communication, histories of business, corporate vision and mission are today instantiated by the 'About Us' webpage, a sort of multimodal self-portrait or short autobiography created by the company itself. From a discursive perspective, this webpage typology has always been disregarded if compared with the crucial role played by the homepage that, according to the Usability guidelines, is to present the company, its business and market value. Only recently, web marketers have focused on the strategic function the undervalued 'About Us' page fulfils. It has revealed itself to be a goal-oriented sales page which focuses on highlighting the most relevant credentials of a company, its brand, and on making a strong impression on potential customers. Its aim is to remodel practices of Self presentation into practices of Self branding and this process takes place thanks to the co-deployment of different semiotic resources which, in turn, make use of different digital media technologies. This contribution will show how the specialized discourses of marketing and branding are translated, or rather transducted, into multimodal artefacts, the corporate 'About Us' pages, and how persuasive discursive strategies are embedded in a well-defined digital text pattern. Through the analysis of a small sample of corporate 'About Us' pages, we will demonstrate that these pages are the *loci* where business reputation and corporate identity can be constructed more effectively.

Keywords: About Us page; Multimodal Discourse Analysis; Usability; Self Presentation; Self Branding.

1. Introduction

Multimodal resources and digital multimedia technologies have been modifying and remodelling social practices in every field over the last decades. Nowadays, in business communication, corporate branding, values, vision and mission are instantiated by the 'About Us' webpage, a sort of multimodal self-portrait or short autobiography created by the company itself. From a discursive perspective, this webpage typology has always been disregarded when compared with the crucial role played by the homepage (Nielsen 2000; Caiazzo 2014). According to Usability guidelines (Nielsen 2000; Nielsen, Pernice 2010), the function of the homepage is to present the company, its business and market value. Only recently, web marketers have focused on the strategic function which the undervalued 'About Us' page fulfils. This is a goal-oriented sales page which focuses on highlighting the most relevant credentials of a company and its brand, and on making a strong impression on potential customers (Kaley, Nielsen 2019). Therefore, the aim of this webpage is to remodel practices of Self presentation (Goffman 1959) into practices of Self branding (Labrecque *et al*. 2011; Page 2102).

This process takes place thanks to the co-deployment of different semiotic resources which, in turn, make use of different digital media technologies. For this reason, it is significant to investigate the 'About Us' page as a multimodal specialized digital text and this contribution[1] will show how the specialized discourses of corporation, marketing and branding are translated, or rather transducted (Kress 1997), into multimodal digital artefacts, the corporate 'About Us' pages.

Thanks to this investigation, we will demonstrate that considering an 'About Us' page as a sub-genre of the website genre, or rather as a micro-genre, is misleading since several meaning-making processes and practices take place simultaneously and different genres are hence present within this webpage – e.g. Annual reports, CVs, job applications etc. This mechanism of genre proliferation makes the 'About Us' page a sort of corporate *genres hub*[2] that is regulated mainly by hyperlinks and usability conventions.

Thus, we have decided to tackle the semiotic complexity of the 'About Us' page by combining different approaches and frameworks. First of all, we will investigate the topic in terms of corporate discourse, discursive practices and rhetorical strategies. Genre analysis theories with a particular focus on genre evolution in digital contexts (Askehave, Swales 2001; Swales 2004; Bhatia 2004; Santini 2007; Orlikowski, Yates 2002) will provide the basis of our analysis. Inevitably, in order to identify and interpret how different meaning-making resources and their meaning potential contribute to the

[1] This study is part of a wider project funded by the European commission, Erasmus+ project key Action 2, agreement number 2016-1-IT02-KA203-024087, named EUMADE4LL (European Multimodal and Digital Education for Language Learning) which is designed and implemented to develop multimodal digital literacies in educational and professional contexts using English as the language of international communication. The project explores five digital text types and one of these is the 'About Us' page.

[2] The process of genre proliferation is also highlighted in other studies such as: Orlikowski and Yates (2002; "system of genres"), Bhatia (2004; "genre colony"), Catenaccio (2012; "genre network").

realization of this digital genre, a multimodal approach (Kress, Van Leeuwen 2001, 2006) is necessary.

Finally, along with these two frameworks, we will also explore the webpages according to the most common Usability guidelines. When dealing with digital artefacts, usability always plays a pivotal role. In order to obtain ‘usable’, i.e. consumable, digital products, web writers and web designers are requested to follow precise usability conventions that are now essential parts of the composition process.

Through the analysis of a small sample, composed of ten corporate ‘About Us’ pages, we will answer the following research questions:

1) Are the ‘About Us’ pages the *loci* where corporate identity and reputation are constructed?

2) To what extent can the ‘About Us’ page be considered as a genre, or a micro-genre? How can we define and classify it?

In the conclusion, thanks to the analysis of our findings, we claim that although most companies use their own ‘About us’ page to profile and brand themselves, these pages are not yet well-patterned from a discursive perspective and do not fulfil their communicative purpose exhaustively. In the future, in order to examine the evolution of the multifaceted digital ‘About us’ pages, we suggest the necessity of adopting an integrated theoretical framework which, apart from including genre studies, also combines different approaches.

2. Theoretical background

2.1. Corporate discourses and genre-formation

The ‘About Us’ page is a representation of how corporate discourse can be reified as digital artefact. Of course, corporate communication is an overarching domain that has given rise to several expressions of business social actions, practices and discourses since the last century, and whose main goal is to build an effective, positive and successful corporate self-presentation. The agentic[3] value of corporations, translated into corporate identity and image, is as strategic as is their capability of growing their revenues, enlarging their company, gaining market shares.

[3] Agentic value refers to human agency. In Social Cognitive Theory (Bandura 1986), agency is “the human capability to exert influence over one’s functioning and the course of events by one’s actions” (Bandura 2009, p. 8). A group of people can exercise its influence through a “collective agency”. This type of agency reflects a group’s fulfilments that “are the product not only of shared knowledge and skills of its different members, but also of the interactive, coordinative, and synergistic dynamics of their transactions” (Bandura 2000, pp. 75-76).

Corporate identity (Olins 1995; Van Riel, Balmer 1997; Christensen 2002; Breeze 2013) is the discursive instantiation of a corporation’s self-understanding which is corroborated by corporate culture, ethos and values. Corporate culture implies “myths, rituals and stories” (Christensen 2002, p. 164) aimed at making diverse stakeholders share a single reality. Of course, corporate cultures and identities are socially situated entities, strongly grounded in political and economic interests and, therefore, they can be provisional and changeable.

Diversely, corporate image regards social impressions and the perception of a company’s outward projection (Bromley, Basil 1993; Hatch, Schultz 2003). Thus, corporations strive to build their images in line with their identities by means of their discursive and social practices. In other words, corporate image refers to the concept of ‘face’ (Goffman 1959), that is to say how companies want their stakeholders to perceive them and show themselves in order to construct their identity through persuasive communicative resources and strategies. Corporate identity and image take part in the construction of corporate reputation which is externally expressed by its brand. Reputation is a concept extremely close to Self-presentation and at the same time is a highly fluid and fortuitous attribute deriving from the perception, attention, and approval by others. Building a reputation entails a constant process of image-making and impression management and, as such, can be continuously re-negotiated and adapted to the situation.

In any corporate genre, the identification of traditional parameters such as schematic structure, communicative purpose, rhetorical strategies/actions and discourse community (Swales 1990; Bhatia 1993) has become a crucial and debated issue (Askehave, Swales 2001; Swales 2004; Bhatia 2004; Santini 2007; Orlikowski, Yates 2002) because of the dynamic and multifunctional nature of genres. Yet, there is a common goal that pervades all the corporate genres and affects the multifaceted nature of these parameters: presenting the company with a highly-reputed and well-recognizable agentic value. Promoting corporate identity and image implies the blending of two levels of communication, i.e. informative and argumentative/persuasive, and hence when we study corporate discourses our focus should be on what and how self-branding discursive markers - verbal and nonverbal - are used to build company’s reputation[4].

Furthermore, investigating digital genres implies many challenges since multimediality and digitality, and their affordances, make their

[4] Corporate web sites are today strategic tools for promoting corporate identities and constructing relationships with their stakeholders. They have been widely investigated in the past few years; see: Robbins, Stylianou (2003); Pollach (2005); Djonov (2005, 2007); Salvi, Turnbull (2007); Garzone (2007, 2009); Samson (2007, 2010); Caiazzo (2009, 2010); Catenaccio (2012); Ferrarotti (2013); Djonov, Knox (2015); Öhman (2018); Cucchi (2019).

boundaries fluid, and the attempt to identify a set of fixed criteria is very complex. These web genres are rather relatively stable phenomena subject to continuous evolution, and the prevalence of rapidly changing technologies has emphasized their dynamic aspect (Askehave, Nielsen 2005; Santini 2007; Petroni 2011).

As a consequence, in order to build a solid reputation via corporate webpages/sites, organizations need to remodel their traditional practices of identity construction and corporate branding by making use of the digital affordances offered by media and by rethinking meaning making processes. These mechanisms then require a precise *locus* where business reputation and corporate identity can be constructed effectively: the 'About Us' page.

2.2. The Corporate 'About Us' page

According to Usability conventions (Nielsen 2000; Kaley, Nielsen 2019), the 'About Us' page is an obligatory section in any website. Corporate websites then always present a section dedicated to information about the company that can be labelled as 'Company information', 'About the Company' or include the company name (e.g. About Apple) or the personal pronoun *we* (About Us, Our Company). This section can be composed of only one page, especially if the company is a small one, but generally it comprises a starting page that provides information on various company-related topics in the form of sub-sections accessible via hyperlinks. Therefore, companies have to pay particular attention to the selection and presentation of information and how to make it persuasive.

Conventionally, the company information page is always accessible from the homepage navigation areas via a direct link, either the main navigation bar or the footer of the webpage. Sometimes, but this is not conventional, company information can be found by searching through the site map. As Öhman (2018) states, an 'About Us' page generally conflates a short description of the company and its field of business, information on management and corporate social responsibility, investor relations, legal information and career opportunities, and contact information. Other conventional information is history, mission statements, news, campaigns, environmental information and financial statements.

A clear-cut definition of the 'About Us' page is the following:

> Websites are a shop front for businesses, professionals and individuals. They are a virtual representation of the person or people or products that are featured. Because websites are representations, they need to appeal and reach out to the target audience. Not just through the design and usability of the website, but also to allow the audience to get to know the people it represents and to build that rapport between seller and buyer. This rapport and trust is best built through a website's About Us page. (Lam 2009, n.p.)

How can we translate all these issues into an analytical framework that allows us to analyze effectively corporate 'About Us' pages? There are not many studies devoted to the analysis of 'About Us' pages[5] seen as new digital genres. Their discursive manifestation has been widely validated (Breeze 2013) not only by the recognition of the main genre analysis parameters - communicative purpose, discourse community membership, schematic structure, rhetorical action (Swales, 1990) and dynamism (Berkenkotter, Huckin 1995; Bhatia 2004) - but also by integrating the co-deployment of other multimodal semiotic resources and usability conventions. Genres, in fact, are "staged and multimodal process[es]" which are given functional labels, they are "templates for doing communicative things" (Van Leeuwen 2005, pp. 127-128).

In order to provide a classification which groups the most common moves/stages present in the 'About Us' pages,[6] we will adopt the classification (Table 1) suggested by Casañ-Pitarch (2015), which in turn is based on Lam's work (2009), and expand the taxonomy with their functional labels (Graham 2013).

	Moves/Stages	***Functional Labels***
1	Organisational/Personal Profile	*presenting the company*
2	Contact Information	*being approachable for potential customers*
3	Disclaimers & Legal Information	*showing company's responsibility and reliability*
4	Customers & Partners	*establishing a certain status and credibility*
5	Employment Opportunities	*gathering data, establishing relations and networking*
6	Public Relations	*providing a good impression via news and/or meta-information, press releases, awards, etc.*
7	Annual Report & Investor Relations	*building corporate image to attract clients, investors or shareholders*
8	Community Relations	*enhancing/endorsing the company image in the eyes of the customers and prospective ones*
9	Site Credits	*giving due credit to those who deserve it*
10	Frequently Asked Questions	*answering frequent questions*

Table 1
'About Us' page moves (Casañ-Pitarch 2015) and their functional labels
(Graham 2013, *our adaptation*).

5 See Pollach (2005), Caiazzo (2011, 2013a, 2013b, 2014), Killoran (2012), Breeze (2013), Casañ-Pitarch (2015), Öhman (2018). While Caiazzo analyses only University 'About Us' pages, the others investigate corporate 'About Us' pages. However, all these contributions mainly focus on language, only Pollach integrates usability in her study. At the same time, web engineers and designers, such as Lam (2009), Garcia (2010), Graham (2013), Kaley and Nielsen (2019), have elaborated patterns for designing effective and usable 'About Us' pages.

6 As identified by Lam (2002), Graham (2013) and Casañ-Pitarch (2015).

As a matter of fact, all these moves are not always present or do not provide exactly the same types of information.[7] At the same time, these moves can be shown either on the starting page only or in different sub-moves connected via links and users have to click on a link to see the additional content (Graham 2013).

If we look at these moves, the 'About Us' page seems to be a *genre hub*: within the page there is a proliferation of many other corporate micro-genres provided by each move (e.g. in the move Investor Relations we find links to the Annual Report and CEO letters, or in the Employment Opportunity move we have links to job applications, CVs, etc.)[8] and hence attributing a functional label to each move can be very complex because the moves can fulfil multiple goals.

2.3. Usability and interactivity

In 2005, Pollach introduced the concept of website usability to investigate corporate 'About Us' pages and posed the issue on how good usability affects corporate self-presentation and image management. She affirms (2005, p. 286) that "[r]eading hypertexts is cognitively more complex than reading print material, as readers perform two tasks simultaneously – they make meaning of what they read and decide on the sequence of information (Aarseth 1997) [...]. Hyperlinks are capable of providing […] cohesion by enabling users to access information and indicating rhetorical relationships among contents (Burbules 1998)." Analysing fluidity as a rhetorical strategy, Djonov claims that

> [a] defining characteristic of websites as hypermedia texts on the Web is their fluidity, the quality resulting from a website's capacity for expandability and change and the ability of hyperlinks to obscure its structure and transcend its boundaries. Website fluidity grants users freedom of movement and is therefore indispensable to the Web's attractiveness. It also, however, carries the risk of disorienting users. The question of how this risk can be minimized while website fluidity is retained or increased is thus of central importance in website design. (2007, p. 144)

[7] According to Graham (2013), within the 'personal profile' move, the functional label *presenting the company* can include several sub-functions, such as: introducing and explaining how the company started; stating the origin of the business; telling the story behind the products/services: how they are made and designed/offered; sharing creative inspiration for the company's products and management; presenting the company's or owner's background experience with the aim of establishing instant credibility; discovering the companies' vision, dreams, and aspirations; and linking work, values and beliefs with motivation.

[8] See Breeze (2013).

Website fluidity means usability and relies mainly on hyperlinking processes which in turn imply interactivity. However, the necessity to resolve the ambiguity between the terms *interaction* and *interactivity* is urgent. In CMC, following Goffman's studies (1959), interpersonal communication is conceived as the *interaction* among users via the mediation of technology, the so called human-to-human interaction (Yun 2007; McMillan 2009; Adami 2015) and that is at the basis of the main processes of meaning production and human exchanges in digital contexts. When communication takes place in terms of "human-to-system" interaction (McMillan 2009; Adami 2015), we should talk of *interactivity* and identify it with the affordance of the medium which shapes, on the one hand, how its intended receivers can relate to it, and to any other subject involved in the process, and, on the other hand, their agency in terms of agentic value, identity and social positioning. Interaction and interactivity are carried out through usable interfaces which mediate the relationship users establish with the medium and its interactive tools. The interface then is a semiotic space in which all forms of interaction and interactivity are mediated by linking processes.

Interaction and interactivity on the website also depend on the semantic connections among contents, or rather, how content organization, webpage layout and navigation design interact in order to facilitate (or hinder) user orientation and interactivity. Website hierarchy (Djonov 2007) is a crucial aspect in the meaning making processes of sites to such an extent that the co-deployment of different modes such as visual, verbal and audio within and across web pages, on the one hand, and the presence of hyperlinks on the other become responsible for the coherence and cohesion of the hierarchical structure of contents. Similarly, in his analysis of hypermedia texts, Lemke (2002) coined the term "hypermodality" to better represent the interaction between the hypertextual and multimodal nature of hypermedia texts.

According to the professional web design and usability literature that is supported by empirical research of website usability,[9] effective orientation depends strongly on the users' awareness of how information and content are organized within hypermedia texts. In order to create usable and effective 'About Us' pages, in their guidelines Kaley and Nielsen (2019) identify four levels of detail that are necessary to promote corporate image. These are:

1. **Tagline**: A few words or a brief sentence summarizing what the organization does, its mission.
2. **Summary:** 1-2 paragraphs at the top of the main 'About Us' page that offer a bit more detail about the organization's goal and main accomplishments.

[9] See Otter and Johnson (2000), Krug (2000), Pearrow (2000), Veen (2000), Nielsen (2000), Badre (2002), Djonov (2007, 2015), Nielsen and Pernice (2010), just to mention a few.

3. **Fact sheet:** A section following the summary that elaborates on its key points and other essential facts about the organization and including an effective use of bulleted lists supplemented by clean and useful visuals (e.g. business graphics). For large companies, this section can be constituted by subcategories pages which include topics such as Mission and Values, Company History, Leadership and Team, Investor Relations, News, Careers, Environmental Sustainability, Diversity and Inclusion, etc..
4. **Detailed information:** Subsidiary sections or hyperlinked pages with more depth for people who want to learn more about the organization (hyperlinks in the footer).

In our analysis, these four levels of details will be integrated within the parameter of schematic structure mentioned above.

2.4. Multimodality

When analyzing websites, if we constrain the analysis to a single mode, the writing one, we run the risk of underestimating the meaning potential of their hypermedia and hypermodal nature. Websites and webpages are multi-semiotic and in the majority of these artefacts visual and digital resources (layout, colours, images, photos, but also interactive links) are more prominent than writing and contribute to meaning production substantially, in particular in the 'About Us' starting pages. It is therefore necessary to integrate our analysis with a further framework provided by the multimodal approach.

Multimodality is rooted in the Systemic Functional Linguistics, a social semiotic theory of language developed by Halliday (1978, 1994), Halliday and Hasan (1976, 1985), and later by Martin (1992), Matthiessen (1995), Thompson (2004), Halliday and Matthiessen (1999, 2004), whose assumption is that meaning in language is a dynamic social process with precise functions according to the social context where it is realised. Meaning-making therefore derives from the interplay of three metafunctions:

1. the *ideational metafunction* refers to how we represent through language our experience of the world (outer and inner) and how we connect these models of experience logically.
2. the *interpersonal metafunction* refers to how we establish and maintain social relationships, attitudes and feelings.
3. the *textual metafunction* refers to how we organize messages into socially situated texts.

This conceptualization of meaning has been applied to other semiotic objects, in particular to still images, in the works of Kress and Van Leeuwen (2001, 2006). In their multimodal framework, they label the three metafunctions as *representational*, *interactive* and *compositional*. In our study, instead, we will adopt the labels given by Iedema (2001) in his analysis of moving images since today webpages can also contain videos. They are named as *representational*, *orientational* and *organizational*.

Through the lenses of these three metafunctions we will investigate how corporate branding and reputation are represented multimodally in the 'About Us' pages and how the agentic value of the companies is projected (representational metafunction). In the orientational metafunction, the focus is on the interaction between the company and the users of the webpage and this relation involves two kinds of participants (Kress, Van Leeuwen 2006), the "represented participants" (the people, the places and things depicted in images/pictures on the webpages) and the "interactive participants" (the people who communicate with each other through images, the company and the viewers of the images). Represented participants can be depicted either through "demand images" (represented participants look at the viewers as in a kind of symbolic interaction) or through "offer images" (represented participants do not look at the viewers, there is no interaction). In the organizational metafunction, the three interrelated systems, namely information value (the placement of elements, i.e. centre*Vs*margin; top*Vs*bottom; left*Vs*right, etc.), salience (how the elements - participants, objects, facts/situations - are realised to attract the user's attention to different degrees, i.e foregrounding*Vs*backgrounding) and framing (the presence or absence of framing devices for disconnecting or connecting parts of the page) interact with the semiotic resources used and with hyperlinks.

We will take inspiration from the multimodal social semiotic framework elaborated by Djonov and Knox (2015) for the analysis of the three metafunctions within homepages. The authors have posed several micro research questions in relation to the sections of the homepage, namely the banner zone at the top of the page, the content zone, i.e. the core/central area, and the navigation zone/s, i.e. where interactivity takes place. We will apply and adapt this model to the 'About Us' pages and integrate it with the genre analysis and usability tools. By combining all the descriptors identified in the three separate approaches, we have obtained an integrated analytical framework, or rather a meta-framework, that we have found useful for exploring corporate 'About Us' pages in terms of identity construction and reputation building. Furthermore, the micro-research questions have been reconsidered and expanded for our research purpose focusing on concepts such as user-friendliness,[10] affiliation[11] and binding navigation[12] (see Table 3).

[10] As Coombs states, the terms user-friendly and user-friendliness are "generally associated with well-designed IT solutions that the user can easily interact with. Indeed, user-friendly software implies that the human computer interface (HCI) and interactability of the IT system have been designed in such a way so as to allow immediate and meaningful participation" (2000, p. 19).

3. Data and method

The web pages used in the sample are described and analysed in the form they take on a certain date, i.e. December 2018. Our sample is based on the list of LinkedIn Top Companies 2018[13] and this list is composed of the first 25 out of 50 companies where people want to work. LinkedIn's data team has created this list analyzing billions of searches by the site's more than 500 million members. It has also considered views of and applications to job postings, engagement with the company on LinkedIn and the number of employees that have worked for the company for at least one year. For the analysis we have taken into consideration the first 10 Companies only (Table 2), due to the complexity of the hypertextual structure.

	Company	URL	'About Us' link position	Direct accessibility
1	Amazon Internet	https://www.aboutamazon.com/	Footer	yes
2	Alphabet IT & Services	https://www.alphabet.com/en-ww/company	Footer	
3	Facebook	https://www.facebook.com/pg/facebook/about/	Navigation bar	
4	Salesforce Internet	https://www.salesforce.com/company/about-us/	Footer	
5	Tesla auto motive	https://www.tesla.com/about	Footer	yes
6	Apple consumer electronics	https://www.apple.com/	Footer	
7	Comcast NBC Universal Media production	http://www.nbcuniversal.com/who-we-are	Navigation bar	
8	The Walt Disney Company entertainment	https://www.thewaltdisneycompany.com/about/	Navigation bar	yes
9	Oracle IT & Services	https://www.oracle.com/corporate/#info	Navigation bar	
10	Netflix Entertainment	https://media.netflix.com/en/about-netflix	Navigation bar	yes

Table 2
LinkedIn Top 10 Companies 2018.

At this stage of the research, we have narrowed the unit of analysis further. In fact, the sample compiled includes the starting pages of the 'About Us' sections only and not all the pages of their subsections, since from a multimodal social semiotic perspective the starting pages already mirror what the company wants to show at a first glance and these choices reflect a precise self-branding strategy. Only 4 companies are directly accessible by 1-click action, i.e. by googling about + the Company's name. To find the other

[11] Affiliation is the process by which people involve themselves in social bonds (Knight 2008). To construe affiliation users produce and/or interpret meanings that represent what ties them together as members of particular communities. In Systemic Functional Linguistics, and in particular in the theory of appraisal developed within the SFL paradigm (Martin, White 2005), affiliation occurs in both the ideational and interpersonal metafunctions.

[12] Stenglin (2008) uses the terms 'binding' for navigation design. When navigation simultaneously supports user orientation and freedom of navigation (un-bound), it creates a sense of comfort. Conversely, when navigation causes a sense of disorientation or entrapment into a single navigation path (bound) it can provoke frustration (Djonov, Knox 2015, p. 184).

[13] https://www.linkedin.com/pulse/linkedin-top-companies-2018-where-us-wants-work-now-daniel-roth/

companies' 'About Us' pages from the browser, users have to enter the homepage first, find the link on the navigation zones (50% in the top navigation bar and 50% in the footer) and then click on it to reach the page.

We have considered the webpage as a visual unit and looked at its components in terms of number of screenfuls, number of image frames and text frame, number of moves, including those hyperlinked. We have decided not to carry out any computational linguistic analysis to quantify the occurrences of promotional lexical markers, including their collocations. The number of writings is not statistically significant and most of the company information pages do not prioritize writings on the starting pages to construct their identity and build their reputation but mainly exploit visual resources and hyperlinks to organize contents, with the exception of only one company, Tesla, which has no visuals. However, some narratives will be under investigation when utilised along with other resources. In fact, we will focus on some rhetorical discursive strategies such as agentic value, factual statements, numbers as evidence, size and scope, leadership, and agents of change (Pollach 2005), in order to analyse how the 'About Us' pages promote a company's reputation verbally.

The analysis has been conducted using the tools offered by the meta-framework we have elaborated (Table 3).

	REPRESENTATIONAL	ORIENTATIONAL	ORGANISATIONAL
INTERACTIVITY	What content is included on or excluded from the page? > Hyperlinked contents Is the way the content has been classified via links user-friendly (e.g. binding/not binding navigation, user-friendliness, freedom of interactivity, affiliation (bonding)? Does it corroborate user orientation?		
Semiotic Resources			
TAGLINE	What do they represent? Do they provide the idea of what the company does? If present, does writing corroborate visuals and how? Does the tagline mirror the identity and mission of the website?	What kind of relationships do they establish with users? If present, what kind of relationships does writing establish with users? Does the tagline affect how users perceive company values?	Is the tagline embedded in the logo area? Or is it framed differently? (Information value/Position > e.g. the whole screenshot, sliding gallery, different frames, given/new, etc.) If present, how is the narrative constructed (e.g., key words, key sentence, repetitions, metaphors, slogans, etc..)?
SUMMARY SECTION: **- COMPANY PROFILE**	Do they provide a fuller understanding of what the company does? Do they summarize and emphasize the main impressive facts?	Do they construct credibility and reliability ? How? Are they appealing for users? How? Do they provide context and reduce the amount of cognitive effort required to read through layers of content? How do they align users attitudinally towards the website and its content?	How are visual elements co-deployed to produce meaning in combination with writing? What kind of visuals are used to edit this section (images, video, framing, fonts, bullets, etc..)? Do they construe a taxonomy/ hierarchy of information in accordance with the function fulfilled by the section? Is informativity in terms of brevity, scannability, clarity, efficacy (words chosen) well balanced?
FACT SHEET: **-DISCLAIMER & LEGAL INFO** **- CUSTOMERS & PARTNERS** **- PUBLIC RELATIONS** **- INVESTOR RELATIONS**	What kind of evidence is used to support the facts mentioned in the summary (numbers, graphs, short narratives, pictures, etc.)? Is there consistency among modes?	Does it build up trust in the company and create affiliation?	Is its rhetorical value clearly expressed? How How is salience and information value organized among modes?
DETAILED INFORMATION: - CONTACT INFO **- EMPLOYMENT OPPORTUNITIES** **- COMMUNITY RELATIONS** **- SITE CREDITS** **- FAQs**	Is the distinction between the procedural function of links (icons/labels) and their informative value clearly expressed?	Do they it say more about the company/institution/person? Do they further endorse the brand value of the company/ institution/person?	Are procedural and content links (icons/labels) clearly separated in the page organisation?

Table 3
The meta-framework for the 'About Us' page analysis
(Djonov and Knox 2015, *our adaptation*).

It cross-matches first the three metafunctions with hyperlinking processes in order to identify the amount of content that has been shown either on the starting page or on the hyperlinked subsections. Then the meta-framework describes how the schematic structure, in accordance with the usability macro-categories and the semiotic resources utilised, constructs meaning within the co-deployment of the three metafunctions.

4. Analysis of findings

Usability guidelines (Nielsen 2000) recommend that web designers provide access to content in a very few clicks in order to keep users always connected with the webpage. Fast interaction and interactivity endorse long connection and attract visitors’ attention (Nielsen, Pernice 2010). The fact that only four companies have direct access to the ‘About Us’ page by googling ‘about + the Company’s name’ means that direct accessibility to the ‘About Us’ page is still not taken into proper consideration. Of course, for many years the home page has played the role of the company’s ‘business card’, the *locus* where identity and mission of the website is shown (Nielsen 2000), and thus search engine optimization tools always retrieve the homepage as soon as the company’s name is googled.

Interactivity cuts across the three metafunctions. It is mainly exploited to foreground or background information and depends on whether the moves are present and accessible directly from the starting page or have been transformed into hyperlinked sub-sections. Table 4 (see Appendix) shows how many stages are embedded in the starting page and how many of them are hyperlinked. Hyperlinked moves are indicated by the letter ‘H’.

We will start the analysis of web contents by looking at the Organisational metafunction since the exploration of the ‘About Us’ pages’ composition and their schematic structure helps us interpret better the interconnections with the other two metafunctions. In the tagline section, interactivity is not present since there are no hyperlinks. Our sample presents only three companies (Facebook, Tesla, and Netflix) which make use of a tagline in order to reinforce each company’s mission.

These taglines include a short narrative (a key-sentence) and are positioned close to the top brand area, but they are not embedded in the image:

e.g.

Bringing the world closer together (FACEBOOK)

Netflix has been leading the way for digital content since 1997 (NETFLIX)

Facebook's tagline corroborates the visual embedded in the top brand area, a world map in the background, better than Netflix whose brand area shows a picture of its offices. Tesla's 'About Us' page is the only page without any images. Most of the writings regarding the mission of the companies are part of the Organisational Profile move.

If we analyse the schematic structure in combination with the other three sections recommended by Usability guidelines, such as summary, fact sheet and detailed information sections, we notice (Table. 4) that there are only three moves – Organisational profile, Contact information and Public relations – that are always present in our sample, but only the first two are directly accessible from the starting pages. Organisational profile location is always prioritised, i.e. it always appears on the first two screenfuls since, with its sub-sections, it represents the core part of the Summary section. Public relations, Disclaimer and Legal information, Customer and partners, the Annual report and Investor relations are components of the Fact Sheet section, which generally comes immediately after the Summary in the webpage hierarchy. The Fact Sheet section offers the opportunity to show evidence of what the company has declared in its organisational profile and has an incredible persuasive power since we can find graphs/tables, statistics, videos, brand logos of investors/partners, etc. Therefore, it is crucial in building the company's reputation. However, Investor relations and Public relations, although broadly present, are mostly hyperlinked and then backgrounded into sub-pages.

Contact information, Employment opportunities, Community relations, Site credits and FAQs pertain to the Detailed information section but they are perceived differently since only Employment opportunities and Contact information (including the social media area) are *de facto* mandatory, while the others have a low percentage of occurrence.

What emerges from Table 4 (see Appendix) is also the different length of each page measured in number of screenfuls. There are only three companies (Facebook, Tesla and Netflix) whose 'About Us' page is composed of only three screenfuls and two companies with very long pages (Amazon with eighteen screenfuls and Walt Disney with thirty-four). The others have an average of seven screenfuls. Both very long and very short pages imply a lower number of hyperlinked sections and hence less interactivity and users' engagement. Furthermore, long pages in particular do not corroborate users' orientation.

The presence of visuals and writings has been measured in terms of number of images and text frames. If we look at Table 4 (see Appendix), we can see that half of the sample favours text frames over image frames (Amazon, Facebook, Tesla, Apple and Netflix). Yet, in those webpages with the highest number of text pages, writings refer mostly to captions and long content link labels. Tesla Automotive does not use any visual but only the writing mode with a very low level of informativity.[14] Conversely, Facebook uses only one image and a very few writings with a high level of informativity. Meaning potential hence resides primarily in the image frames on the starting pages. Visuals, in fact, are foregrounded in most moves and sub-moves, e.g. history, management, products, community relations, making pictures and images more attractive and salient (Degano 2017).

The visual layout, in particular, affects how the other two metafunctions work in order to build a good and reliable reputation. As for the Representational one, images evoke mainly professionalism, corporate settings (modern building and offices), western global world, modernity, multicultural relations among stakeholders, although they are all depicted according to Western aesthetics (Brumberger 2014). What emerges in our corpus is the absence of gender and racial discrimination, men and women and racial groups are depicted equally. Most pages use these visuals in the summary and fact sheet section (images and hyperlinked members’ picture) whereas the detailed info section is mainly composed of the footer where interactivity is clearly reified through a list of procedural and content links[15].

In terms of writing, narratives tend to promote the organisation and to make its profile appealing and credible by using different rhetorical strategies. For example, the taglines, when present, are coherent with the mission expressed via narratives and visuals in the summary sections. Other rhetorical discursive strategies are (Pollach 2005):

AGENTIC VALUE. A linguistic strategy for self-presentation and impression management is agent presentation. In our sample there are mainly two kinds of agency. One is related to the use of the first person pronoun to suggest that the companies are responsible for their assertions, actions, and beliefs but with different values:

e.g.

1) **We** [inclusive] believe everyone can be a Trailblazer, and **we**’re building the technology to make it happen (SALESFORCE INTERNET)
2) **We** [exclusive] create a Business Mobility solution tailor-made for your needs (ALPHABET)

[14] According to de Beaugrande and Dressler (1981, p. 9), informativity indicates the extent to which content is known *Vs* unknown or expected *Vs* unexpected for the receiver. Of course, the processing of highly informative representations is more demanding in terms of inferences but correspondingly more attractive and interesting, whereas a low degree of informativity occurs when a self-evident truth is presented.

[15] In Usability studies, procedural links are those links that allow users to navigate within a site (e.g. buttons, menu links, navigation bar links), whereas content links are those links that lead users to extensive contents (e.g. blurb links).

The other kind of agency is related to the use of the third person, mainly the company name, in order to identify the company and provide more objectivity.

e.g.

3) **Tesla continues** to make products accessible and affordable to more and more people (TESLA)

4) **Netflix is** the world's leading internet entertainment service with 139 million paid memberships in over 190 countries enjoying TV series, documentaries and feature films across a wide variety of genres and languages (NETFLIX)

FACTUAL STATEMENTS. The use of verbs of continuity increases credibility in the messages to the extent to which action undertaken in the past will continue also in the future

e.g.

5) Oracle **is again revolutionizing** how data is managed (ORACLE)

6) Netflix **has been leading** the way for digital content since 1997 (NETFLIX)

NUMBERS AS EVIDENCE: companies provide numerical evidence to obtain consensus about their assertions

e.g.

7) At Amazon, we’re able to innovate and delight customers thanks to our incredible workforce—the **more than 250,000** full-time associates behind our global network of fulfilment centres (AMAZON)

8) **For over 90 years**, The Walt Disney Studios has been the foundation on which The Walt Disney Company was built (WALT DISNEY)

The evidence provided by large numbers in these two pages goes in parallel with their length, the high number of moves and images. Large numbers seem to identify a large company, as Amazon and Walt Disney’ websites show.

As for the Orientational metafunction, the sample shows how the companies present themselves in terms of relationships established with users. While 90% of the visuals are offering images with represented participants, only 10% are demanding images and are mainly used in the section where teams, management, partners, investors are presented as interactive participants with the aim to ‘humanize the organisation’, build up trust and create affiliation. CEOs, management teams and board members are identified with their names and curricula. In this regard, the company is no longer a faceless organization but a community of human beings which strive to appeal to users’ emotions.

Another facet of this metafunction regards the expression of attitudes towards the participants in the discourse and their evaluations. They have been also classified as rhetorical discursive strategies (Pollach 2005):

SIZE AND SCOPE:

e.g.

9) **Oracle is the #1 provider** of business software, with a broad portfolio of solutions for companies of all sizes (ORACLE)

AGENTS OF CHANGE (companies showing themselves as agents of social and economic change):

e.g.

10) [...]**give people the power to build community** and **bringing the world closer** together (FACEBOOK)

LEADERSHIP (mainly expressed via adjectival scalabilty):

e.g.

11) **Netflix is the world's leading internet entertainment service** with 139 million paid memberships in over 190 countries enjoying TV series, documentaries and feature films across a wide variety of genres and languages (NETFLIX)

Relationships created via first person pronouns (we, us, our) typically suggest that the company communicates beliefs rather than facts, and this helps establish relationships with users. However, 70% of narratives of the sample uses the third person, in particular at the level of the fact sheet section where more objectivity is required in order to build up trust and reliability. In some cases, when the third person is mainly used, the presence of **we** or **our** also emerges (12). Only 30% of writings makes use of the imperative tense (I-you relation) and it is present mainly in the captions when soliciting interactivity (13).

e.g.

12) **Oracle** has embedded innovative technologies in every aspect of **our** cloud, enabling companies to re-imagine their businesses, processes, and experiences (ORACLE)

13) **Discover** how easy and magical it is to just about everything on iPad (APPLE)

5. Concluding remarks

Analysing websites and webpages is very complex due to the fluidity of their hypertextual and hypermedial nature. In order to obtain a comprehensive view of the semiotic complexity of meaning-making in a webpage and to identify the criticalities that can emerge during these processes, we have proposed a meta-framework which draws on different frameworks simultaneously. Web communication, in fact, is rooted both in studies such as discourse analysis, multimodal analysis and social semiotics but also in usability, interface design, web architecture, and web-technology. Our proposal combines then genre studies with multimodality and usability.

This meta-framework has allowed us to answer the two research questions posed at the beginning of this contribution. The first one asks if the 'About Us' pages can be considered the *loci* where corporate identity and reputation are constructed. What has been demonstrated is that the 'About Us' pages can potentially play this role, however our analysis indicates an underestimation of this potentiality. Although the sample is very small, the companies included, however, represent the first top 10 companies people would like to work for. Thus, they are perceived as the most attractive in terms of image and reputation, but the way they convey their attractiveness via web communication on their ‘About Us’ pages is still confusing. These pages are not yet entirely standardised and recognisable.

Branding corporate identity and reputation relies on the co-deployment of different semiotic resources. At the representational and orientational levels the sample shows coherence, cohesion and corroboration among modes. Also the rhetorical discursive markers used to promote the company (promotional images, pictures and narratives) fulfil the communicative purpose of these webpages. However, some criticalities have been pointed out at the level of the organisational metafunction. In fact, a well-defined schematic structure in terms of information value has not been identified in our sample. Web designers seem to consider the Summary as the only mandatory, highly conventional, section to put on the starting page along with Contact info. Instead, the other sections are very fluid, in particular when hyperlinked contents are present, and do not seem to reflect conventional patterns which genres or micro-genres generally require. There are no fixed norms regarding what needs to be included in or excluded from the starting page. Furthermore, hyperlinked contents are not necessarily less important. In fact, many strategic and rhetorical moves are not present on the starting pages, but this should not imply a loss in salience if hyperlinking processes are effective and attract users’ attention. In some cases (Alphabet, Facebook, Tesla, Apple and Netflix) the migration of some moves to sub-pages causes a loss in salience since they seem to disappear and users are not engaged in clicking on those links, and this is also a damage for the companies in terms of identity and reputation.

The way a web designer transforms contents into sub-nodes is crucial from a semantic and rhetorical perspective. Interactivity, to be effective and successful, should be binding, i.e. by pushing users to click on the links, but at the same time guarantee user-friendliness and freedom in users’ navigation. This is why hyperlinks are not simple shortcuts but rhetorical “traversals” (Lemke 2002) apt to engage users in the navigation paths.

Our findings allow us to answer the second question, i.e. to what extent these webpages can be considered as genres, or micro-genres, and how we can define and classify them. If, on the one hand, the digital nature of a webpage impedes the identification of well-defined patterned structures (genres), on the other hand some conventions are emerging in order to make these artefacts recognisable models. We have suggested defining the ‘About Us’ page as a *genre hub* since it contains and connects different corporate genres. Within these pages we can find Annual reports, Financial news, Job applications, CVs and many other genres that have a common goal: presenting and promoting the company identity and image. As stated above, the analysis has shown that only the Organisational profile move along with its sub-sections, such as a company's history, products/services, and mission, are always present on the starting page. The other moves vary randomly and this is why fixing the 'About Us' page within conventional criteria, i.e. classifying it as a genre or a micro-genre, is still problematic.

Apart from the presence or absence of conventions and users and web-designers' awareness of these conventions, there are two other facets to consider. As van Leeuwen (2005, p. 128) claims, genres are "culturally and historically specific forms of communication [that] realize culturally and historically specific power relations between the communicating parties". If we analyse the issue from the company's viewpoint we may ask ourselves why the Company wants to include or exclude some contents from the starting landing page. "Ideological mechanisms" (Breeze 2013) rooted in socio-economic and political interests represent the driving force to push corporations to act as they actually do.

At the same time, we could also analyse this issue from the point of view of technology. Today, many digital artefacts like websites are content management systems, that is to say pre-packaged templates to be filled in with contents. Their pre-defined architecture thus affects and to some extent constrains how meaning is made and shaped. In both cases, there is a crucial ideological issue that arises and for these reasons we should adopt a critical approach for future research.

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Appendix

Company		Resources			Tagline section	Summary section	Fact Sheet section				Detailed information section					
		Nb. of screenfuls	**Nb. of text frames**	**Nb. of image frames**	**Tagline**	**Organisational profile**	**Customer & Partners**	**Investor Relations**	**Disclaimer & Legal Info**	**Public Relations**	**Employment Opportunities**	**Community Relations**	**Contact info**	**Site Credits**	**FAQs**	**Nb. of Moves**
1	Amazon Internet	18	34[a]	29		√	√	√	√	√	√	√	Social media		√	9
2	Alphabet IT & Services	8	6	6		√H			√H	√H	√H		Social media			5
3	Facebook	3	3	1	yes	√		√H		√H			Social media			4
4	Salesforce Internet	8	9	19		√	√	√	√H	√	√	√	Social media	√H	√	10
5	Tesla auto motive	3	Only text		yes	√		√H	√	√H	√H		Social media			6
6	Apple consumer electronics	7	10[b]	9		√H		√H		√H	√H	√H	√H			6
7	Comcast NBC Universal Media production	6	1	24		√		√H	√	√H	√H		√			6
8	The Walt Disney Company entertainment	34	20	98		√	√	√H	√	√H	√H	√	Social media	√		9
9	Oracle IT & Services	6	1	18		√	√H	√H	√H	√H	√H	√H	Social media	√H		9
10	Netflix Entertainment	3	4[c]	1	yes	√		√H	√H	√H			Social media			5

a) 20 are captions or content link labels; b) They are captions only; c) 2 are captions

Table 4
A synoptic view.

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FINANCIAL NARRATIVES
A multimodal analysis of newspaper articles

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Abstract – Financial narratives have always been relevant to economic fluctuations, rationalising current actions, such as spending and investing, inspiring and linking activities to important values and needs (Shiller 2017). In 2014, the European Parliament adopted the Bank Recovery and Resolution Directive (BRRD) which includes the bail-in tool. This means that taxpayers would not risk losses, but rather creditors and depositors would take a loss on their holdings. This Directive was applied to four banks and the press and media coverage of both resolutions and their effects was remarkable, influencing several issues regarding these banks' bondholders. The present study will investigate a corpus of articles from *The Financial Times* (*FT.com*, Europe) and one from *The Times* (*thetimes.co.uk*), selected around the keyword *bail*-in*, attempting to highlight how financial information is provided multimodally. The choice of the expression *bail*-in* was made because of its highly specialised semantic load in the financial field. The use of textual organisation, tables, graphs, and the relationship between text and image will be dealt with and applied to the corpus gathered. Verbal and visual elements have been considered as fulfilling, on the one hand, the three functions of informing, narrating and persuading, characterising news discourse, and, on the other hand, those of informing, evaluating and predicting, typical of financial discourse. This paper is part of an ongoing study on financial newspaper articles and whether and to what extent knowledge dissemination is popularised from specialised to non-specialised texts, recombined and recontextualised to be more intelligible to the layman. The main aim will be to analyse the combination of the verbal and visual structures of these articles, trying to detect any differences in the multimodal strategies employed by a specialised and a non-specialised newspaper.

Keywords: narratives; multimodality; news; finance; popularisation.

1. Introduction

In 2001, the EU financial stability board (FSB) published a set of principles to underpin an effective resolution regime for financial institutions, particularly for banks likely to have a systemic impact if they failed. In 2014, the European Parliament adopted the Bank Recovery and Resolution Directive (BRRD), which includes the bail-in tool. This means that taxpayers would not risk losses, but rather shareholders, unsecured and uninsured creditors would take a loss on their holdings. This is the relevant aspect of this tool as opposed to the bail-out, i.e., the government's aid to failing banks using taxpayers' money. This latter tool had a considerable impact on public finances, resulting in the bank-sovereign vicious circle. Thus, the structure of bank crisis management, its measures and actions were reviewed, with the aim to stop unsound bail-outs and safeguard taxpayers' money (Boccuzzi, De Lisa 2017, p. 93), including the bail-in tool:

> Without a comprehensive resolution framework, the authorities have no option for rescuing banks other than bail-out, where financial stability and the real economy are threatened. Bail-in serves as a powerful tool to counter the banks' undue reliance on bailouts and, at the same time, acts as a stimulus to investors to monitor banks' risks (market discipline). It reduces the likelihood of moral hazard externalities. Bail-out feeds the negative bank-sovereign circle; bail-in does not. (Boccuzzi, De Lisa 2017, p. 94)

The BRRD was first applied to four small to medium-sized failing banks (the *4 banks*). However, these banks suffered from important losses on total funding due to the beginning of the BRRD procedure, as creditors and depositors became worried and ran off, withdrawing their deposits and selling debt. This is considered a side-effect, which could make the system unstable. This behaviour also affected banks which were solvent but perceived as weak, i.e., short of capital: "They can weaken market confidence and affect other bank creditors with all the adverse knock-on effects on financial stability" (Boccuzzi, De Lisa 2017, pp. 93-95).

The resolutions had a remarkable press and media coverage, with a negative emphasis on the issues regarding especially the subordinated retail bondholders of these banks. This suggests that narratives influence investors' behaviour. Thus, the analysis of the financial narratives selected, and their comparison to the financial data of the same period may highlight how and to what extent they affect the market sentiment and performance.

The Nobel Prize-winning economist Robert J. Shiller defines narratives as partially or completely true stories, "or easily expressed explanation(s) of events that many people want to bring up in conversation or on news or social media because (they) can be used to stimulate the concerns or emotions of others, and/or because (they) appear to advance self-interest". Narratives reach a broad public in the form of popular stories, of ideas that can go viral and move markets. They may be partially altered, causing apparently unpredictable fluctuations in the economy (2017, p. 4). These fluctuations may be factual or non-factual, true or manipulated to influence customers and to gain profit margins. Moreover, today's information technology and social media have enhanced the power of news media and of knowledge dissemination. Narratives affect people's emotions and actions. And nowadays, people communicate stories in several ways in the hope of a prompt response from their interlocutors: “the human mind strives to reach enduring understanding of events by forming them into a narrative that is imbedded in social interactions” (Shiller 2017, p. 9). However, not all narratives affect people’s behaviour.

News stories are events arranged in their time-sequence and linked to some type of causality, what is also called *double time structure* (Bateman 2014, p. 66): temporal and causal events may coincide or diverge, according to the writer’s purpose. These temporal-causal sequences build the communicative function of the story as a whole, its entertaining and captivating character, its relevance to the readers (Labov 1972; van Leeuwen 2008, p. 349). Stories may develop along diverse focalisations and perspectives: is it the writer or one of the characters who is telling the story? Or is it even an external narrator? Is the focalisation on the writer who sees and knows about the facts, on the characters who see, feel and perceive, or in the external world?

The news structure normally contains: an abstract (also lead or intro) – i.e., a short summary of the issue, with the aim to attract the reader’s attention; an orientation – i.e., the place, the time, the people involved and the starting event; a complication – i.e., the intertwined events; an evaluation – i.e., the use of illocutionary expressions which underline the relevance and interest of the story; a resolution – i.e., the solution of the issue and the story’s outcome; a coda – i.e., an optional step identifying possible future developments (van Leeuwen 2008, p. 350). However, hard news stories may differ and lack a resolution and a coda, may shrink the central story in the abstract, relate the main story to other events functioning as a background or a follow-up (Bell 1991), as a commentary (showing the journalist’s involvement) or as further details (van Leeuwen 2008, pp. 353-355). By starting with the main story first, the other information becomes decreasingly important, as in an inverted pyramid (van Leeuwen 2008, p. 353). News are often told merely through words, but are often accompanied by one or more static images, which set the scene and contribute to build visual narrative, together with the text. Nowadays, in online newspapers or magazines, static pictures are replaced or complemented by dynamic ones, as links to videos are becoming increasingly more frequent. As online newspapers are dynamic per se, even when developed on a static channel, e.g., a traditional newspaper, the representation is not necessarily fixed. In fact, when images symbolise narrative processes (Kress, van Leeuwen 1996, 2006), they are to be considered as visual tools for the representation of interactions and conceptual relations between the people, places and things depicted. Narrative processes represent actions, movements, transportation and transformation, transitory spatial arrangements: an actor performs a goal through a vector (an oblique line), which has the same role in pictures as action verbs in language, either transitive or intransitive (when the goal is lacking). Images are even perceived as intrinsically dynamic as “tensions are as inherent in any precept as size, shape, location, or colour”

(Arnheim 1974, p. 11). When participants are represented in terms of their class, structure, meaning, and denote generalized, timeless stable essence, they denote conceptual patterns (Kress, van Leeuwen 1996, pp. 43-46; Denti 2012).

All the elements abovementioned affect the reading path, in an attempt to lead the reader's gaze course. Western countries' readers will move from top to bottom, from left to right, following a vector, both in linguistic and non-linguistic contexts (Fuhrman, Boroditsky 2010). In narratives "for English writers, 'earlier' timepoints are expected on the left and 'later' timepoints on the right (…). There is therefore an association between temporal order and language writing direction: the written word organises visual behaviour and such correlations can have narrative consequences" (Bateman 2014, p. 61).

In financial news, other issues must also be taken into account: the volatility of data which are influenced more by negative news than positive ones, and slowly adjusts to them; the announcement timing of economic indicators, as well as of the news; and the nearly immediate and unequal impact of news announcements on the market sentiment and reactions (Ahmad, Cheng, Almas 2006, pp. 001/3).

For these reasons, the order of information in the text is deemed particularly relevant in this field, in the reader's effort to extract the information itself. This is facilitated by the use of a small vocabulary. Further details mean that the story may be retold several times with the addition of the new elements (Iedema, Feez, White 1994). This often happens in the FT, with updated articles on the same core news, sometimes with the same headline, but a different issue time of the news and a different content.

The present study is part of a broader research of English and Italian financial newspaper articles collected around the keyword *bail*-in*, in order to analyse these narratives and the linguistic strategies employed to affect investors' behaviour. These data are to be compared to the financial data in the same period to measure whether and to what extent narratives have influenced the market sentiment and performance, and investor choices to buy or sell. Moreover, the articles gathered belong to both specialised and non-specialised newspapers in order to identify financial knowledge dissemination practices and the use of popularisation strategies. Therefore, the present paper will mainly focus on the visual aspects of the articles collected from *The Financial Times* and from *The Times*, leaving the linguistic ones to further research.

The first research purpose will be to look at how the relationship between text and image is considered by scholars and to build a theoretical framework to apply to the corpus analysis.

The second research goal will be to analyse the articles' textual organisation and multimodal meaning making.

The third aim will be to compare the multimodal strategies employed by the FT and the T in order to see if the latter chooses popularisation practices to address the ordinary reader who is not a financial expert.

On a general level, there appear to be similarities and differences which do not necessarily achieve the result to simplify the financial topic and make it more intelligible for the layman.

Consequently, Section 2 will present a theoretical framework including Bateman 2014, Barthes 1977, Nöth 1995, Kloepfer 1977, Spillner 1982, Pegg 2002, Kress and Van Leeuwen 1996/2006, Gaede 1981, Stöckl 1997, 2002, Marsh and White 2003, Schriver 1997, Royce 2007, Martinec and Salway 2005, and their approach to the image-text linkage. This will allow a correct and thorough multimodal investigation of the corpus.

The following section will introduce the main statistical information of the corpus. Then, it will analyse the FT articles first, and the T articles afterwards, highlighting similarities and differences, which will also be discussed in the conclusions.

2. A multimodal theoretical framework

The present section will focus on a literature review of the relationship between text and image, in order to clarify the approach used to investigate the corpus.

Following Bhatia (2002, pp. 16-18), the newspaper articles investigated have been considered as a genre, from three main perspectives: their textual formal and functional aspects, their social, institutional and professional background and the social context they are embedded in: the way they are built, the relationships between the participants in the communicative event, the function of the text in context. Van Leeuwen (2008, pp. 345-346) observes that a genre is characterised by three aspects: discourse, in terms of both the subject matter and its interpretation and representation, style, namely the function and the way the text expresses the author, authors or organisation's stance, and lastly identity (Fairclough 2000; van Leeuwen 2005, 2008).

In terms of discourse, from a linguistic point of view, text and image in news discourse have been considered as fulfilling, on the one hand, the three functions of informing, narrating and persuading, characterising news discourse, and, on the other hand, those of informing, evaluating and predicting, typical of financial discourse (Denti, Fodde 2013). Texts and images are different ways of meaning making that humans use to construct stories to make sense of the world (Foucault 1969). While the text is "a sign that we can interpret for its meanings" (Bateman 2014, p. 13) through semiotics, the image is something that can be physically observed (Bateman 2014, p. 15), and thus direct physical visual perceptions (Mitchell 1986, p. 10).

The way texts are arranged and organised in the page, their fonts, sizes, and so on, is the first type of a close relationship between verbal and visual elements. They co-exist. They need to be visually-co-existent, co-present (Bateman 2014, p. 25). Numerous taxonomies of this relationship have been identified, similar to each other, partially overlapping or even in contrast, easily or hardly applicable. The most relevant issue under consideration here is the nature of this relationship and how it contributes to the readers' interpretation of the communicative event (Bateman 2014).

The first categorisation is Barthes's (1977). He highlighted how the relationship between text and image may be unequal or equal. In the first case, when texts need to fix the meaning of the visual polysemy, they have an *anchorage* function, which aims to control and amplify this meaning. When the image provides *illustration* to the texts, it reduces their meaning. Instead, when this connection is equal, text and image are separate but inter-dependent, combined, complementary to each other, elements of a whole, of a syntagm, with a *relay* function (Barthes 1977 [1964], p. 41). Thus, they must be considered together, as textual units to be analysed as such, and, as they represent diverse semiotic modes, obviously they will alternatively define each other's meaning (Spillner 1982).

A similar approach is that of Nöth (1995, p. 454), who suggests five image-text relations: *illustration*, *pictorial exemplification*, *labelling*, *mutual determination* and *contradiction*. While in the former, the picture has a secondary semiotic role with reference to the text, in the second the visual elements add information and offer an example of the verbal component, explaining its significance. Through labelling a text identifies an image: the caption or name under an unknown face, for example, has a relay function, as it enables people to provide an identity to that person. The titles or captions of well-known people, places or objects, instead, hold an anchorage function (see Bateman 2014, pp. 43-44). When relay and anchorage combine, mutual determination is created: text and image work *in parallel* or depend on each other, either enhancing or changing their meanings through what Kloepfer (1977) calls an *additive* function, or contributing separately to the converging meaning making. Nöth's last category is that of contradiction: in this case, text and image appear to be in conflict (1995).

Pegg (2002) focuses on the form of this relationship and identifies the *ancillary* function, when image and text are next to each other, the *correlative* or *integrative* one, when labels, call-outs or captions link them, and the *substantive* one, when they are visually combined together, as in certain layouts.

It is with scholars such as Kress and van Leeuwen (1996, 2006) and Michael O'Toole (1994, 2001) that the social semiotic theory of systemic-functional linguistics is applied to language in its socio-cultural context and practice. Multimodal analysis then better interprets the *juxtaposition* of image and text (Bateman 2014, p. 47), and their *recontextualisation*, which allows various flexible visual combinations which create diverse meanings.

Most theories have been attempting to understand and classify the nature of the image-text relationship (Durand 1987; Gaede 1981; Stöckl 1997, 2002), its rhetorical dimensions, based on form and content, types and operations (Durand 1987; McQuarrie, Mick 1996). For example, with reference to the verbal and visual contributions to documents such as front pages or one-page communicative events, Gaede (1981) provides *verbo-visual visualisation methods*, that derive from traditional rhetorical categories.

Visual analogy	*Visual argumentation*	*Visual association*
Visual connection	Visual norm-violation	Visual repetition
Visual gradation	Visual addition	Visual symbolisation
Visual synecdoche (part-for-whole)	Visual causal/ instrumental relations	Visual determination/ restriction of meaning

Table 1
Bateman's application of Gaede's visualisation methods and sub-methods.

Table 1 shows Gaede's visualisation methods and sub-methods as applied by Bateman (2014, p. 128), giving a clear idea of the types of relationship between text and image which can be used to make documents effective.

While visual connection involves amplification through size, visual relevance and repetition, visual analogy varies for similarity of methods or form. These methods help reach or improve the five communicative functions of comprehensibility, acceptance, attractiveness, control of interpretation and dramaticality.

Another methodology which applies rhetorical rules to the definition of the text-image-linkage is by Marsh and White (2003). They analyse it in diverse arrangements of information layout and domains, including traditional printed and new media, and journalism. They identify three possible relationships: apparent *little relationship* between text and image, where the image has the function to decorate, elicit emotion or control; *close relationship*, where the image function is to reiterate, organise, relate, condense, explain; and *extending relationship*, when the image has the role to interpret, develop or transform. Each of these functions has a scope note, which describes it. For example, when the relation appears weak, the image or the page layout may have the function to engage with the reader and motivate him/her to give some type of response. Images and graphs of the articles also belong to the close relation type, and mostly aim to reiterate meaning by exemplifying and describing. They often relate and complement, for example by providing the photograph of the article's author.

Schriver (1997) adds layout to the elements constituting the document's structural units, or *interacting rhetorical clusters*, as she calls them. This aspect is rather important in the analysis of the articles investigated. Table 2 gives a clear idea of some of the clusters identified by Schriver (1997, p. 343).

Illustrations with annotations and explanations	**Procedural instructions with visual elements**
• illustrations • leader lines and callouts (i.e., labels that identify elements) • figure numbers, captions and credits	• scenario (overview / goal of procedure) • procedures (enumerated step-by-step) • visual example of machine/device responses • captions for examples
Body text with footnotes	**Front matter of a feature article**
• body text (including paragraph styling) • footnote text • headings and subheadings • itemized lists • indented quotes	• headline (main point) • byline (author, division) • tagline, exploded quote, or attention-grabbing lead • photograph (medium to large) • caption (under photo if needed)

Table 2
Examples of Schriver's rhetorical clusters (in Bateman 2014, p. 134).

They help recognise which units are present and which is their meaning, and to make the content coherent and consistent, as shown in Section 3.2:

> *If the document is well designed, the clusters orchestrate a web of converging meanings, which enable readers to form a coherent and consistent idea of the content.* When documents are not well designed, the rhetorical clusters may seem unrelated. (…) readers find it hard to form a coherent and consistent interpretation of the content (Schriver 1997, p. 344).

She also identifies five cases of the textual-verbal relationship: a *redundant* one, where text and image provide the same information; a *complementary* one, where they provide integrating information; a *supplementary* one, where one is more important than the other; a *juxtapositional* one, where there may be contrast between them; and a *stage-setting*, where one introduces and foregrounds the other (Schriver 1997, p. 424).

Coherence and cohesion are significant issues in Royce's *model of intermodal complementarity* (2002, 2007). He specifically looks at intersemiotic cohesion between text and image, to see how all semiotic modes contribute to meaning making (see Kress, van Leeuwen 1996, 2006). Royce separately investigates the processes and the participants in the text and in the image, searching for similarities at an abstract level. If correspondence is present, intersemiotic complementarity is found. The connection or the repetition between visual and verbal processes, participants and circumstances, considered separately or as a whole, is called intermodal cohesion, reached through grammatical and lexical cohesive devices. As intermodal cohesive relations, Royce (2007) proposes lexical devices such as reference, substitution, ellipsis, conjunctions, repetition, synonymy, antonymy, meronymy, hyponymy and collocation.

The way in which these processes, participants and circumstances correlate text and image is also the focus of Martinec and Salway (2005), who claim that this relationship may be equal and independent. Subordination, complementarity, projection through wording or meaning are some of the main links. In particular, putting together the status and the logico-semantic relation between text and images, they distinguish grammatical categories to be applied to text-image combinations: elaboration, extension and enhancement. In the first case, further information is added or stated differently, keeping the same level of generality. In the second case, the extra information provided is not overtly related, while in the third case information is added on time, place, manner, reason, purpose, etc. Martinec and Salway (2005) include layout in their analysis.

The last approach taken into consideration in this literature review is Stöckl's (1997, pp. 145-197): he investigates the structural and rhetorical features of the text, then the image-text linkage, by highlighting *rhetorical building blocks* and *argumentative patterns*, distinguishing between adversative, evaluative, consecutive, causal relations that build a coherent textual unit. Other design patterns found are supportive of perception (in headings), narrative, problem and method patterns. They are linked to linguistic form and communicative functions aiming at persuading people. To this aim, these functions could attract attention, improve understanding, recommend and influence people's behaviour. Then, he provides hierarchical and linear structures of texts, using functional parts – e.g., headlines, captions, paragraphs, etc., used as labels, linguistic structures and the text configuration – e.g., the communicative effects achieved respectively in the linear development of the text and in the hierarchical text structure through the labels. The rhetorical figures are then linked to the communicative effects, emphasising how, for example, similitude sustains comprehension, parison and alliteration sustain comprehension and memory, ellipsis sustains attention (Stöckl 1997, p. 211, in Bateman 2014, pp. 228 ff.). As for the analysis of visual and verbal elements together, he builds a *Picture Relation Type taxonomy* considering the position of the picture before or after the text, in a focal position – centre vs. top-left bottom right diagonal; its anchorage or relay function; its semiotic nature as icon, index or symbol, colour, saturation, degree of reality; the positive or negative associations with the content; its visualisation methods; its communicative effects, such as attention, comprehension, acceptance, attraction, distraction, memorability, etc.; how and if lexical items are selected to word the image (Bateman 2014, p. 233).

3. A multimodal analysis of the corpus

3.1. The corpus: main statistical data

The present paper has taken into consideration a corpus of financial news articles gathered around the financial term *bail*-in*. The choice of this keyword, as previously mentioned, is due to the highly specialised financial meaning of this expression and of its semantic field. This study is part of a broader research, aiming at analysing whether and to what extent financial narratives influence households' behaviour, with a closer look at when the *bail-in* tool was introduced.

For the present purpose two subcorpora have been compared: the first one comes from *The Financial Times* (FT.com, on Europe, henceforth FT): 734 articles published online in a time range going from 2008 to 2019. The second corpus comes from *The Times* (thetimes.co.uk, henceforth T): 111 articles in the years 2011-2019, as no instances of *bail*-in* were found in the previous years. Moreover, in the FT out of 734 articles, 473 (64.44%) are concentrated in the years 2013-2016 when the introduction of the *bail*-in* tool started and became fully operational. The same thing occurs in the T, where out of 111 articles, 75 (67.56%) are found in those 4 years.

	Overall	FT	T
file size	7227508	6274552	952956
tokens (running words) in text	599313	519749	79564
tokens used for word list	587578	509930	77648
types (distinct words)	18867	17630	7181
type/token ratio (TTR)	3.21	3.46	9.25
standardised TTR	45.63	45.63	45.64

Table 3
The corpus.

A first glance at Table 3 shows a much higher number of words in the FT subcorpus. This is due to the specialisation of the term *bail*-in* and of the newspaper: *bail*-in* is likely to be more frequent and the object of a higher number of articles in the FT. The density of the language used, the standardised TTR (for 1000 words) is very similar, slightly higher in the T, probably due to the fact that it addresses non-expert readers and needs to explain difficult financial issues more thoroughly.

The keyword *bail*-in* appears 1544 times in the FT and 178 in the T, in several forms: *bail-in*, *bailin*, *bail-ins*, *bail-inable*, *bail-in-able*, *bailed-in*, *bailing-in*, *bail-ins*, as a noun, a verb or an adjective. They are often accompanied by expressions such as *called*, *so-called*, *as*, *known* as, *mean*(*s*), that are linguistic markers used to popularise specialised language. They appear in very similar percentages in the T and in the FT, slightly higher in the T. From a lexical point of view, *bail*-in* often collocates in adjectival position with *rules*, *bonds*, *debt*, *regime*, and in nominal position with *bank*, *bondholder(s')*, both in the FT and in the T. Definitions are not frequent, even if the occurrence of *that is*, normally introducing the second part of a definition or of an explanation, is higher. Overall, the frequency of *bail*-in* in its various forms totals one, two or three occurrences in most of the corpus texts, increasing from time to time. It is very rarely found in the headline.

The corpus articles were downloaded from the database LexisNexis and Lexis Uni, and from the official websites http://www.ft.com e http://www.thetimes.co.uk. In particular, the articles of LexisNexis and LexisUni are characterised by a simple, user-friendly layout, which is very suitable for a quantitative verbal analysis. The original articles, instead, have rather different layouts, useful for a thorough multimodal investigation of their meaning and linguistic strategies. Consequently, for the present purpose, only the original articles have been analysed. The comparison has been carried out to see if and to what degree multimodality contributes to popularise the financial news discourse of the FT in the T.

3.2. The corpus: the multimodal articles of the FT

The multimodal analysis of the corpus articles has applied some of the taxonomies described in Section 2. The main purpose has been that of exploring the *modalities* of information presentation, the modes of expression and their combinations, the synergic relationship between image and text, their meaning multiplication (Bateman 2014, p. 6), keeping in mind that old and new features coexist, and that, with the introduction of digital technologies, new communicative styles and genres have developed (Gruber 2008, p. 363). A clear example of this is the presence of hyperlinks, which connect the main text to other hypertexts, and of both static and dynamic images, performing diverse functions, as further discussed.

From the discourse-organisational point of view, the structure of a FT article is normally divided into parts, following the left-right and top-bottom order. Several of Schriver's (1997) cluster categories are easily recognisable.

Figure1
Example of the features of a multimodal news article from the FT corpus.[1]

Figure 1 is an example from the corpus: the central focus of the page develops along the headline "Salvini taunts the EU", a byline indicating the name of the journalist, his photograph and a caption underneath on the left, restating the journalist's name, providing him with an identity. In this case, the caption has a relay function (Nöth 1995; Bateman 2014). A tagline is often present, reporting a quotation (Figures 1 and 2). Relevant quotations are often highlighted by a vertical black line and a bigger quotation mark, making sure that the reader understands both the importance and the origin of the content. The body text follows, centred and divided into paragraphs.

However, the analysis must consider the whole layout of the web page. The top of the page displays dynamic ads in English of different companies (Figure 1). Sometimes they are also inserted on the right side of the page (Figure 3). They function as hyperlinks leading the reader to advertorials, i.e., full pages of the FT, with a clear persuasive purpose, mainly visual, and structured as formal sections: Welcome, Intro, Articles, Videos.[2] Each section progresses further into more details or to another page. These ads seem to be in contrast or to have very little relationship with the text (Nöth 1995; Marsh, White 2003): their function is mainly to decorate, to attract the readers' attention on the page and to persuade them to buy a product which supports the newspaper.

Underneath, a band shows the symbol of the sections' drop-down menu, followed by the lens icon for search, the name of the newspaper in capital letters and the logo *myFT*, linking to an account feed, preferences and saved-article page. Menus are among those text-external factors that allow for a simpler and more effective layout (Bhatia 2002, 2008). The successive stripe is mobile and, when the page moves, it remains at the top of the page, to be constantly accessible by the reader, leaving him/her total freedom on what reading path to

[1] Extract from https://www.ft.com/content/b18c3010-3428-3b94-9101-b99f6163f332.
[2] e.g., https://audemarspiguet.ft.com/?dclid=COnn-Z6SpOYCFUhB4AodJTM ErA.

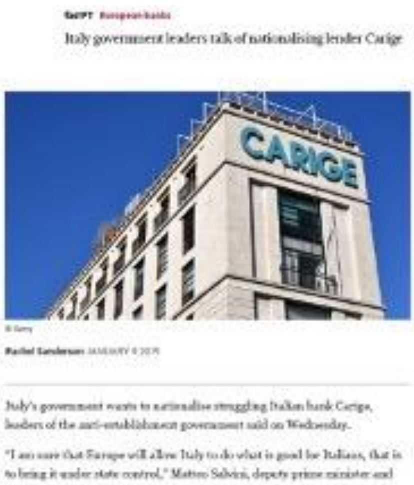
follow. The stripe shows the main sections of the newspaper: *HOME*, *WORLD*, *US*, *COMPANIES*, *TECH*, *MARKETS*, *GRAPHICS*, *OPINIONS*, *WORK & CAREERS*, *LIFE & ARTS*, *HOW TO SPEND IT*.

The following band has the identification of the section: e.g., *Latest on European banks*, *Latest on Financial job losses*, *Latest on Money laundering*, and so on. Below, some headlines of related articles are horizontally listed and clickable.

Furthermore, sometimes on a light blue background, in contrast with the diverse shades of light peach pink, which distinguishes the newspaper, sometimes in a light pink colour, the headline, in a bigger font, is preceded by the specification of some other sections: *Opinion* ***The FT View***, a + *Add to myFT* button, and followed by a subheadline and the section *THE EDITORIAL BOARD*, and again the bottom + *Add to myFT*. Both *The FT View* and *THE EDITORIAL BOARD* labels are links to the respective pages. All these expressions are visual devices, in different sizes and colours, with a labelling function (Nöth 1995), which is integrative (Pegg 2002) and additive (Kloepfer 1977); they are a sort of extension of the article's information, leading to related pages. (Martinec, Salway 2005)

The page is also endowed by another visual tool, positioned on the left, in a small one-column five-box side-bar displaying the icons for Twitter, Facebook, LinkedIn, Share and Save, meeting nowadays' necessity to link the article to social networks, to save it or mail it to a friend. Again, these iconic hyperlinks combine text and image enabling further actions in a simple, concise and straightforward way, a characteristic of the new web genres.

Sometimes, in lieu of the journalist portrait, the image represents the bank, institution, people or topic mentioned in the article (Figure 2).


Italy government leaders talk of nationalising lender Carige

CARIGE

Italy's government wants to nationalise struggling Italian bank Carige, leaders of the anti-establishment government said on Wednesday.

"I am sure that Europe will allow Italy to do what is good for Italians, that is to bring it under state control," Matteo Salvini, deputy prime minister and

Figure 2
An example of an image setting the stage and building cohesion with the tex through the reference between the title and the façade sign.[3]

[3] Extract from https://www.ft.com/content/b9fe3384-1427-11e9-a581-4ff78404524e.

In this case, the role of the visual item is that of stage-setting, i.e., introducing and foregrounding the topic (Schriver 1997), and of a hypernym of the person focus of the article. No caption is present, but the name of the bank in the photograph is repeated both in the title and in the first line of the copy, creating cohesion (Royce 2007). However, the content of the picture is rarely cross-referenced in the body. Thus, the image is mostly used as the symbol, the illustration of the company, institution or person discussed in the article, but does not add any further information. It has the rhetorical function of engaging the reader. A caption here would fulfil an anchorage function, as Banca Carige is shared knowledge in financial news discourse (Nöth 1995; Bateman 2014). Furthermore, the text-image linkage plays an ancillary role (Pegg 2002), as they are placed next to each other.

Most of the times captions are absent and bylines substitute them, either reporting *The editorial board* or the name of the author, the city, the date, the number of comments to the article, if any, and the printer icon, enabling the reader to print the document. Podcasts relating to the article may be recommended (*Recommended*) and linked through a symbol, which may be one of those already shown at the top. The function of the icon is complementary to the text, as it provides integrating information.

Other times, photographs are replaced by graphs (Figure 3): they are useful to show the fluctuating trends in the value of currencies over time, or of shares, or prices, and so on.

Figure 3
An example of the use of graphs in the FT. This graph anticipates and condenses the following verbal description.[4]

Graphs depict dynamic phenomena and represent a sort of intermodal translation, a visual version replacing the textual one (Marsh, White 2003). Graphs and tables show the relations between variables, induce perspective, show precise data and figures. It is when they are linked to the author's evaluation and his/her rhetorical devices that they convey argumentative force

[4] Extract from https://www.ft.com/content/24982465-a93a-343e-afdb-cceff6aee201.

and express the relevance and reliability of the information itself. That is why, in Marsh and White's terms (2003), and according to the reader's expertise, graphs may play the role of reiterating but also of condensing information and interpreting by emphasising and documenting, i.e., providing factual or substantial support to certain phenomena. The opposite is also important: the presence of a graph may not be sufficient to understand the phenomenon when an explanation of the data is required. This applies especially when the reader is a layman. In most of the examples analysed, graphs are not described in the text and, for this reason, their understanding may be difficult. This choice could be due to space constraints and to their inner function.

Symmetrical to the side-bar, which moves up and down, remaining always visible, is a white *Feedback* label on a green background, mobile as well, following the reading path and always available. It is also recalled at the bottom of the article's copy, as all comments are reported there. The *Comments* section is integrated and complemented by several labels (*Recommend*, *Reply*, *Share* and *Report*), which enhance social interactions.

Other icons and labels are spread throughout the multimodal text. A red circle with a tick inside, showing the reading progress and becoming fully red at the end, a circumstantial tool foregrounding the development of the narrative process. On the right, other sections are listed – e.g., *The FT View*, *Financial job losses*, *Mergers and Acquisitions*, *European banks*, under the headline *Follow the topics in this article*, both contextualising the article, linking it to similar domains or adding interactive functions.

The bottom part of the online article page fulfils the legal requirements in terms of Copyright, reusing the article, and, further down, written in white against a black background, *Support*, *Legal & Privacy*, and other legal and corporate information, delimiting the FT's liability, abiding by the FT Editorial Code of Practice, and enabling the reader to access other services and tools.

The online article page is supplied with extra dynamism through the use of two sections, before the *Comments*. Small images and captions visually combine across the page from left to right, with a substantive role (Pegg 2002), and introduce possible extensions of the information.

Such a structure, rich in references to other sections and hyperlinks to other pages, creates a very dynamic text by exploiting text-external factors (Bhatia 2002, 2008), allowing the page to be less heavy and more catching and coherent. At the same time, this gives the reader the possibility to delve into those topics of interest after a clear and straightforward reading of the main article, and enables the writer to enhance, put together and combine the features of each genre involved, especially those of the news and of financial reporting. Interdiscursivity is thus reached, i.e., the "appropriation of semiotic resources across genres, professional practices and disciplinary cultures" (Bhatia 2008, p. 162). Cohesive devices are employed to create textuality between the layout, images, graphs and the verbal structures, in particular the headlines. In particular, reference and lexical reiteration are used.

3.3. The corpus: the multimodal articles of the T and some similarities

From the discourse-organisational point of view, the T's page is also divided into parts, following the left-right and top-bottom order. The main structure shows Schriver's (1997) cluster categories.


Perennial predictions of the EU's demise underestimate its resilience

Figure 4
Example of the features of a multimodal news article from the T corpus.[5]

Figure 4 is an example from the T subcorpus: the central focus of the top of the page is on the headline preceded by the journalist photograph and followed by a byline indicating his name, the date and the time of the comment, thus fulfilling a relay function (Barthes 1977; Nöth 1995). In this case, text and image are in a close relationship (Marsh, White 2003), and the journalist portrait introduces the article, as if at the beginning of a quotation, as if he were an expert directly speaking to the reader. As a matter of fact, he is looking straight in the eyes of the reader, engaging in a direct dialogue with him/her. His eyelines form vectors which work as connecting means. His smile reveals social affinity. Sometimes the portrait comes after the title and the journalist name, as an illustration to the name, a signature to the article, and the date to anchor the news to time. When the picture of the journalist appears, the portrait is a close-up (head and shoulders), which represents the search of a closer personal and social relationship with the reader (Kress, van Leeuwen 1996, p. 131).

Other times, as in the FT, the image embodies the institution or the person that is the focus of the article. The non-human represented is

[5] Extract from https://www.ft.com/content/b18c3010-3428-3b94-9101-b99f6163f332.

anthropomorphised to a certain degree (Kress, van Leeuwen 1996, p. 124). In this case, there is always cross-reference between the title and the picture, where the name or the logo of the institution is repeated. This contributes to build textual cohesion. When the photograph shows the upper body of at least four or five people, as when politicians, ministers or heads of state are portrayed, public distance is represented.

Unlike the FT, a caption is present, making sure that the reader understands the meaning of the visual tool, without leaving room to personal interpretation. Then, the body text follows, centred and divided into paragraphs for a clear reading.

Despite the use of labels and icons, the T's layout is overall simpler than that of the FT. The upper band is black with the white logo of the newspaper, and the date underneath, on the left, together with a white *Search* button with an icon, on a grey background, on the right. A drop-down menu icon on the left opens to an index: *Today's sections* (and their list), *Past Six Days*, *My Articles*, *Times +*, *My Account* (with another list of instructions). Elongating the page dimension, the dropdown menu on the left and the date disappear, moving the index keywords and lists to the top of the page. This confers the text dynamism, clarity and intelligibility. On the same black band, a *Search* button allows searching for a keyword or proceeding to a search page.

Underneath, the section title in capital blue or black letters, the date, time and name of the newspaper, the headline of the article in bigger bold fonts, the name and the picture of the author are all centred. The order of these elements may change, according to their specific relevance. Unlike Figure 4, when the picture of the author precedes his/her name, this combination aims to establish a closer connection between writer and reader, to identify the former by both integrating information, creating a positive association and conferring the journalist authority. The caption has a relay function while the following body has an anchorage function, as it amplifies the image meaning. This intersemiotic complementarity is an example of Royce's (2007) intersemiotic cohesion.

Other labels and icons follow in a horizontal area, suggesting sharing by email, by Facebook or Twitter, or saving through a preference star. All icons are surrounded by a circle to emphasise the idea of a link button. Again, hyperlinks are essential.

The copy follows, still centred and divided into paragraphs, sometimes interposed by short titles, and by ads. These ads are often unrelated to the main topic and, again, their function is that of attracting the reader's attention. At the end of the main text, the same horizontal area is repeated and followed by the pictures and titles of other articles on related or unrelated topics. The last section is that of comments, where a big capital letter on the left identifies the initial of the name of the commenter and also provides a user-friendly visual aid.

The articles included in the T subcorpus show slight changes in the structure: the name of the journalist or analyst is not reported; the date and time are laid on the left of a centred picture referencing the headline of the article or the article itself; the picture may be absent. Most of the time, the name of the journalist is in blue clickable to find a short biography to increase the reader's acquaintance with him/her and trust. As already mentioned, this is a tool, an argumentative causal pattern in statement-authority relations, another way to enhance the importance of information's relevance and reliability (Sperber, Wilson 2002; Wilson 2003; Piotti 2006).

The articles of *the Times* and of *the Sunday Times* have shown a simpler structure than those of *the Financial Time*, as visible in the presence of shorter texts and of rare hyperlinks, especially within the copy. In the T articles analysed, graphs were not found as opposed to the FT corpus where graphs are often found. As previously mentioned, graphs and tables may be a reliable source of information, condensing and explaining figures in an effective way. However, they may be incomprehensible for the non-expert reader, who is the main addressee of the T.

The page colour is white, and the writing is normally black, with the use of blue text for very few words that need to stand out. This blue text is also used for hyperlinks, when present. Information elaboration and enhancement are applied in the relationship between the layout and the specific content (Martinec, Salway 2005).

The same function of the dynamic ads at the top or on the right of the FT articles is fulfilled by the static ads inserted in the copy or right after it at the end. They are hyperlinks to advertorials or professional pages on financial products. Their purpose is again to decorate and attract the reader's attention on goods or services to be sold.

The bottom part of the T is also devoted to legal and corporate information, but also entertainment.

4. Conclusions

This study has attempted to investigate the combination of the verbal and visual structures of a corpus of financial news articles, and to detect any similarities and differences in the multimodal strategies employed by a specialised and a non-specialised newspaper. The corpus was gathered around the keyword *bail*-in*, a difficult term with a highly specialised semantic load in the financial field.

In order to fulfil this aim, the corpus was examined focusing on the articles' textual formal and functional aspects, on their professional background, on their social context, i.e., on the relationships between the participants in the communicative event and the function of the text in context.

The analysis started from the concept of text as the combination of verbal and visual elements as a whole, fulfilling a common communicative act, aiming at reaching both textuality and a precise reader. These texts appear characterised by certain principles: cohesion, coherence, intentionality in building the text through the combination of words and images in a certain way, intertextuality and interdiscursivity. They are informative, acceptable, relevant and appropriate to the addressee and to the context (Bateman 2014, p. 226-227).

This initial analysis shows how these articles have a rather complex layout. They supply information of very diverse types and relevance to the main topic of the article, they rely on rhetorical rules, forms of information layout and domains. In Marsh and White's (2003) terms, they identify a close relationship between the layout and the content, where the layout serves to organise and relate information, and to build a clear message. These texts are based on hierarchical and linear structures, such as headlines, captions, paragraphs, etc., that function as labels, linguistic structures and text configuration (Stöckl 1997). However, when the image of an ad (in the FT) or of another article (in the T) has the role to elicit emotion or to control people's reading paths, then text and image show a weak relationship. The presence of many dynamic ads probably answers a more commercial trait of the FT compared to the T.

As already observed, graphs are frequent in the FT but not in the T: this is probably due to the fact that they require verbal description to be properly interpreted by a non-expert reader. Therefore, their function of condensing information and interpreting would be lost.

Hyperlinks have a more important role in the FT, enabling the reader to access a wider amount of information linked to the topic, providing "the opportunity to combine different semiotic resources into a single communicative act" (Campagna *et al.* 2012, p. 11). In the T, the journalist's aim is probably that of explaining the topic in the most intelligible way, with no need to increase the reader's knowledge on financial topics.

Looking at the documents' rhetorical building blocks and argumentative patterns (Stöckl 1997, p. 145-197), the most frequent ones observed, especially in the FT, are alternative and adversative patterns, evaluative ones, consecutive in problem-solution relationships, causal in statement-authority relations. Other design patterns found are supportive of perception (in headings), narrative, problem and method patterns.

The comment area has not been discussed thoroughly as it mainly contains text. However, it is the contribution of mostly expert readers to the overall meaningfulness of the article and, for this reason, it would deserve further research. Anyone could be involved in content creation regardless of the newspaper's predetermined rigid hierarchy of writers/publishers and readers.

Does the multimodality of these articles explain the word *bail*-in* in a more intelligible way? Is there any difference between the subcorpora? The answers to these questions would not be easy. The *bail*-in* is a tool introduced by the EU to solve a situation of instability and risk for people, banks and countries. Apart from a few articles, the headlines do not contain this expression, which also appears in the copy of the articles with a low occurrence. There is not a direct reference between *bail*-in* and the visual structure of the articles. The dynamic multimodality of the FT helps build a solid background for the understanding of the phenomenon. The apparently weaker and less pervasive multimodality of the T may seek a different aim: the resemiotisation and simplification of the phenomenon (Iedema 2003).

There have been no cases of articles from the two subcorpora with the same title and content. When they originated from the same event, they developed in different ways, both verbally and visually (Figures 1 and 4 and full articles).

A deeper and more thorough analysis of the verbal linguistic strategies and of popularisation discourse is needed to further investigate the main research question: are popularisation practices employed to address the ordinary reader who is not a financial expert? Verbal strategies will be the next step of this research.

Moreover, news in general, and financial news in particular, should not only be studied from the structural point of view, but also from the social one. Therefore, further research will investigate the impact of media on deposit volatility and on how changing narratives may influence investors' behaviour and cause economic fluctuations. Although the run of uninsured deposits is consistent with the literature on banking and financial market regulation, the magnitude and the speed of the outflow suggest that there are also other strong drivers, e.g., *panic*, *uncertainty*, *fear*, *risk*, closely related to the perceived uncertainty of the new resolution framework. Most likely, investors' fear of being bailed-in may heighten both creditors' and depositors' desire to leave quickly.

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PART 5 TRANSLATION AND MULTIMEDIA

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THE TRANSLATION OF LEGAL REFERENCES IN THE ITALIAN DUBBING OF A US TV SERIES
A corpus-based analysis

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Abstract – Legal drama series contribute to the popularisation of legal discourse and legal concepts: however, as they are entertainment products, they also simplify complex constructs for the sake of plot comprehension. When such products are translated for foreign audiences, a further layer of complexity is added onto them. Legal references in audiovisual products are notoriously challenging to translate, especially when the legal traditions of the source and target cultures are different. This paper investigates the translation strategies employed in the Italian dubbing of *The Good Wife*, a very popular legal drama from the US, to convey the legal references in the dialogues to Italian viewers. The data used in the analysis come from the DubTalk corpus, compiled at Università degli Studi Internazionali di Roma-UNINT. A theoretical framework was developed to classify the legal references in the original English dialogues and the related translation strategies in the Italian dubbed version; moreover, interviews were conducted with four professionals involved in the Italian dubbing of the series, with the aim of achieving a better comprehension of the process. The analysis shows that the most frequent translation strategies in our corpus are the use of functional equivalents, periphrases and calques; thus, while the key principle driving the Italian dubbed version may be said to be domestication, frequent legal terms and fixed formulae were translated via calques and standardised translations which viewers have come to expect in translated legal dramas. This balanced mixture of domesticating and foreignising strategies facilitates comprehension whilst at the same time reminding the audience of the foreign origin of the series, to ensure maximum enjoyment.

Keywords: dubbing; legal references; corpus; translation strategies; functional equivalence.

1. Introduction

The label *legal translation* indicates "[…] a type of translational activity involving special language use, that is, language for special purpose (LSP) in the context of law, or language for legal purpose (LLP)" (Cao 2007, p. 8). The range of legal texts that get translated is very wide: Šarčević (1997, p.

11) suggests three categories, i.e. primarily prescriptive texts (normative), descriptive-prescriptive texts (judicial decisions and legal instruments), and primarily descriptive texts (scholarly works). The prescriptive nature of some texts is what makes them binding for the recipients: therefore, the well-known classification by Sabatini (1990, in Megale 2008, p. 84), which distinguishes between highly binding texts (scientific, normative and technical-operational), average binding texts (expository and informative) and partially binding texts (expressive), can be fruitfully combined with the previous one to expand it. Thus, this paper moves from the premise that legal dramas may be described as expressive-informative texts, i.e. although their primary function is entertainment, by depicting (more or less realistic) representations of professional interactions in the legal sphere involving lawyers, clients, judges, police officers, forensic experts, and so on, they also contribute to informing the audience about the laws and the legal system of the country where the story is set.

This paper focuses on TV dramas, as serialisation plays a key role in the popularisation of legal discourse and the dissemination of legal concepts:

> […] legal dramas can be considered a valid example of a means of popularization: they represent a genre specifically created to be shown to mass media for the purposes of entertainment, and for an informative and educational one. (Laudisio 2016, p. 103)

The object of this paper is to discuss the key issues involved in the dubbing of legal dramas and then to focus on the Italian dubbing of *The Good Wife*, a very popular American legal series. More specifically, the aim of this study is to identify the most frequent translation strategies used in a small corpus of episodes to convey the source language (henceforth, SL) legal references to the target language (henceforth, TL) viewers of the dubbed version. The legal references in the corpus were classified according to their cultural specificity; then, the translation strategies used in the Italian version were categorised according to a dedicated taxonomy. In addition, it was decided to complement the analysis with interviews with four professionals who worked on the Italian version of *The Good Wife* for years (the series translator, two dialogue adapters and a dubbing director), in order to gain insights into the translation process behind the TL choices.

After an overview of the main features of legal dramas in Section 2, our methodology and data set are described in Section 3; then, the results of our analysis are presented in Section 4 and our conclusions in Section 5.

2. Translating legal dramas: an overview

In legal translation of any kind "[...] the legal status and communicative purposes in the SL texts are not automatically transferred or carried over to the TL texts. They can be different" (Cao 2007, p. 10). In the functionalist approach to translation (Reiss, Vermeer, in Nord 1997), if the TL text has the same *skopos*, the translator's aim must be to achieve equivalent effect (instrumental translation); if the *skopos* is different, the aim is to achieve adequacy in accordance with the translation brief (documentary translation). As legal dramas are entertainment products, the skopos of their translation (via either dubbing or subtitling) is the same as the skopos of the original version, i.e. to entertain the audience. The problem is that source and target language audiences do not share the same cultural background. As legal dramas are steeped in the legal culture of the country of origin, they are notoriously complex to translate, especially when the legal traditions of the SL and TL countries are relatively distant. This section provides a brief overview of the key features of this genre and of the related translation challenges.

The United States have a long history of producing TV legal dramas, starting in the 1950s with series like *Perry Mason* and leading up to the "quality TV" legal series of the last twenty years (Villez 2010, p. 25). Legal dramas potentially present viewers with any area of the law (public, private, commercial, criminal, international, and so on), depending on the setting and focus of the series and on the storyline of each episode. Serialisation implies a degree of repetition, with recurring characters and settings; repeated exposure to legal settings enables the audience to acquire some legal knowledge.

> The recurring schema of regular programs allows viewers to grasp essential information more rapidly. […]. The stability of the context in a legal series, like *Perry Mason*, for example, allows for the acquisition of criteria on courtroom procedure (what is the order of questioning), on the professions (who does what), on courtroom setup (where do the parties sit) and so on. (Villez 2010, p. 5)

Like all audiovisual products, legal dramas are carefully scripted, so neither plot nor dialogue are, strictly speaking, authentic. However, as the aim is to provide a realistic representation of law and the justice system on the screen, scriptwriters usually rely on the advice of legal experts. The latter check whether the plot is legally sound and whether the dialogues are convincing representations of interactions in the legal sphere, including both instances of symmetrical interactions between peers (members of the legal community) and asymmetrical interactions between legal professionals and their clients.[1] In other words, legal TV series portray both expert-expert institutional encounters and expert-non-expert interactions:

> The type of communication taking place in legal and medical dramas often involves an exchange between the characters who are professionals and experts in their discipline and lay people, such as their customers and patients […] Moreover, the authors of specialised dramas (just as all TV scriptwriters) have to bear in mind what their target is: a general, non-expert audience. This means that legal or medical dramas have to be shaped in such a way as to represent a 'good compromise' between specialised contents and a simplified form of communication, which has to entertain and at the same time raise feelings of identification in the audience. (Laudisio 2016, p. 101)

In recent years, the fact that lawyers have joined the teams of scriptwriters of legal series has enriched the quality of the shows (Villez 2010, p. 69). Of course, the dialogues are characterised by the presence of legal language; more specifically, legal terminology "[…] is the most visible and striking linguistic feature of legal language as a technical language" (Cao 2007, p. 20). A number of recurring features have been identified in the vocabulary of legal English, which are related to the historical stratification of the language: the presence of Latinisms, terms of French/Norman origin, archaisms, redundancy (doublets and triplets), euphemisms and contemporary colloquialisms (Álcaraz, Hughes 2002, pp. 4-14). Thus, fixed formulae are frequent in the dialogues of legal series, as well as terms referring to institutions, procedures, professional roles and, of course, crimes. Scriptwriters try to strike a balance between accuracy and accessibility, i.e. they tend to simplify complex constructs for the sake of plot comprehension by the audience and employ specific writing techniques to ensure that the meaning of complex terms is explained by the characters themselves. Indeed, Laudisio (2015) has shown that in specialised TV series (medical and legal ones) repetitions, definitions and explanations are frequent, and that such mechanisms help the audience understand technical concepts and terms. Villez (2010, p. 72) notes:

[1] The main difference between the two is that in asymmetrical interactions participants have different degrees of power and control, including the right to take and hold the floor. In institutional encounters such as those that take place in legal settings, legal professionals play specialised roles, have specific knowledge of the topics under discussion and have more interactional power than ordinary people (i.e. clients, witnesses, defendants, and so on). See Orletti (2000) for an in-depth discussion of the notions of symmetry and asymmetry in interaction.

> If a term is too technical, the writers arrange discussions so that the term is reused in different conversations or situations, giving the audience several opportunities to hear and associate the legal vocabulary to narrative events. [...] The fictional client immediately repeats the term questioningly, which allows the fictional lawyer to take it up again, repeat it a third time and explain it.

Thanks to such techniques, the long and consolidated legal drama tradition from the US has contributed to spreading knowledge about many technical terms (Grasso, Penati 2016, p. 210).

The main sources of difficulty in the translation of legal dramas stem from the differences between the two legal systems, the two languages and the two cultures, because, unlike other types of technical language, legal language is not universal: "Law and legal language are system-bound, that is, they reflect the history, evolution and culture of a specific legal system" (Cao 2007, p. 23). In other words, it is in the nature of legal dramas to have a strong connection with the legal culture of the country where they are made: a US legal drama such as *Suits* (Aaron Korsh, 2011-2019) differs enormously from a British one such as *Silk* (Peter Moffat, 2011-2014) in terms of plot, characterisation and language, because the legal setting is completely different. This accounts for "[...] the high occurrence of Culture-Specific References connected to legal discourse, which also come to be a central and constitutive element of this genre [...]" (Laudisio 2017, p. 137).

In addition, it is important to remember that audiovisual translators work on polysemiotic texts (i.e. products that communicate via the combination of dialogues and images) and that translation problems may affect the dialogues or may be related to visual information too (signs, documents, gestures, and so on). This has a bearing on the choice of translation strategy, as the presence of visual information may facilitate or hinder translation, depending on the scene in question (Chaume 2012, pp. 100-119). In addition, in the dubbing of audiovisual products there are specific technical constraints related to the need for synchronisation between the images and the TL dialogues which replace the original ones. For example, if the word *subpoena* (a US court order requiring someone to testify) is used by a character shown in a close-up shot, the TL version needs to match the original actor's lip movements, whereas if the character's face is not clearly visible or he/she is off-camera, there is a wider range of translation choices available to the translator. Moreover, when analysing dubbed products, it is important to take into account the characteristics of the dubbing process itself, as the translator is not the only TL text producer. Dubbing is a collective effort that sees the involvement of several professionals. The translation produced by the series translator(s) is a draft that is later modified by the dialogue adapter(s) to meet synchronisation requirements; when the dubbing actors work in the recording studio under the guidance of the dubbing director, further changes may be introduced to improve the delivery of the TL lines. Therefore, when researching dubbing, it is interesting to discuss the reasons behind certain translation choices with those who were involved in the dubbing process of a film or TV series (if at all possible).

Most of the legal dramas that are internationally popular today come from the US, a country whose legal system belongs to the common law family: this makes many legal references difficult to translate into Italian, as Italy has a civil law system. As Laudisio (2017, p. 131) points out:

> When the text to be translated is permeated with references to the procedures, terminology and professional culture of a specific country and is an integral part of a multimodal product including audiovisual elements, as in the case of legal drama, then the translator is faced with even more difficult challenges.

The translator must find ways to bridge cultural gaps and place the TL viewers on a level footing with the original audience, which usually implies the adoption of specific translation strategies. In one of the earliest studies on the translation of legal language in American courtroom dramas dubbed into Italian, Giordano and Giorgio Marrano (1994) noted two different types of issues: references to the SL legal system and the presence of fixed formulae, such as those used in court hearings. One of the most frequent translation strategies identified in their corpus of legal films was the literal translation of the source culture reference, such as *gran giurì* for *grand jury*; they also found that a similar approach was taken in the translation of fixed formulae, which in their corpus were always translated as literally as possible. When there was no Italian equivalent for an American legal term but its meaning was essential for plot comprehension, the Italian dubbed versions tried to explain it; one of their examples is the rendition of *he was a probation officer* as “si occupava di libertà vigilata” (Giordano, Giorgio Marrano 1994, p. 116).

The literal translation approach appears to be frequent in other dubbing countries too. Indeed, Villez notes that many Europeans are more exposed to dubbed TV dramas than original language ones and that an unwanted outcome of the literal translation approach is that “[...] the country in which the story takes place is not always clear to the television public in Europe [...]” (Villez 2010, p. 73). He then adds that frequently “[…] the French, when finding themselves in court, address their judges as *Votre Honneur*. This new cultural habit […] is emblematic of a less innocent confusion between the American and French legal systems” (Villez 2010, p. 1). Bollettieri Bosinelli (2002, p. 81) notes something similar in Italy, where in real court hearings some citizens expect to hear the well-known (translated) formulae they have heard in dubbed products, such as “Vostro Onore”, [...], “obiezione accolta”, “obiezione respinta” (*objection sustained*, *objection overruled*)”.

Laudisio (2017) analysed a corpus of episodes from three US legal dramas (*The Good Wife*, *Suits* and *Boston Legal*) and focused on the translation of culture-specific references (some of them of a legal nature) in the Italian subtitles produced by a community of non-professional subtitlers (fansubbers). He found a prevalence of substitutions by means of a target culture reference, but also loans and calques for references with no direct equivalent in Italian, and generalisations and explicitations for terms whose meaning was key to plot comprehension. Interestingly, he also found a high number of "standardised" translations of legal references, i.e. translations which have become established and familiar to TL viewers through repeated use over the years, such as "sentito dire" for *hearsay* and "segreto professionale" for *attorney-client privilege*.

To sum up, the dubbing of legal dramas presents significant challenges related to the nature of the materials to be translated and to the technical constraints of the technique. The available studies have shown that a literal approach tends to be used in the translation of fixed formulae and that other legal references that are key for plot comprehension tend to be explained or replaced by TL equivalents. Our study tried to investigate the dubbing of *The Good Wife* as systematically as possible, in order to obtain both qualitative and quantitative data about translation strategies. Section 3 presents the methodology and materials used in the present study.

3. Methodology and corpus data

As was highlighted in Section 2, when translating legal TV series for dubbing, each legal reference must be analysed very carefully in the audiovisual context (scene) in which it occurs in order to select the most suitable translation strategy. Our study aimed to identify all the legal references present in a small corpus of episodes of *The Good Wife* and then to investigate their TL translations in the Italian dubbed version. Sub-section 3.1 illustrates our methodology and Sub-section 3.2 presents the data used in the study.

3.1 Methodology

Firstly, a literature review was carried out to select the theoretical tools for the identification of legal references in our data. Ranzato's classification of cultural elements in audiovisual products (Ranzato 2010, 2016) can be usefully applied to the legal references found in TV dramas.[2] After carrying out an extensive review of taxonomies, Ranzato (2016, p. 66) proposes the following classification:

1. Source culture references
2. Intercultural references
3. Third-culture references
4. Target culture references

Source culture references may further be classified as either monocultural or microcultural references (Pedersen 2005). Monocultural references can be assumed to be shared by the whole source culture, such as the underlined items in Example 1, from the US series *Boston Legal*, centred around the professional lives of the lawyers working for the (fictional) Crane, Poole & Schmidt law firm in Boston.

ALAN SHORE	Your Honor, we have something called the <u>equal protection clause</u>, we have something called the <u>14th Amendment</u>.

Example 1
Monocultural references (*Boston Legal*, S1 E1).[3]

Microcultural references are specific to a sub-set of the source culture, such as a region or a given speech community. For example, in Episode 1 of Series 2 of *Shetland*, a police drama set in the eponymous Scottish archipelago, a murder investigation sees the involvement of the *procurator fiscal*, i.e. a Scottish public prosecutor; Scotland's Prosecution Service is called the *Crown Office and Procurator Fiscal Service*, shortened into *Fiscal Office* in Example 2. These two items can be considered microcultural references, because they are likely to be unknown to many viewers who live in other parts of the UK and, even more so, to those in other countries.

COURT CLERK	And here to address us on a matter that concerns us all is our <u>Procurator Fiscal</u>, Rhona Kelly.
RHONA KELLY	Good morning. First of all, I'd like to say it's a real pleasure to be invited here today to update you on certain changes in procedure in the <u>Fiscal Office.</u>

Example 2
Microcultural references (*Shetland*, S2 E1).

[2] In this paper, reference is made only to real-world references (or *realia*; see Vlahov, Florin 1969 in Ranzato 2010) and not to intertextual references (although the latter may also be found in legal dramas).

[3] S1 E1 means Season 1, Episode 1. Unless otherwise specified, all the examples in Sections 3 and 4 are mine.

Generally speaking, the more culture-specific a reference, the harder it is to find a degree of correspondence between source and target culture. By contrast, intercultural (or transcultural; Pedersen 2005) references are easier to transpose by their very nature, because they are shared by several cultures. In an episode of *The Good Wife*, the Lockart-Gardner law firm is involved in an arbitration hearing at the Court of Arbitration for Sport in Lausanne, an independent institution that deals with disputes in sport and is well-known internationally (Example 3). Intercultural references of this kind usually remain untranslated or have an official translation in the TL (in this case, "Tribunale arbitrale dello sport" or "TAS").

ELSBETH TASCIONI	<u>CAS</u> <u>Court of Arbitration for Sports</u>. Tell Will that the <u>CAS</u> doesn't run like an American court, okay? It has a whole set of rules based on Swiss law.

Example 3
Intercultural references (*The Good Wife,* S4 E12).

Third-culture references are related to a culture that is neither the source nor the target culture; their translation depends on the relationship between the third culture in question and the other two. For example, a reference to the *Royal Canadian Mounted Police* (the federal and national police service of Canada) in a US series is likely to be relatively familiar to American viewers, but less so to Italian viewers.

Finally, the SL dialogues may include references to the target culture (in our case, Italian): it is important to check that they are factually correct and that any explanations in the SL dialogues are not redundant for TL viewers (if they are, part of the TL dialogue may need to be re-written). In the English-language documentary film *Amanda Knox* (Rod Blackhurst and Brian McGinn, 2016) on the Meredith Kercher murder case, the Italian prosecutor assigned to the case is shown with a caption that says *lead prosecutor*. In the Italian version the caption reads "Sostituto Procuratore Generale"; clearly, the translator checked the official name of his post in the Public Prosecution Office in Perugia.

After classifying the legal references in the SL materials, a taxonomy of translation strategies was needed to analyse their translations in the TL dubbed dialogues. To this end, an overview of relevant literature on legal translation (Cao 2007; Megale 2008; Šarčević 1997) and audiovisual translation (Ranzato 2010, 2016) was carried out. Our starting point was Ranzato's list of strategies for the translation of cultural references (2016, pp. 83-84):

1. Official translation
2. Calque
3. Explicitation

4. Generalisation by hypernym
5. Concretisation by hyponym
6. Substitution
7. Lexical recreation
8. Compensation
9. Elimination
10. Creative addition

This classification was adapted to fit the translation of legal cultural references in dubbing, thanks to insights from the literature on legal translation. In particular, Cao (2007, p. 55) points out that in order to translate a legal term from one language to another, it is necessary to analyse the linguistic, referential and conceptual dimensions associated to that term.

> There are two major scenarios in translation here: firstly, when there are no existing equivalent concepts and words in the TL, that is, they are linguistically and conceptually absent, new words must be created or new meanings introduced; and secondly, when there are existing words in the TL that are linguistic equivalent to the SL, these words in the two languages may only carry partially equivalent meanings in law or sometimes may not be functionally equivalent in law at all.

In the first scenario, several translation strategies may be employed to introduce a new term in the TL; in the second scenario, when similar terms in the two languages do exist, their relationship may be one of near equivalence, partial equivalence or non-equivalence (Šarčević 1997, pp. 237-239).

The taxonomy presented in Table 1 summarises the above considerations and arranges translation strategies for legal references in audiovisuals in relation to their foreignising (source-text oriented) or domesticating (target-text oriented) effects (Venuti 2008, pp. 1-34).

Source-text oriented (foreignisation)	Target-text oriented (domestication)
Calque (formal equivalence)	Functional equivalence a) Near equivalence b) Partial equivalence
Loan	Periphrasis a) Explicitation b) Hypernym/ hyponym
Neologism	Omission
Substitution (with a more familiar SL element)	Compensation (in another part of TL dialogue)

Table 1
Taxonomy of translation strategies.

A typical foreignising strategy is the calque, which is a literal translation that provides formal equivalence between the SL and TL terms. For example, translating *US Department of Justice* as “Dipartimento di giustizia” does not attempt to convey the function of the American institution, but merely tells the TL audience that there is a body in the US with a similar-sounding name. A domesticating translation of the same item would be “Ministero della Giustizia”, the TL functional equivalent, namely “the concept or institution in the target legal system that has the same function as the concept concerned in the source legal system” (Šarčević 1997, p. 235). Clearly, in trying to establish equivalence, it is important to take into account both the original text type and the function of the translation; Sacco (1994, p. 490) highlights that in the Italian translation of an American crime novel it is perfectly acceptable to render *attorney* as “pubblico ministero” or *executor* as “esecutore testamentario”, but that these solutions would be inadequate in a legal document. In addition, the degree of functional equivalence may vary from almost complete to partial. For example, the sentence *the statute of limitations has expired* was rendered as “il reato è andato in prescrizione” in our corpus (*The Good Wife*, E9 S3); although the two legal concepts of *statute of limitations* and “prescrizione” only partially overlap (as the criteria for determining the maximum time for initiating legal proceedings vary widely in different legal systems), the Italian sentence gives viewers at least a rough idea of what is being discussed.

When a concise and efficient solution to a specific translation difficulty in a given scene cannot be found, the element in question may be omitted (omission) and/or reinserted later on in the TL dialogue (compensation). Clearly, domesticating strategies tend to transform the SL term into something more familiar and easier to understand for TL viewers. The easiest way to do this is to use a periphrasis, i.e. a definition or explanation of the SL concept, provided there is sufficient time for an elaborated TL expression; the choice of this strategy is sometimes facilitated by the presence of an explanation in the original version, as the SL audience may be just as unfamiliar with the legal term in question as the TL audience (see Section 2). If there are technical constraints (for example in close-up scenes), the use of a loanword is another possibility; of course, this has a foreignising effect and reminds the audience that they are, in fact, watching a foreign product. Both periphrases and loanwords were used in the Italian dubbing of the film *Wall Street* (Oliver Stone, 1987), in which two stockbrokers become involved in an insider trading scandal; the Italian dubbed version used both the original English term and an Italian periphrasis (“*speculazione con informazioni* *riservate*") in different scenes.[4] Finally, another foreignising strategy is the creation of a TL neologism, often used when there is a neologism in the SL text too.

To sum up, "[T]the final choice of one or another technique will depend on the particular source text, the translation's brief, the translation *skopos*, and the target language norms" (Chaume 2012, p. 146). In addition, the choice of the most suitable translation strategy depends on the role played by each legal reference in the specific audiovisual context in which it occurs. Therefore, an effective translation of a legal drama will include a mixture of domesticating strategies (to facilitate comprehension) and of source-text oriented strategies (to retain the "exotic" flavour of the original).

In order to gain a deeper understanding of the dubbing process and of the translation strategies adopted to convey the legal references in the SL series, the analysis of our data was complemented with interviews with the series translator (T), the dialogue adapter who worked on the first three seasons (DA1), the dialogue adapter who worked on Seasons 4, 5 and 6 (DA2) and the dubbing director (DD) who worked on Seasons 3, 4, 5 and 6. The interviews took place via individual phone calls between the end of January and the beginning of February 2015. The four interviews were semi-structured on the basis of an outline that was sent to the interviewees a few days in advance (to think about their answers or to go back to their translation/adaptation files and refresh their memory). There were a few introductory questions on their professional experiences in the dubbing industry, followed by some questions on the dubbing of *The Good Wife* and specific questions on a number of TL items identified in our analysis. After obtaining the interviewees' written permission, the interviews were recorded and transcribed.

3.2 Data set

The data analysed in this paper come from the *DubTalk* corpus, a collection of films and TV series whose original language dialogues and translated (dubbed or subtitled) versions have been transcribed according to specific conventions.[5] The resulting corpus includes TV series and films belonging to several genres, including sit-coms, costume dramas, dramedies and legal dramas. The transcription work was carried out with the help of our MA Interpreting and Translation students in their projects for the "Film Language

[4] The crime "*abuso di informazioni privilegiate*" was first introduced in Italy by Law 157 of 17 May 1991, and was then further specified in Legislative Decree 58 of 24 February 1998.
[5] For more details about the project and the corpus see: http://dubtalk.unint.eu

and Audiovisual Translation" module and in their audiovisual translation dissertations.

Although the legal sub-section of the DubTalk corpus also includes other well-known legal dramas such as *Boston Legal* and *How to Get Away with Murder*, by far the most popular choice among students was, unsurprisingly, *The Good Wife* (Robert King, Michelle King, 2009-2016). Indeed, *The Good Wife* is the most successful legal drama of recent years and has actually been credited with reviving the genre, thanks to its high quality (Grasso, Penati 2016, p. 212). It revolves around the private and professional life of Alicia Florrick, married to Peter Florrick, Cook County State's Attorney; when her husband is hit by a sex scandal and ends up in prison, Alicia is forced to go back to working as a lawyer after many years spent looking after her family. The basic storyline was inspired by a real-life event, i.e. the sex scandal involving the governor of New York, Eliot Spitzer, in 2008.

The series is characterised by fast-paced SL dialogues and fast editing; moreover, the language used in the dialogues features a mixture of "legalese" (in the work-related scenes) and every-day language (in all the scenes centred around the main characters' private lives). In her work for the prestigious Lockart-Gardner law firm, Alicia gets involved in both criminal and civil cases and the episodes present a very wide range of complex legal cases. The SL dialogues contain fixed formulae and stereotyped legal language, but also colloquial language and references to US current affairs, political figures, traditions, and so on. In this sense, this popular series is extremely interesting from a translational point of view.

There are currently 20 fully transcribed episodes of *The Good Wife* in the *DubTalk* corpus, with the original English dialogues and matching Italian dubbed dialogues. A comprehensive analysis of the legal references in these episodes is planned in the near future, but for reasons of space the data presented here are a subset of the corpus developed for a case-study in an MA dissertation (Pieracci 2014-2015). Eight episodes were selected because they focus on special legal cases; they introduce viewers to alternative dispute resolution methods (ADR, including arbitration and mediation), to military courts, to the Court of Arbitration for Sport, to cases of contact between different jurisdictions (UK-US) and even to a mock trial organised in a Law School. Such settings have seldom (if ever) been considered in previous studies on dubbing and were therefore singled out for the present paper. The selected materials are as follows (Table 2):

EPISODE TITLE	SEASON, EPISODE	DURATION (MIN.)	SL WORDS	TL WORDS
Heart-La vita in un attimo	S1 E17	44:09	4,539	4,120
Double Jeopardy-Doppia Condanna	S2 E2	43:16	5,257	4,844
The Death Zone-La zona della morte	S3 E2	41:42	5,964	5,518
Get a room-Le colpe, il prezzo	S3 E3	41:17	6,065	5,709
Whiskey Tango Foxtrot-Caprio Espiatorio	S3 E9	40:50	5,680	5,113
Blue Ribbon Panel-La casa del passato	S3 E19	41:50	5,938	5,175
Je ne sais what?-Lezioni di francese	S4 E12	41: 26	6,021	5,655
Red team, Blue team-Squadra blu, squadra rossa	S4 E14	42:00	6,037	5,592
TOTAL		5h 33min 30 sec	45,501	41,726

Table 2
Data from *The Good Wife* used in the study.

It must be stressed that the transcripts in the corpus are not merely the original and translated scripts of each episode; they are the verbatim records of the actual dialogue lines delivered by actors. The dialogues of a film or TV series usually differ from the original script, because lines may be improvised, changed or omitted during film shooting and whole scenes or individual lines may be cut or moved during film editing (in the post-production stage). Therefore, all the above data were produced by manually transcribing the episodes.

Before analysing the data in more detail in the next section, it is worth highlighting a few aspects of the translation and adaptation process that have emerged from the interviews (DA1 2015, DA2 2015, DD 2015 and T 2015).[6] Firstly, it is important to stress that the Italian dubbed version is the end product of a collective effort in a lengthy process and that the TL solutions analysed and commented in Section 4 were produced under time pressure. The translator had about 3 days to produce the draft translation of each episode and remarked that he tends to work on several series at the same time. The dialogue adapters had about a week to make the dialogues suitable for the dubbing studio, i.e. to adapt the lines to synchronisation requirements and to make them easier to deliver for the actors. The dubbing director did not specify the time available for the dubbing sessions, but stated that,

[6] DA1 (2015), Interview with the dialogue adapter of *The Good Wife* (seasons 1, 2, 3), personal communication, February 2015. DA2 (2015), Interview with the dialogue adapter of *The Good Wife* (seasons 4, 5 and 6), personal communication, February 2015. DD (2015), Interview with the dubbing director of *The Good Wife*, personal communication, January 2015. T (2015), Interview with the translator of *The Good Wife*, personal communication, February 2015.

although the pace has definitely increased over the last few years, in the case of *The Good Wife* the deadlines were reasonable.

As the data in Table 2 show, the Italian dialogues are characterised by a lower number of words in all the episodes: this is somewhat counter-intuitive, since the Italian adaptation of an English script tends to be longer and more linguistically complex (Alfieri, Bonomi 2012, p. 114). In this case, the American actors' high speaking speed and the fast editing of the scenes was the main reason quoted by the Italian dialogue adapters (DA1 2015 and DA2 2015) to explain the reduction: as the average Italian sentence is actually longer than the original, some parts of the dialogue had to be cut in the adaptation process, because the Italian dubbing actors could not physically fit the same amount of information in the time available for the delivery of their lines.

As regards the translation process itself, the translator (T 2015) pointed out that the SL dialogue lists provided by production companies vary widely in terms of quality and that there are often factual mistakes in them; therefore, before the actual translation can begin, it is necessary to check the transcripts against the video and correct any errors to avoid reproducing them in the TL text. In order to facilitate this process, many translators use the subtitles produced by fansubbers (if available) as a potential source of information for tricky items; however, as they are produced by non-professional translators, there can be errors in them too, so they cannot be taken at face value. In relation to the specific challenges posed by legal terms, the translator of *The Good Wife* explained that he consulted legal dictionaries (but did not find them particularly useful) and looked up on the Internet any references he did not understand. His solutions were then checked for inconsistencies or inaccuracies by a lawyer during the adaptation phase and also by another lawyer consulted by the dubbing director.[7] Finally, RAI (the Italian state broadcaster) also had a lawyer to check the work and advise on specific items, such as English loanwords. This process was followed for the dubbing of the first few seasons, while in later ones it was felt that everyone involved had developed sufficient familiarity with the series and its terminological problems. Finally, one of the adapters (DA2 2015) remarked that she developed her own glossary of translation solutions and that she always consulted the other adapter(s) when more people were working on the same season, to ensure terminological consistency. The latter aspect is especially important when working on specialised series, as there are always frequent terms and expressions whose translations must be preserved from one season to another.

[7] No information is available on the origin and specialisations of the above-mentioned lawyers; therefore, it is impossible to say whether they are Italian lawyers working in international settings or American lawyers working in Italy.

After this brief overview of our methodology and data, it is time to illustrate the main results of our analysis.

4. Analysis of dubbing strategies

As mentioned in Section 3, the first step in our analysis consisted in classifying all the cultural elements in the corpus and then identifying those of a legal nature. The data in Table 3 show that, predictably, the vast majority of references in the corpus are related to US culture, but there are also some third-culture ones that are related to the United Kingdom.

REFERENCES	OCCURRENCES
SL culture-specific terms (US)	203
Intercultural references	3
Third-culture references (UK)	10
TOTAL	216

Table 3
Cultural references in corpus data.

Out of a total of 216 cultural references, 156 were of a legal nature. The 50 non-legal references concerned US current affairs, American history, politics, newspapers, sports, music, and so on; although it was certainly interesting to see how they were rendered in the Italian dubbed version, they are not included in the present analysis.

The translations of the SL legal references were analysed by applying the taxonomy of translation strategies presented in Table 2, to check their respective frequency. Table 4 presents the breakdown of results both in terms of raw frequency and in percentage.

TRANSLATION STRATEGIES	OCCURRENCES	PERCENTAGE
functional equivalence	71	45.5%
periphrasis	44	28.2%
formal equivalence	26	16.8%
neologism	8	5.1%
omission	4	2.5%
loan	2	1.2%
substitution	1	0.6%
TOTAL	156	100

Table 4
Translation strategies for legal references

Overall, the prevalent translation approach was domestication, with functional equivalence and periphrasis being the two most frequent strategies used in our corpus. What follows is a more in-depth look at our results.

The most commonly used strategy was the use of a functional equivalent, with 71 cases (45.5%). This strategy was chosen to transpose all the references to legal roles in civil and criminal trials; for example, the term *plaintiff* was translated in different ways in different episodes, depending on the context. In in an episode focused around a libel suit, *plaintiff* was translated as "ricorrente", the near equivalent in an Italian civil court. In another episode dealing with a health insurance company refusing to provide coverage to the plaintiff for a special type of surgery, the term is translated as "richiedente", a term used in Italian administrative courts (partial equivalence). Finally, *plaintiff* was translated as "querelante" (generally used in Italian criminal trials) in an episode focused on a civil lawsuit linked to a criminal case; this solution works well from the point of view of lip-synch requirements, as Example 4 shows. Will Gardner, one of the partners in the Lockart-Gardner law firm, delivers the following line in a close-up shot and the initial phonemes in the word *plaintiff* give his mouth a shape that is highly compatible with the Italian word "querelante".

WILL	Yes. Represent that <u>plaintiff</u>. We'll represent Thief. The Thief CEO wants to see how the case goes before he pulls the trigger on a real trial.	Sì. Voi rappresenterete il <u>querelante</u>, noi la Thief. Vogliono verificare la strategia prima di imbarcarsi in un vero processo.

Example 4
S4 E14.

In other cases, in the absence of technical constraints it was possible for the Italian translators to opt for the standard TL terms used in arbitration proceedings and criminal hearings, respectively. Thus, in an episode taking place at the Court of Arbitration for Sport (a female) *defendant* became "convenuta" (the term used in Italian arbitration procedures), but in another episode dealing with a criminal case the translator correctly opted for "imputato". Likewise, although the criminal trials depicted in *The Good Wife* take place according to the adversarial system, key terms such as *prosecution* and *State's Attorney* were replaced by the terms used in the Italian legal system, namely "Accusa" (when referring to public prosecution during the trial) and "Procura" (when referring to the institution). Moreover, in order to make it clear that the story takes place in the US and not in Italy, the full name of the prosecution office in the series, *State's Attorney Office*, was translated as "Procura di Stato", a term modelled on the Italian "Procura della

Repubblica" to establish functional equivalence (other options found in the dialogues include "Procura" and the personified "Procuratore di Stato").

Another interesting case is the wide range of terms used in the SL dialogues to refer to lawyers, which were almost all translated as "avvocato". Table 5 includes all the occurrences of the SL terms found in the corpus (in all the 8 episodes under study) and their TL translations.

SL TERM	OCCURRENCES	TL TERM
Counselor	2	Avvocato
Attorney	14	Avvocato
Lawyer	45	Avvocato
Barrister	4	3 Avvocato Ø[8]
Solicitor	3	Procuratore

Table 5
Terms designating lawyers.

Although there are significant differences in the work of an American lawyer and that of an Italian "avvocato", there is certainly a relationship of near equivalence between the two terms. The word *counselor*, used in court as an appellative, was also translated as "avvocato", because in Italian there is no separate word. *Attorney* implies that the person in question is an American lawyer, whereas the terms *barrister* and *solicitor* designate two different types of lawyers in the UK. Indeed, this difference plays a key role in one episode centred around a libel case tried in an English court via videoconference link; participants included a UK judge (in his court in England), a solicitor and two attorneys (in a conference room at Alicia's law firm). Here it was very difficult to convey the contrast between American and British legal terminology to Italian viewers, as is evident in Example 5. The fact that the terms *barrister* and *solicitor* designate professionals with a different training background and different roles (with barristers generally representing clients in court and solicitors usually working in an office carrying out behind-the-scenes duties) does not emerge clearly in the TL version.

[8] The symbol Ø indicates the absence of a TL translation; in this case the fourth occurrence of the word "barrister" was omitted in the Italian dubbed version.

ALICIA	Okay. Um, so you are the barrister that Danny hired. Is that correct?	Ah, capisco. E quindi è a Lei che Danny ha affidato il patrocinio legale? Dico bene?
MR BRANNON (laughs nervously)	Actually, no. The solicitor. Not as posh as a barrister, but we try harder. Sorry, I'm a bit punchy. Just, uh, first trip to the States. You know, just off the plane Where are the Olsen twins?	Veramente sono procuratore. Gli avvocati sono di lusso, ma noi ci impegniamo di più. Scusi era una battuta. Vede… è il mio primo viaggio qui, sono appena arrivato. Dove sono le gemelle Olsen?

Example 5
S3 E2.

Barrister was translated via a periphrasis ("è a Lei che Danny ha affidato il patrocinio legale", which roughly translates as "the person entrusted with legal representation"), the second most frequent strategy in the corpus; in Mr Brannon's line, *solicitor* was translated as "procuratore", which is ambiguous because it can also refer to public prosecution.

Another example of a periphrasis (via a hypernym) can be seen below, where the *blue ribbon panel* mentioned by Diane Lockart (a partner in the legal firm where Alicia works) is generalised as "commissione di esperti": it is a committee of independent experts who are appointed to investigate a controversy (in our episode, a police shooting) and there is no equivalent in Italian.

DIANE	I just got a call asking me to sit on a blue ribbon panel, and, uh, as you can see, I'm, uh, fairly busy. It's a routine civilian review of an IPRA, Independent Police Review Authority. It's a police shooting. They asked for a replacement, and I suggested you.	Mi hanno appena chiesto di partecipare a una commissione di esperti e… come vedi, ho piuttosto da fare. Si tratta di una revisione senza complicazioni su un caso disciplinare del corpo di polizia: eccesso di difesa. Mi hanno chiesto una sostituta e ho suggerito te.

Example 6
S3 E19.

Moving on to the third most frequent strategy, formal equivalence, it must be noted that it may result in the creation of new meanings for existing TL words. An example is the literal translation of the term *motion*, translated as "mozione" six times (and only twice as "istanza", the nearest equivalent in the Italian system). This has become the standard translation of the term in legal dramas and is therefore familiar to Italian viewers, who are probably unaware that the Italian word "mozione" comes from parliamentary terminology and is not used in court. Clearly, this calque was motivated by lip-synch requirements. The same strategy was applied to the translation of the appellative *Your Honor*, which over the years has created the expression "Vostro Onore" (see Section 2).

MR HARPER	Uh, Your Honor, we're asking for a delay of eight hours. Our lead attorney was caught unaware by this emergency motion.	Ah, Vostro Onore, noi chiediamo un rinvio di otto ore. Il nostro avvocato non si aspettava questa … mozione d'urgenza.

Example 7
S1 E17.

A much less frequent strategy was the invention of a neologism (eight cases). In American law firms, equity partners are the highest-ranking lawyers who co-own the firm and share the profits. In Italy, lawyers may work as sole proprietors or in association with other lawyers, but there is no exact equivalent of the American term: thus, "socio partecipato" in Example 8 is a neologism.

DAVID LEE	So, the partners had a change of heart. If you still want to be an equity partner, we want you.	Allora: i soci hanno avuto un ripensamento, se vuoi ancora diventare socio partecipato, sei dei nostri.

Example 8.
S4 E14.

There were only four cases of omission in the corpus. Example 9 shows that this strategy is useful to shorten the TL translation and ensure isochrony; at the same time, it can be safely adopted when the context makes the meaning of the reference clear. Here, the TL viewers know that the people on the claimant's witness list are being examined, and there is no need to repeat *claimant*:

MR BRANNON	Your Lordship, given the circumstances, we ask that Miss Cox be removed from the claimant's witness list.	Vostra Eccellenza, date le circostanze chiediamo di escludere la signora Cox dalla lista dei testimoni.

Example 9
S3 E2.

Loans were very infrequent in the corpus (only two cases). As one of the dialogue adapters pointed out in her interview (DA1), the public broadcaster has the final say on the presence of English words in the dialogue; when it is felt that comprehension may be hampered, an Italian TL solution is found. Here is an example involving an acronym that is probably obscure to SL viewers too: therefore, it is spelt out by lawyer Will Gardner and then explained by private investigator Kalinda. There is no need to think of a creative solution in Italian, since the translation of Kalinda's line is sufficient to ensure comprehension.

WILL	It's an acronym. PAM. Policy application management.	È un acronimo. P.A.M. Policy Application Management.
KALINDA	It's an off-site group of Life State employees who look for application mistakes, but only after expensive claims were filed.	Topi della Life State che cercavano errori nelle polizze e che venivano utilizzati in caso di richieste di indennizzi ingenti.

Example 10
S1 E17.

Finally, only one case of substitution was found, in which a SL reference was replaced with another one that is more familiar to the TL audience. In the extract below, the term *bond court* was replaced by "udienza per la cauzione", which is actually the translation of *bond hearing*. In the US, a release from pre-trial detention is possible by requesting a bond hearing in court, in which the judge sets a bail amount to be deposited to the court (if the accused cannot afford to pay, a bail agent can post the bond amount for them, for a fee). This mechanism does not exist in the Italian legal system.

ALICIA	Your Honor, we request that you allow Ms Tascioni to be taken to bond court currently in session down the hall.	Chiediamo che autorizzi la signora Tascioni a essere portata all'udienza per la cauzione nell'altra aula.

Example 11
S4 E12.

To conclude the analysis, it is useful to have a look at the translation of fixed formulae, which play such a key role in legal dramas; they include appellatives to address the various parties in a trial, phrases that judges use to open, direct and close proceedings, formulae used by lawyers to interrupt or contradict the other party, and so on. In dubbed legal dramas their translation is usually as literal as possible (formal equivalence) for two main reasons: firstly, there are often lip-synch constraints, as courtroom scenes are usually the key ones in each episode, with frequent close-ups on the faces of lawyers, judges, defendants and victims; secondly, in many cases there is no actual equivalent in Italian, as the legal procedure is different (see Section 2). For example, in American criminal trials viewers always see a jury made up of lay people who issue a verdict, while in Italy lay people sit on a jury only in specific cases (very serious crimes tried in the Corte d'Assise) and the jury also includes judges. The exchange between judge and jury at the end of an

American trial (*Members of the jury, have you reached a verdict?*, followed by the answer) has no equivalent in the Italian system. Similarly, Laudisio (2015, p. 192) notes that in the Italian legal system the seriousness of a murder is not classified by degree as it is in the American system: yet, the translation of *first-degree murder* "[...] will be *omicidio di primo grado* in 100% of the cases, simply because this is the formula which is generally accepted by an Italian [...] audience who is watching a US legal drama".

A similar example in our corpus is *objection/* "obiezione", often accompanied by *Your Honor/* "Vostro Onore", a fabrication of Italian dubbing: in Italian courts, a lawyer would say something along the lines of "voglio sollevare un'eccezione, signor giudice". Of course, the fact that the audience heas a different expression in legal dramas is justified by the setting: viewers know that the story is set in a different country and therefore expect an American lawyer to address the judge using a different phrase. In our corpus the term *objection* was found 28 times and was often accompanied by a specification, as can be seen in Table 6.

SL EXPRESSION	TL EXPRESSION
Objection on ground of relevance.	Obiezioni per motivi di pertinenza.
Objection. It's not within her expertise.	Obiezione, non rientra nelle sue competenze.
Objection, relevance.	Obiezione, irrilevante.
Objection! Badgering the witness.	Obiezione. Tormenta la teste.
Objection, Your Honor. Mr Agos is not on the defense witness list.	Obiezione, il signor Agos non è nella lista dei testimoni della difesa.
Objection, beyond the expertise.	Obiezione, va oltre le sue competenze.
Objection, Your Honor, calls for speculation.	Obiezione, Vostro Onore, sono supposizioni.
Objection, Your Honor. Vague.	Obiezione, Vostro Onore, poco chiaro.
Objection. Counselor is testifying.	Obiezione. L'avvocato sta testimoniando.
Objection, Your Honor. Prejudicial.	Obiezione, pregiudizievole.

Table 6
Occurrences of "objection" and related TL translations in the corpus.

All the above formulae were translated as literally as possible. The judge's decision on an objection, i.e. either *sustained* (i.e. accepted) or *overruled* (denied), was also translated via a collocation common to all courtroom dramas, namely "obiezione accolta" and "obiezione respinta" (see Section 2).

Another typical fixed formula found in the corpus is the oath-taking. It is interesting to note that the Italian translation is literal up to the direct reference to God, which in the TL version always becomes an imperative ("Dica 'lo giuro'"). The religious reference was probably felt to be controversial or a little strange when the TL translation was first devised, so the above version has now become an established stock phrase.

CLERK (voice)	Do you swear to tell the truth, the whole truth and nothing but the truth, so help you God?	Capitano Gauthier, giura di dire la verità, tutta la verità, nient'altro che la verità? Dica "lo giuro".

Example 12
S2 E2.

Other examples of fixed formulae found in the corpus include the phrase used by lawyers when they have finished examining a witness or defendant (*no further questions/* "non ho altre domande") and the one used by the jury foreperson at the end of a trial (*we find the defendant guilty-not guilty/* "noi dichiariamo l'imputato colpevole-non colpevole"). Audiovisual translators have very little leeway when dealing with such items, as decades of watching dubbed legal dramas have transformed certain TL expressions into standardised translations typical of the genre.

5. Conclusions

The analysis conducted on our corpus has highlighted a few interesting patterns. Firstly (and predictably), the majority of legal references were related to the US legal system and culture, with a few references to a third culture (the United Kingdom) and a few transnational references that were related to specific storylines. As the US and Italy have very different legal traditions, this posed significant challenges to the translators and dubbing adapters; however, the long tradition of broadcasting American legal films and TV series in Italy facilitated their task, to an extent, thanks to the existence of a few standardised translations for frequent SL terms and fixed legal formulae.

The most frequently employed translation strategies were the use of a functional equivalent, followed by a descriptive translation (periphrasis) and the use of a formal equivalent (a calque); all the other strategies, including neologisms, loans and substitutions, were used very sparingly. This confirms that, overall, the driving principle behind the Italian dubbed version is domestication in order to facilitate comprehension for the TL audience and (hopefully) ensure maximum enjoyment. However, there was also a significant presence of calques (formal equivalence), which have a foreignising effect and remind the audience of the origin of the series. This was confirmed in the interviews: DA2 explained that the overarching goal is always to ensure plot comprehension, whilst at the same time staying true to the spirit of the original series. However, given the cultural differences between the US and Italy and the mismatch between the legal systems of the two countries, it may be necessary to create a neologism to transpose certain

SL legal terms, thus making up a TL term that sounds legally plausible to the Italian audience.

The analysis has shown that the TL dubbed version of *The Good Wife* contributes to the Italian audience's familiarisation with American legal culture. However, the extent to which dubbed products actually allow access to the US legal system needs to be investigated much more thoroughly via focused reception studies. Indeed, the present study was entirely based on an analysis of the end-product, but did not include any evaluation of audience reception. During the collection of the legal corpus for *DubTalk*, a small-scale pilot study (Sandrelli 2015) was carried out on 46 university students who were shown 4 sequences from the Italian dubbed version of *The Good Wife*; they were required to rate their comprehension of each clip and to explain a number of culture-specific items, including some legal references. The study found that the students frequently overestimated their comprehension of the scenes and that several US legal references were, in fact, misunderstood. This seems to indicate that larger, more robust studies of this kind are required on a much wider cross-section of the TL audience to investigate to what extent miscomprehension of culture-specific items can be caused by TL translation choices. Such studies would contribute to identifying critical issues in translation and, hopefully, to improving translation practices, thus ensuring that dubbed legal dramas provide not only entertainment but also better awareness of the source culture.

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FOREIGN TRANSLATORS AS A MEANS OF ENDORSING CHINA ENGLISH USED IN CHINA'S OFFICIAL POLITICAL TEXTS
A case of the English translation of Xi Jinping's report to the 19th CPC national congress

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Abstract – Xi Jinping's report to the 19th National Congress of the Communist Party of China (CPC), held between 18 and 24 October, 2017, was translated into nine foreign languages, including English, with 'professional foreign translators' introduced and covered in some Chinese media reports. Yet, the focus of such media coverage was more on the translators' endorsement of Xi's thoughts and achievements than on the quality of the translations (e.g. Huang, Liu and Hao 2017). Arguably, the introduction of the foreign expert in English could be described as an unusual move since China has hailed its 'China English' as a new English variety and has it used widely in the translation of the CPC political texts. This study starts with the introduction of China English, presents the China English usage in the official English version of Xi's report, and reveals the endorsement role of the foreign language experts through a multimodal analysis of the relevant media coverage, which not only uncovers the CPC's ideology in using China English but also shows how the 'visibility' of translators may help achieve the political aim of those in power.

Keywords: the CPC 19th National Congress; China English; ideology in translation; foreign translator; political endorsement.

1. Introduction

The 19th National Congress of the Communist Party of China (hereinafter the 19th CPC National Congress), held between 18 and 24 October 2017, has seen the Chinese President Xi Jinping reaching the peak of his power and reputation, with the 'Xi Jinping Thought on Socialism with Chinese Characteristics for a New Era' written in the CPC's history and Xi hailed as the most powerful and capable leader since Mao Zedong (Campbell 2017). To better communicate Xi's thoughts, foreign language experts were invited to help translate Xi's report to the 19th CPC National Congress into nine foreign languages, namely English, French, Russian, Japanese, German, Spanish, Portuguese, Arabic, and Lao (Huang, Liu, and Hao 2017). The participation of these foreign language experts was described as “a historic breakthrough” (Ye 2017), with the English version of the report highly acclaimed as “powerful” (Chen 2019, p. 5). Arguably, the introduction of the foreign English expert was an unusual move since the Chinese government has made ‘China English’ used politically in a top-down manner (Jin 2002, p. 72) and hailed it as a new English variety with Chinese characteristics that can better communicate China’s image and elements to the world, help China resist Anglo-American cultural hegemony, and further win China the power of discourse against a backdrop of English used as the world’s lingua franca (Chang 2017).

To investigate whether the use of the foreign language experts might be meant to boost the status and acceptability of China English, this chapter will first introduce the features and nature of China English. Next, I will review and analyse the official English version of Xi’s report to the 19th CPC National Congress to see whether this highly-acclaimed version, the success of which has been claimed to be partly (if not largely) attributed to English language expert Holly Snape, contains China English translations. This will be followed by a multimodal analysis of China’s official media coverage of the foreign language experts involved in the translations of Xi’s report, with a special focus on the English language expert. By examining the image and role of these foreign translators hired by the Chinese government, the results of the study shall facilitate a clear understanding of the use of China English in China’s external propaganda and provide insights into how the ‘visibility’ of translators may help achieve the political aim of those in power.

2. The development and purposes of China English

The concept of China English was first proposed by Ge Chuangui in 1980 (Ge 1980) and then elaborated by Li (1993, p. 80) into “[a language] mainly used as an international language in China, with Chinese borrowings, nativised lexicology as well as unique syntax and discourse structure as its major features, [which] contributes much to the international communication”. In brief, China English is different from Chinese English; the former is deemed as English with Chinese social and cultural characteristics, while the latter is similar to pidgin English or known as Chinglish (Jiao 2009). In detailing the difference between Chinglish and China English, Jin (2003) points out that Chinglish is a result of negative influence of the user’s mother language (Chinese), is unstable, involves constant self-correction, and varies with individuals, while China English is relatively more stable, has rules to follow, and is learned and shared on a collective basis. Furthermore, Chinglish may be used to express anything that is inside or outside China, while China English is meant to introduce and communicate the cultures and things with Chinese characteristics (Tu 2006, p. 84).

Since the 1980s, there has been a growing trend towards recognition of China English (e.g. Wu 2008). Although a few Chinese researchers are worried that China English, which is deviant from standard English, may hinder intercultural communication (Qiu, Ning 2002), it is widely maintained that the use of China English can enhance China's international status, promote Chinese culture to the world, strengthen Chinese national identity and solidarity, contribute to expansion of English vocabulary, and suit China's social reality (e.g. Jiao 2009; Luo 2010). Consequently, Chinese translators and interpreters are urged to deal with Chinese-English translation by using China English, which, as Chinese translation researchers argue, retains complete cultural meanings and characteristics of Chinese words (Jin 2001, p. 16; Bao 2008; Luo 2010, pp. 54-6), increases China's cultural status and influence on the international stage (Lin 1999), demonstrates the confidence of Chinese translators/interpreters in their domestic culture (Bao 2008, p. 322), and makes translation from Mandarin Chinese into English easier (Luo 2008, p. 97).

2.1. China English translation strategy and ideological implications

China English translation is largely based on the 'foreignising' strategy or tendency, which leads to such commonly adopted translation approaches as transliteration, literal translation, or transliteration/ literal translation with explanation. Yet, there are no definite rules for creating China English usage at either lexical or syntactic level (Chang 2017, pp. 419-20). Some Chinese academics point out that transliteration of Chinese words and phrases, or zero translation, may be used deliberately to keep the meaning of the translation ambiguous when translators or interpreters are not authorised to interpret terms produced by Chinese leaders, such as the case of *bu zheteng* (meaning *do not get sidetracked*) in a press conference of Chinese former president Hu Jintao in 2008 (Zhu, Zhang 2011, p. 68). Zhu and Zhang make it clear that remarks or speeches of Chinese leaders are "authoritative discourse in the same category as sacred texts," and, therefore, translating such texts becomes a political act that cannot be performed without the consent of the authority (Zhu, Zhang 2011, p. 71). This explicitly indicates that the ideology of the authority matters most in deciding what translation strategy should be adopted in China English contexts.

Meanwhile, those China English expressions that are not transliterated or literally translated from Chinese but produced according to English grammatical rules may be created with deliberation and carry significant cultural and political implications. One typical case is the translation guidelines involving the One China principle towards Taiwan. Specifically, in cross-strait context, China must be referred to as ‘the mainland’ as opposed to Taiwan regarded as an ‘island,’ thus making it clear that there is only one China (He, Li 2011, pp. 8-9; see also the discussion of Example 3 for more translation guidelines regarding the One China principle). The semantic nuances, which might seem trivial to people outside China, are actually viewed by China as a means to safeguard its national interest and image and to better achieve the goals of propaganda (e.g. Chen 2013).

2.2. China English in China’s external propaganda practices

As China English concurrently fits the official stress on ‘Chineseness’ of China’s foreign propaganda since 1980, it is heavily used in external propaganda under the political patronage of the Chinese government (Chen, Li 2013). Some Chinese researchers even suggest that the enhancement and widespread of Chinese culture through China English is not only the “subjective appeal” of Chinese people but also the “objective demand” and “inevitable trend” in inter-ethnic cultural exchange at the global level (Chen, Li 2013, p. 110). Yet, a few Chinese academics still hold negative views about the use of China English in external propaganda. Zhang and Meng (2007, pp. 135-6) maintain that some, if not many, political and cultural terms with Chinese characteristics are “mechanically” translated into English by following the original form of the Chinese source text, which may cause misunderstanding among non-Chinese people, and that Chinese translators should free themselves from the form of the source text and seek to get the original meaning across. To avoid confusing foreign audiences, Hong and Wang (2011, p. 124) consider that translators and interpreters must know the target audience of China’s publicity campaign and bear in mind the difference between Chinese and the Others. Some other academics adopt a moderate yet pro-CPC thinking, saying that while using Anglo-American English in Chinese official propaganda may appeal to Western audiences, safeguarding Chinese national interest and image remains the top priority, and that preserving Chinese characteristics and values in the propaganda translation can better achieve the propaganda goals (e.g. Chen 2013).

While the formation of China English is regarded as a significant breakthrough in Chinese-English translation practice in that China English can help Chinese people better introduce everything with Chinese characteristics and meet the need of the Others to know China (Jin 2001, p. 13), the main source of China English terms is the English texts released by China’s official media (Jin 2002, p. 72). Tang (2013) analyses the English versions of the reports on the work of the Chinese government, which are official annual reviews of the Chinese public sector’s results, and finds China

English heavily used to create English equivalents of words and phrases with Chinese characteristics, particularly in terms of China's national policy, principles, and propaganda slogans. This indicates the ever-growing number of culture-loaded phrases, neologisms (for policies), and shortened form phrases in China English. Judging from the English documents released by Chinese official translation agencies and institutions, such as the Central Compilation & Translation Bureau (CCTB), Translators Association of China (TAC), China International Publishing Group (CIPG), and China Academy of Translation (CATL), as well as Chinese official media agencies, such as Xinhua News Agency and Beijing Review, China English remains the CPC's linguistic instrument in promoting China and its ideology (e.g. Xu 2003; Bai, Cao 2018; Qiu 2018).

Also noteworthy is that China English is conducive to unifying Chinese social ideology and maintaining China's territorial integrity (Jin 2001, p. 14), which is why the English texts released by Chinese authorities also target the general public in China in the name of promoting English learning and translation (Hung 2002, p. 331). In Jiang and Xu's study that reveals China's ideological and political education curriculum since the mid-twentieth century and the present paradoxes of civic and political education in China's higher education institutions (2014), Chinese university students are nowadays said to be mostly resistant or reluctant to learn in ideological and political classes. This might mislead outsiders to expect poorer results of the Chinese government′ s ideological and political indoctrination in the twenty-first century. In fact, nowadays Chinese people may unknowingly develop and reinforce their identity towards the CPC and the CPC's policy by learning the China English slogans and texts released by Chinese authorities since China English terms and sentences included in such English texts have been widely made the materials for English language teaching and examinations at each level (e.g. Mu 2018) and for the China Accreditation Test for Translators and Interpreters (CATTI) (e.g. CIPG Training Center 2019).

3. China English translations in the official English version of Xi Jinping's report to the 19th CPC National Congress

Although many Chinese researchers attribute the success of the English version of Xi's report to the 19th CPC National Congress to the involvement of the foreign English language expert (e.g. Huang 2018), according to some Chinese translators and officials who participated in the translation in question, the translation team was mainly composed of Chinese translators recruited from China's Ministry of Foreign Affairs, the International Liaison Department of the Central Committee of the CPC, Xinhua News Agency, the China International Publishing Group (CIPG), China Radio International (CRI) and some universities noted for foreign language and media communication expertise (Li T. 2018, p. 9). Also, CPC document translators must be linguistically competent and politically sensitive enough to increase international expressions of China's intentions, facilitate the international communication of China's political discourse, and use political expressions with Chinese characteristics that are unique to China instead of catering to foreign readers (Jia 2015, p. 93; Li T. 2018, p. 14). As pointed out by one Chinese translator and reviewer from China's Central Compilation & Translation Bureau, the chief organisation in charge of the translation of the 19th CPC National Congress documents, the foreign language experts were invited only to "polish" the translations of Xi's report, and their involvement was considered to achieve good results in terms of "polishing the translations, improving the translations of the important concepts, and increasing the influence on the translation target readers" (Li T. 2018, p. 10). It is further specified that having these foreign language experts give interviews to Chinese and foreign press media not only facilitated "the international communication of the spirit of the 19th CPC National Congress" but also helped "tell China's stories in a vivid way and spread China's philosophy" (Li T. 2018, p. 10). Such insider information about the role of the foreign language experts is contradictory to what has been displayed in the video clips and news reports on these foreign language experts, in which these experts were indicated to be the chief translators of the report (see also the following section). Some Chinese academics even speak highly of the foreign language experts, for they have "provided standard and authentic foreign language versions of the 19th CPC National Congress report" (Li N. 2018, p. 44). Yet, a cross-referencing of the official English version of Xi's report and a book entitled *Keywords to Understand China (Vol. 1)*, which, published in 2016, was the result of joint efforts of China International Publishing Group and China Academy of Translation under the patronage of the Chinese government, shows that 28 out of the 90 keywords collected in the book were used without changes or with very slight changes in the official English version of Xi's report (CIPG, CATL 2016). These keywords are culture-loaded phrases or sentences, such as "It takes good blacksmith to make good steel" (CIPG, CATL 2016, pp. 46-7), or neologisms for policies, such as "1992 Consensus" (CIPG, CATL 2016, pp. 102-3). This is not unusual in China as when it comes to political expressions produced by previous CPC leaders or on previous occasions, CPC document translators are urged to inherit the translation legacy (Li T. 2018, p. 14), which means that the way in which some political expressions were translated may mostly remain in later translations. In the following are three other much-discussed China English translation examples found in the official English version of Xi's report that may give us a clearer picture of the ideological nature and function of China English.

- Example 1

  三严三实 (Xi 2017a, p. 7)

  (Literally: *three strictness and three earnestness*)

  the Three Stricts and Three Earnests (Xi 2017b, p. 6)

According to footnote 2 in the English full text of Xi's report (2017b, p. 6), the full meaning of the "Three Stricts and Three Earnests" is "to be strict with oneself in practicing self-cultivation, using power, and exercising self-discipline; and to be earnest in one's thinking, work, and behavior." This political slogan was first proposed by Xi Jinping in 2014 and previously translated into the "Three Guidelines for Ethical Behavior and the Three Basic Rules of Conduct" (CIPG, CATL 2016, p. 48-51) or "the Three Stricts and Three Honests" (China.org.cn 2015). Clearly, in the official English version of Xi's report, the term was literally translated by using China English. Some Chinese researchers maintain that it is tedious and discouraging readers from seeing the point of this political idea if its meaning is fully rendered into English, and that the refined China English term can better attract attention of readers, who later can understand the term by referring to an explanatory note (Fang 2019, p. 120). It is ungrammatical in English to use the adjectives in a plural form, which, however, is typical of China English usage. One previous similarly structured term "Three Represents" (the title of former Chinese President Jiang Zemin's political theory) was hailed as a "reasonable innovation" by the Chinese translators of the CPC documents and said to have been accepted by the international community (Xu 2003, p. 2).

- Example 2

  照镜子、正衣冠、洗洗澡、治治病 (Xi 2017a, p. 7)

  (Literally: *looking in the mirror, straightening clothes and hats, taking a bath, and treating illnesses*)

  ...examining ourselves in the mirror, tidying our attire, taking a bath, and treating our ailments (Xi 2017b, p. 6)

The parallel-structured metaphorical terms were first proposed by Xi Jinping in 2013 as the code of conduct for the CPC members, demanding them to follow the CPC constitution and requirements, to meet people's expectations, to reflect on and correct one's own misconduct, and to help cleanse the CPC of misconduct and corruption (Xu, Zhou 2013). Since then, the terms have been literally translated into "Watch from the mirror, groom oneself, take a bath and seek remedies" (China Daily 2013) or something similar. Some Chinese researchers maintain that these China English terms, produced through literal translation, are considered to "retain the form, content, and figure of speech of the Chinese language", which helps communicate the Chinese culture to the world and allows foreigners to "have a deep understanding of the guidelines and policies that are with Chinese characteristics" (Jiang, Gong 2019, p. 60). However, intriguingly, in some online articles that highlight must-learn English expressions from the 19th CPC National Congress report, this example is found to be translated into "look into the mirror, straighten the attire, take a bath and seek remedies" (China Daily 2017), which is different from that in the official English version of the report. Another more intriguing phenomenon is that some English expressions that are regarded as excellent translations by Chinese researchers are not from the report in question but were produced beforehand, such as "双一流double first-class initiative" (e.g. Ye, Zhang 2018, p. 33). Here it seems that spreading the ideology matters more than learning English or studying translation, which echoes my discussion about the ideological nature and function of China English in the previous sections.

- Example 3

  解决台湾问题、实现祖国完全统一，是全体中华儿女共同愿望...必须继续坚持 "和平统一、一国两制" 方针... 承认 "九二共识" 的历史事实，认同两岸同属一个中国，两岸双方就能开展对话，协商解决两岸同胞关心的问题，台湾任何政党和团体同大陆交往也不会存在障碍。(Xi 2017a, p. 55; my underlined emphasis)

  (Literally: Solving the Taiwan issue/question and realising the motherland's complete unification is the shared wish of all Chinese people... [We] must continue to insist on the policy of 'peaceful unification, one country two systems,' … Recognising the historical fact of the '1992 Consensus,' recognising the two sides across the [Taiwan] Strait belong to one China, and then both sides across the [Taiwan] Strait can enter into dialogue and negotiate over solving the problems that concern the people of both sides. There will be no obstacles to the exchanges between any political party or group of Taiwan and [China's] mainland.)

Resolving the Taiwan question to realize China's complete reunification is the shared aspiration of all Chinese people… We must uphold the principles of "peaceful reunification" and "one country, two systems," …Recognize the historical fact of the 1992 Consensus and that the two sides both belong to one China, and then our two sides can conduct dialogue to address through discussion the concerns of the people of both sides, and no political party or group in Taiwan will have any difficulty conducting exchanges with the mainland. (Xi 2017b, pp. 50-1; my underlined emphasis)

As indicated by the terms underlined above, the translations involving the One China principle towards Taiwan are exactly following the guidelines for China's translators. '台湾问题' must be rendered into the 'Taiwan question' as the word 'issue' implies the controversy over the One China principle (Guo 2002, p. 60). Also, China seeks 'reunification' instead of 'unification' with Taiwan as China maintains that Taiwan has long been part of China and that Taiwan is now a renegade province of China (Hong and Wang 2011, p. 123). The fact that the phrase 'one country' (a bigger unit) precedes 'two systems' (smaller units) goes against English grammatical rules, but this is meant to highlight 'one country' as the focus of the political term (Du 1997, p. 55). China must be referred to as 'the mainland' as opposed to Taiwan regarded as an 'island' in cross-strait context, thus reinforcing the subordinate status of Taiwan to China (He, Li 2011, pp. 8-9). Last but not least, as if all the China English terms regarding the One China principle shown in this example were not enough for China to assert its 'right' to Taiwan, the first person plural possessive pronoun 'our' was added to the term 'two sides.' As the One China principle towards Taiwan has been constantly stated and repeated by China's leaders, Example 3 may be described as nothing but a translation formula, which further indicates that the foreign English language expert invited to join the English translation project of Xi's report might play no part here at all. Then, why have the terms such as 'one country, two systems,' 'reunification,' and the 'Taiwan question' still been specified and discussed as model translations from the English version of Xi's report in many journal or online articles (e.g. He 2018, p. 99)? Again, it is very likely that the policy and ideology of the Chinese government are being spread and reinforced through discussion of these 'model' translations.

4. The image of the foreign language experts involved in the translations of Xi's report to the 19th CPC National Congress, with a focus on the British translator

Following Xi Jinping's oral report to the 19th CPC National Congress, on the same day, Xinhua News Agency, China's largest and most influential state-run press agency, released news coverage introducing nine foreign language experts who participated in the translation of Xi's report to the 19th CPC National Congress. The coverage included a video clip, individual photos of the nine experts, and their views on Xi's report (Huang, Liu, Hao 2017). A few more similar news reports on these foreign translators then appeared on some of China's other official press outlets, such as China Central Television (CCTV), China Global Television Network (CGTN), and New China TV (the official YouTube Channel of Xinhua News Agency). To investigate how China's state-run media built up the image of the foreign translators, a multimodal analysis is used to examine the video clips and the individual photos of foreign English language expert Holly Snape. This subject is chosen because the English version of Xi's report is the most widely discussed and promoted in China, the British translator enjoyed more media coverage than her other foreign counterparts, and this chapter focuses on China English translations instead of the translations in other foreign languages.

A multimodal analysis is a social semiotic approach that focuses on how visual signs are used in combination and discovers the covert or overt visual statements. A tool kit was first developed by Kress and van Leeuwen (2006) to break down and analyse visual compositions such as photographs, advertisements, schoolbooks and so on, thus arriving at the (re)construction of the meaning of the components, arrangements, and qualities of these visual signs and uncovering more subtle or complex implications. Kress and van Leeuwen (2006) point out that human communication is seldom achieved by a single mode of communication; instead, more than one mode of communication, such as visual signs, sound, and language, may be used simultaneously to put together a jigsaw puzzle of meanings. The units of multimodal analysis go beyond oral and written language and further include acoustic and visual signs, thus broadening the examination or detection of how the world is ideologically structured and likely achieving a well-rounded and educated inference about manipulated statements.

Figure 1
A screengrab of the photo of British translator Holly Snape released by Xinhua News Agency (Huang, Liu, Hao 2017).

As shown in Figure 1, Snape, also known as a *represented participant* in multimodal analysis, does not directly face or look at viewers (or *interactive participants* as opposed to *represented participants*) (Kress, van Leeuwen 2006, p. 114). Instead, she is looking at one absent interviewer, which puts the interactive participants in a position of observation. This means no direct contact is established between the two kinds of participants (Kress, van Leeuwen 2006, p. 117), with the represented participant offered to the interactive participants as an "item of information" or a "specimen in a display case" (Kress, van Leeuwen 2006, p. 119). Meanwhile, the fact that the represented participant is smiling demands the interactive participants to establish an imaginary relation of social affinity or to "form a pseudo-social bond" with the former (Kress, van Leeuwen 2006, p. 118). As Snape is cut off at approximately the waist, the size of frame is the medium close shot with far personal distance (Kress, van Leeuwen 2006, pp. 124-125). Furthermore, Snape is presented from an oblique but horizontal angle, which indicates she is not part of the interactive participants' world yet she is not powerful or threatening; the detachment simply makes her "a phenomenon to be observed" (Kress, van Leeuwen 2006, p. 138). In terms of Snape's appearance, her blonde hair, white skin, and slim figure make her fit the stereotype of a beautiful female native speaker of English in Chinese society, and her side swept hairstyle reinforces her feminine, elegant image. The Chinese caption below the photo reads "This is English language expert Holly Snape giving an interview in Beijing (photographed 14 October). Photographed by Xinhua News Agency reporter Jin Liangkuai," which only highlights the interviewee as an expert. Above the photo, Snape is quoted as saying "Even as a foreigner, I also can feel the determination behind the report and the important thinking it contains," which has nothing to do with her translation task but is very similar to what her other foreign counterparts are quoted as saying. For instance, the Spanish language expert Josep-Oriol Fortuny Carreras is quoted as saying "The report conveys very clear philosophy. This is a long-term planning. It shows both the CPC and Xi Jinping know very clearly what China needs and how the goals should be achieved." In fact, the news article mainly shows that these foreign language experts are full of praise and admiration for Xi Jinping and his report (Huang, Liu, Hao 2017).

Figure 2
A screengrab of British translator Holly Snape being interviewed
in the video clip on the nine foreign language experts released by Xinhua News Agency
(Huang, Liu, Hao 2017).

Figure 2 is a screengrab of Snape being interviewed in the video clip embedded in the same news report discussed above. She is depicted as an 'expert' as the set-up for her is the 'breast pocket shot,' with her name, country of origin, and job title superimposed on the screen; here the distance between the represented participant and the interactive participants signifies "respect for an authority" on English translation (Kress, van Leeuwen 2006, p. 126). In this three-minute-twenty-second-long clip, Snape appears for only about six seconds, and she says in a low and soft voice, with her head nodding and hands moving, "People who understand China in Britain will kind of understand the report and its content. In a very tiny way, I'm doing my best to do that." Her vivid and earnest looks should win trust and affinity from the interactive participants. Here in the clip she talks about her expectations of this translation task and does not mention anything about the translation process, while the other foreign experts express their recognition of the CPC and the report and even anticipate China's success in making itself and the Chinese nation great in the near future.

Another video clip posted by New China TV, the official YouTube Channel of Xinhua News Agency, is entitled "Meet 1st foreign readers of China's Party Congress report" (New China TV 2017), with English subtitles, and the subtitles shown on the first two frames are "The 19th CPC National Congress report has been translated into 10 languages" and "This is what 8 language experts had to say about it." This time, Snape appears longer, for approximately 17 seconds. As indicated by the screengrab of the clip (see Figure 3), this video clip is likely to have been shot on the same day as the previous video clip as Snape's appearance and attire remain the same. She says in the clip, "To me that says that China is really kind of trying hard to communicate with the rest of the world. I am really glad I can do some part to try to help that." Apart from her recognition of China, her words here seem to be paraphrasing what she says in the previous video clip.

Figure 3
A screengrab of British translator Holly Snape being interviewed
in the video clip posted by New China TV (2017).

Still another two-minute-thirty-two-second-long video clip about these foreign language experts released by China Global Television Network (CGTN) focuses mainly on Holly Snape, interlaced with a few voiceless frames of the other foreign language experts (CGTN 2017). As suggested by the title of the video clip shown in Figure 4, "Discovering Chinese culture through political translations and family life," Snape first talks in Mandarin Chinese about her life experience as a foreign woman marrying into a Chinese family. This part lasts for about 30 seconds, followed by two other parts regarding her positive impression and opinion about Xi's report and China's future success. Then, the last part is about the translation difficulties she has encountered, which is to convey in English the rich language, strong ideas, tempo, rhythm and feelings of the report. In this video clip, she still does not look directly at the interactive participants, but she tilts more to the front and smiles or grins more often. This enables her to establish a relation of more social affinity with the interactive participants but remain a detached language expert. Also, the first part about her family life in China reinforces her image as a China hand, which further enhances the credibility of her identification with and recognition of the CPC and the report.

Figure 4
A screengrab of British translator Holly Snape being interviewed
in the video clip posted by CGTN (2017).

As shown by the multimodal analysis results, the focus of the media coverage of the foreign language experts has been more on the translators' endorsement of Xi's thoughts and achievements than on the translation quality or strategy (e.g. Huang, Liu, Hao 2017).

5. Conclusion

Around a decade ago, China scholar David Shambaugh doubted whether the CPC could continue to control Chinese society through "a mish-mash of slogans that few understand or believe" (Shambaugh 2008, p. 58) and suggested that China's external propaganda work, which "remains clumsy, rhetorical, propagandistic, and relatively unsophisticated," should "hinder its soft power" (Shambaugh 2013, p. 268). Now, as indicated by the analysis results of this study, the CPC and the use of China English in its external propaganda have been progressing and keeping up with the time. The involvement of the foreign language experts in the translations of Xi Jinping's report to the 19th CPC National Congress and the media coverage of these experts have made the foreign language versions of Xi's report an unprecedented success as a political document. Better yet, what these foreign language experts have endorsed is not only the CPC's policy and ideology but also the legitimacy and appropriateness of China English as a variety of English. Perhaps before long, the ideological implications behind the CPC's promotion of China English may go further towards what South Korean researcher Kyoo-Seob Lim has suggested in his study of the CPC's ideology with Chinese characteristics:

> The Communist Party of China sinicises both 'traditional culture' and 'Western values' so that, on the one hand, it can insist on demonstrating Chinese characteristics in its own way, while, on the other hand, it can actively participate in the development of globalisation and further deconstruct the West-centred globalisation. Through this process of sinicisation and participation in globalisation, the Communist Party of China is telling Chinese people: globalisation is not exclusive to the West and Chinese people are entitled to participate; globalisation is no longer the West's globalisation and should be China's globalisation. (2004, p. v; my translation)

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ACCENTS AND STEREOTYPES IN ANIMATED FILMS
The case of *Zootopia* (2016)

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Abstract – Language variation is an extremely useful tool to convey information about a character, even when this means playing with stereotypes, which are often associated to some dialects and sociolects (Lippi-Green 1997). Accents generally bear a specific social meaning within the cultural environment of the source text, this being the main reason why they are often particularly difficult to translate with varieties of the target language, even though there are several cases where this strategy proved to be a valid choice, especially in animation (Ranzato 2010). Building on previous research on the language of cartoons (Lippi-Green 1997, but also more recently Bruti 2009, Minutella 2016, Parini 2019), this study is aimed at exploring language variation and how this is deeply connected to cultural stereotypes in the animated Disney film *Zootopia* (Howard *et al.* 2016). After giving an outline of the social and regional varieties of American English found in the original version (Beaudine *et al*. 2017; Crewe 2017; Soares 2017) a special focus will be given to the Italian adaptation of the film through the analysis of the strategies chosen by adapters to render a similar varied sociolinguistic situation in Italian, with particular interest in the correspondence between language and stereotype.

Keywords: sociolinguistics; accents; AVT; dubbing; animation.

1. Introduction

In the field of sociolinguistics, it is now widely accepted that language has a "clue-bearing" role, that is to say that it contributes to give information on the speaker's identity on the basis of his/her idiolect. This means that when someone speaks, we are likely to develop our own ideas about his/her social background, geographical origin, ethnic belonging, age, etc. (Trudgill 2000, pp. 1-3). Language variation is such an important social marker in everyday life that cinema often relies very much on it in order to depict contemporary society and to build strong individual identities for characters through language. However, audiovisual dialogue is a written text made to be spoken, that is why it can only rely on some devices to imitate spoken language as closely as possible, but it will always have some differences with it (Gregory

1967; Kozloff 2000). There is no doubt, however, that language variation is an extremely useful tool to convey information about a character, even when this means playing with stereotypes, which are very often associated with some dialects and sociolects. In this sense, language varieties can be considered as "lingua-cultural elements", particularly difficult to translate into other languages. It is often argued by scholars that the employment of other regional varieties in translation could give rise to grotesque effects, but there are several cases (see Section 2) in which such strategies have proved to be interestingly creative, especially in animation (Pavesi 2005, p. 38; Chiaro 2008, pp. 9-13, and 2009, pp. 158-159; Ranzato 2010, pp. 54-60).

This article is aimed at exploring language variation and how this is deeply connected to cultural stereotypes in the animated Disney film *Zootopia* (Howard *et al*. 2016). After providing an outline of the social and regional varieties of English found in the original version, mentioning characteristics and significance according to the characters that employ them, a special focus will be given to the Italian dubbed version of the film through the analysis of the strategies chosen in this particular case by adapters to render a similarly varied sociolinguistic environment in Italian, with particular interest in the correspondence between language and stereotype.

Zootopia was chosen because stereotypes, race and racism are the main topics of the film, whose portrayed relationship between predators and preys stands for the race-related problems in US society (Beaudine *et al*. 2017, p. 231). This is also confirmed by Nielsen, who argues that "the anthropomorphism of animals in animation provided filmmakers with the ability to reflect and reinforce contemporaneous social structures and behaviors" (2019, p. 68). Moreover, as stated by Crewe (2017, p. 30), different kinds of discriminations are here indirectly conveyed through language.

As regards methodology, the investigation started with the repeated viewing of the film and with the consequent selection of pivotal scenes from the point of view of language variation. Analysis of the transcription of the English dialogues followed, taking into consideration phonological, lexical and morphosyntactic features; online comments by native speakers and the still sparse academic research on the film by other scholars were of much help in this phase. Finally, an even closer examination was carried out on the Italian adaptation of the film, by listing all the scenes where characters speaking an Italian dialect appear and providing an analysis of the main linguistic characteristics and the social meaning that they bear.

2. Accents and dialects in animated films: AVT strategies

As mentioned in the introduction, film dialogue is written with the aim of imitating natural conversation, and various strategies and elements can be employed to give the dialogue a specific function; for example, language can be exploited to "reveal characters", using Kozloff's words (2000, pp. 43-46). Kozloff also argued that in cinema we can often hear the so-called "clichéd dialects", which, by locating the character's sociocultural identity, lead directly into stereotyping (2000, p. 82). While spectators usually link accents and dialects to some kind of personal features and stereotypes, creators generally tend to rely on these social prejudices intentionally, since linguistic variation is frequently used for purposes of humour, as their conspicuous use by comedians all over the world confirms. According to Hodson,

> Language variety is one of the ways in which stereotypes can be triggered. […] 'matched guise' tests demonstrate that listeners have strong associations between particular varieties of English and the personal qualities of individuals. This explains why filmmakers find language variety such a convenient tool for sketching in character background: it exploits the audience's existing preconceptions about the people who use that variety. However, it also explains why using language variety in this way can so quickly slide into character stereotyping (2014, pp. 66-67).

Even though cartoons are further from reality than live-action films, dialogues are built to be as close as possible to reality in this genre too, and usually humour is precisely one of the greatest motives of their creation. As a matter of fact, accents and dialects are frequently employed in animation to trigger humour, but also to convey some specific connotations. For instance, British English in cartoons and in Hollywood films is often chosen to connote evil characters, whose sense of austerity is generally in contrast with the friendly American accent of the protagonist. This connotation has received attention by Ranzato (2018a, pp. 242-243 and 2018b, pp. 223) and it can also be observed in the dedicated section of the corpus-based website *Dialects in Audiovisuals*,[1] where we find listed as examples Cruella de Vil in *101 Dalmatians* (1961), Scar in *The Lion King* (2000), Lady Tremain in *Cinderella* (1950), Maleficent in *Sleeping Beauty* (1959), Jafar in *Aladdin* (1992), Captain Hook in *Peter Pan* (1953), Edgar in *The Aristocats* (1970) (Ranzato *et al.* 2017).

[1] The *Dialects in Audiovisual* website is a repository of files on films and TV series whose main characters speak a social or regional variety of British English, categorised according to their function in the dialogue. The project, coordinated by Irene Ranzato, was inspired by the *Trafilm* project on multilingual films (http://trafilm.net/) and can be visited at https://dialectsinav.wixsite.com/home/.

A detailed analysis of Disney films and their large use of accents and dialects has been carried out by Lippi-Green (1997/2012), who discovered some general tendencies in the use of different varieties for specific types of characters:

> Characters with strongly positive actions and motivations are overwhelmingly speakers of socially mainstream varieties of English. Conversely, characters with strongly negative actions and motivations often speak varieties of English linked to specific geographical regions and marginalized social groups. Perhaps even more importantly, those characters who have the widest variety of life choices and possibilities available to them are male, and they are speakers of MUSE[2] or a non-stigmatized variety of British English. […] Even when stereotyping is not overtly negative, it is confining and misleading (Lippi-Green 1997, 101).

Connotations and stereotypes linked to language are almost always culture-specific, which is the reason why translating dialects, sociolects and the representation of 'otherness' in general (Di Giovanni 2007; Iaia 2018) is undoubtedly one of the hardest tasks for translators. In fact, replacing a source language variety with a target language one could give origin to undesirable and grotesque effects. As a consequence, the most common strategy when translating regional and social varieties is that of omitting them in favour of the standard language; in other words, "a common strategy to deal with variation is simply not to deal with it and homogenize it into the standard, mainstream variety of the target language" (Chiaro 2008, 23).

There are, nevertheless, some very interesting exceptions of popular and iconic creative translation strategies in Italian dubbing, such as the imaginary dialect used by Eliza Doolittle in the Italian adaptation of *My Fair Lady* (a mix of Central and Southern Italian dialects) and the common use of Sicilian dialect to render the Italian-American accents of some characters in films like *The Godfather* (Parini 2009 and 2019; Ranzato 2010, 58). It is in animation, however, that we find more creative adaptations in terms of language variation. The most popular one is the Italian dubbed version of the red cat Thomas O'Malley in *The Aristocats* (1970), known in Italy as Romeo, characterised by his marked use of the Roman vernacular. Thomas/Romeo is considered to be a remarkable exception in the field of the analysis and translation of audiovisual dialogue not only for the creativeness of its Italian dubbing, but also because in this case neither his socially-marked US English in the original version (he uses several features that are generally associated to working class) nor his diatopic variety in Italian are negative

[2] The acronym MUSE (Mainstream US English) includes all the US varieties which are not stigmatised in social or regional terms (Lippi-Green 1997, pp. 85-87).

characterisations, as pointed out by Bruti (2009). Even Lippi-Green, however, had identified O'Malley as an exception to her results on the accent of main characters, arguing that his sociolect is to be ascribed to the fact that he is included among the "rough lovers, […] who need the care and attention of good women to settle them" (2012, 126).

A similar example of use of Italian regional varieties in dubbing with no negative connotations is Tony's Neapolitan in the second dubbed version of the 1955 film *Lady and the Tramp*, which replaced the Sicilian characterisation of the first version with the aim of eliminating any connotation that this variety had acquired in that period, following its use in mafia-related films (Rossi 2006, 325-327).

This tendency of including regional varieties in the Italian dubbed version can also be found in more recent animated films (not Disney productions, in these cases), such as *Shark Tale* (2004), where Sicilian and Neapolitan accents can be heard (Bianchi 2010; Parini 2019) and *Gnomeo & Juliet* (2011), adaptation of the Shakesperean tragedy *Romeo & Juliet*, where the opposition between the two families is reinforced in the Italian dubbed version by the opposition between Northern dialects and Southern dialects (Minutella 2016; Bruti and Vignozzi 2016). As argued by Minutella (2016), the translation into Italian of *Gnomeo & Juliet* constitutes one of the most interesting translations characterised by the creative use of regionality:

> the dialogues of the Italian version are extremely creative. Interviews with dubbing professionals have revealed that they are the result of an adaptation process by many rewriters, and also of improvisation while dubbing. This operation was aimed at increasing the humorous load of the lines, at making the film more entertaining. *Gnomeo & Giulietta* is thus a creative attempt at conveying humour through language variation, and of a collaborative effort by all the dubbing professionals involved in the final Italian version, who playfully engaged with the linguistic resources of regional Italian and local dialects (ibid., 252-253).

Minutella (2016) also adds that this greater freedom in cartoons in dealing with accents and dialects when translating regional varieties of the original is probably due to the fact that in animation the audience expects to find less verisimilitude than in other genres, which may stick more closely to reality. Ferrari similarly argues that regional accents "simply offer an additional humorous element in the already abundant range of extravagant sound effects common in animation" (2011, p. 45), referring to *The Simpsons* (1987-present), which is, together with *South Park* (1997-present), the greatest example in animation for television of use of regional and social varieties in the Italian translation, aimed at increasing the comical effect of some characters.

3. The case of *Zootopia*

Zootopia is a 2016 animated comedy film produced by Walt Disney Animation Studios. It is the 55th Disney animated feature film and it was directed by Byron Howard and Rich Moore and co-directed by Jared Bush. It received a very positive critical response and earned several accolades and awards, such as the 2017 Academy Award for Best Animated Feature. As far as its audience reception is concerned, it crossed the $1 billion box office mark, becoming the third Disney animated film to do so.[3]

The film is set in a world populated by anthropomorphic animals that apparently live peacefully together despite belonging to different species. The protagonist is Judy Hopps, a bunny, who moves from her rural birthplace to the big city of Zootopia in order to make her dream of becoming a police officer come true. Although nobody seems to believe in her, she is eventually the academy valedictorian and starts her job as police officer in the city, while still struggling with her chief's and colleagues' prejudice about her tiny physical appearance and for being a female. In order to do that, Judy volunteers to solve the case of the disappearance of Mr Otterton, one of the fourteen predators who have recently been missing. With the help of Nick Wilde, a con artist red fox, she finds out that all of the animals were imprisoned because they had become aggressive due to an injection of a drug made of night howler, a type of flower that has severe psychotropic effects on mammals, as part of a conspiracy conceived by the little sheep Dawn Bellwether, the mayor's assistant, who wanted to discredit predators in order to create a society based on the supremacy of the preys.

Various scholars have discussed the main topic of the film as being discrimination in general, from racism to sexism and their related stereotypes, underlining how language can be a key tool for discriminating (Beaudine *et al*. 2017; Crewe 2017; Soares 2017; Nielsen 2019). As argued by Beaudine *et al*.,

> Through Zootopia, Walt Disney Animation Studios has created a utopian space for mammalian creatures, where predators and prey live side by side in harmony; a space "where anyone can be anything." Zootopia attempts to utilize the literary device of metaphor to explore stereotypes, race and racism; the consequences of one's actions; and the power that one being's beliefs can hold. Disney Animation uses both the physical appearance and the ethos of a variety of mammals in order to extend their racial metaphor.
> (…) Grand themes woven throughout the film address a number of relevant discussions to be had with students, including how to live in a world chock full

[3] Visit *Box Office Mojo* for further information: https://www.boxofficemojo.com/release/rl4031743489/ (last accessed 4/09/2020).

of stereotypes, race, and racism; that consequences come with an action; and that there is power in one's beliefs (2017, p. 227).

3.1. Accents in the original version

Following the detailed analysis conducted by Soares (2017), the two most striking American accents that we find in the film are Southern American English and African American Vernacular English, both stereotypically related to a given kind of characters. The former is usually linked to ignorance and lack of education (Lippi-Green 2012, pp. 214-234), and speakers are often labelled as "dumb" and "uneducated" (Wolfram, Schilling 2015, p. 79); the latter is generally linked to lower classes too, but more specifically to criminals (Lippi-Green 2012, pp. 182-213). It is not by chance, then, that a character coming from a rural environment speaks with a Southern accent (Gideon Grey, voiced by Phil Johnston) and a robber/smuggler employs an Afro-American one (Duke Weaselton, voiced by Alan Tudyk). While the character of Duke Weaselton is dubbed in Italian with a regional accent which is often linked to the same stereotypical feature and which, for this reason, will be analysed in the following section, Gideon Grey's way of speaking is rendered with a standard accent in Italian, where the character's idiolect was maintained through the use of the stuttering.

Gideon: Hey, Judy. **I-I**'d just like to say **I**'m sorry for the way I behaved in **my** youth. **I-I** had **lotta** self doubt that manifested itself in the form of unchecked rage and aggression. I was a major jerk.	**Gideon:** Ciao, Judy. Voglio solo dirti che mi dispiace per come m-mi sono comportato da piccolo. A-avevo molte insicurezze e le mascheravo manifestando aggressività e una rabbia incontrollata. Ero proprio un idiota.
Judy: Well, I know a thing or two about being a jerk.	**Judy:** Aah… io so bene che vuol dire essere un idiota.
Gideon: Anyhow, I brought **y'all** these pies.	**Gideon:** Be', comunque i-io ho portato queste torte.
Mr Hopps: Hey, kids! Don't you run through that *midnicampum holicithias.*	**Signor Hopps:** Ehi, bambini! Non passate sopra le *midnicampum holicithias.*
Gideon: Well, now. There's a four-dollar word, Mr. H. **My** family always just call them N**i**ght Howlers.	**Gideon:** Accidenti, che nome complicato, signor Hopps. A casa mia li hanno sempre chiamati Ululatori Notturni.
(*Zootopia,* 2016, min. 1:18:19)	(*Zootropolis,* 2016, min. 1:18:19, adaptation)

Table 1
Southern American English in *Zootopia*.

Southern American English is of course a vague label that includes different kinds of Southern dialects, but Lippi-Green finds the monophthongisation of /ai/ to /a:/ as a phonological particularity shared by all of these varieties (2012, p. 214). The character of Gideon Grey, as pointed out by Soares (2017, p. 29), provides several examples of this feature, as shown in the excerpt above (Table 1) in the words *I* [a:], *my* [ma:] and *night* [na:t]. In the same scene, his speech also presents a phonological assimilation in "a lot of", pronounced [ˈlɑtə] (rendered in the excerpt as *lotta*, in an attempt at eye dialect) and the use of *y'all* (contracted form of "you all") to indicate the second-person plural (Soares 2017, pp. 27-29), which are other two distinctive features of Southern American varieties.

As mentioned above, Gideon Grey comes from a rural area of the animal world of Zootopia, a characteristic which is well represented, stereotypically, in his idiolect, but it is interesting to note that although Judy shares the same social and geographical background (and actually her parents do have a slight accent), she speaks a perfect General American variety, which was also noted by the audience as some online comments show.[4] This could be due to the creators' will to show that she is neither dumb nor uneducated, as a Southern American accent usually suggests, but that, on the contrary, she is smart and well-educated. In fact, "one of the primary characteristics of the stereotyped Southerner is ignorance, but it is a specific kind of ignorance – one disassociated from education and literacy" (Lippi-Green 2012, p. 223). This situation seems to be part of a tendency in Disney films, whose main characters are most likely to speak a standard form of English despite their social background, probably because they need to be seen as positive characters, and standard forms are traditionally considered the "best" (Lippi-Green 1997, p. 101).[5]

Apart from American English varieties, Soares (2017) identifies some other accents in the film, which she calls "foreign accents". In this group three characters are included: the pop star Gazelle, voiced by the popular singer Shakira, who for this reason has a Latin American accent; Mr Big, a crime boss shrew voiced by Maurice LaMarche, who stereotypically speaks with an Italian American accent, as a reference to Mafia-related films (a feature which will be examined in the following section); Chief Bogo, a buffalo who is the chief of the Zootopia Police department, voiced by Idris

[4] See https://www.reddit.com/r/zootopia/comments/du5org/what_specific_type_of_accent_does_gideon_grey_have/ (last accessed 9/12/2019).

[5] The scholar mentions as iconic examples *Aladdin* (1992) and *The Lion King* (2000), where the protagonists have a standard American accent, while some of the secondary characters' accents are used to locate the situation in a specific place (Arabia in the first case, Africa in the second).

Elba, a British actor whose accent[6] – even though he is not a negative character (see Section 2) – conveys austerity and formality, which is a coherent choice for the character's status. The most noticeable main features of his accent are the way he pronounces the letters "r" and "t", which are also the traditional features that distinguish British English from American English. In particular, in the excerpt in Table 2 below, we can hear how /t/ is clearly pronounced when between two vowels, such as in words like *priority, Delgato* and *duty*, instead of being "flapped" as it happens in American English; moreover, when the sound /r/ comes before consonants or at the end of the word it is totally omitted: *first* /fɜːst/, *birthday* /bɜːθˌdeɪ/, *care* /kɛə/. Interestingly, while the r-dropping is highly prestigious in the UK, it is rather a lower-class marker in the US (as in the case of Duke Weaselton, as shown in the following section).

Chief Bogo:
Everybody, sit. I've got three items on the docket. Fi**r**st, we need to acknowledge the elephant in the room. Francine… Happy bi**r**thday.
Number two, there are some new recruits with us I should introduce, but I'm not going to because… I don't ca**re**.
Finally, we have 14 missing mammal cases. All predators, from a giant polar bear to a teensy little ott**er**. And City Hall is right up my tail to find them. This is priori**ty** number one. Assignments. Officers Grizzoli, Fragmire, Delga**t**o: your teams take missing mammals from the Rainforest District. Officers McHorn, Rhinowitz, Wolfard: your teams take Sahara Square. Officers Higgins, Snorlof, Trunkaby: Tundratown.
And finally, our first bunny, officer Hopps… parking du**t**y. Dismissed.

(*Zootopia*, 2016, min. 15:00)

Table 2
British English in *Zootopia*.

3.2. Language variation in the Italian adaptation

Zootopia was released in 2016 in Italy with the title *Zootropolis* and its dubbing was entrusted to SDI Media Italia under Massimiliano Manfredi's direction. The Italian dialogues are particularly interesting because they constitute an example of how the employment of Italian regional varieties can be a valuable strategy to render humour and give clues as to the characters' personality and social background despite the risk of reinforcing negative stereotypes.

[6] As argued by Dore (2020) and confirmed by online comments by native speakers, (see, for example, https://www.quora.com/What-are-the-different-accents-used-by-different-animals-in-Disneys-movie-Zootopia, last accessed 4/09/2020), Elba here affects a South-African accent to characterise the African buffalo, but since it is very mild and sounds rather English to an American audience, it appears safe to affirm that it conveys the same "sophisticated" effect.

The first example that we encounter is Duke Weaselton, already mentioned in the previous section, a criminal weasel that has stereotyped original accent and is translated with a Neapolitan accent in the Italian version:

Judy: Stop, in the name of the law!	**Judy:** Fermo! Fermo in nome della legge!
Duke: Catch me if **ya** can, cottontail! (…)	**Duke:** Prendimi se ci ri**e**sci, coda a fiocco! (…)
Judy: You! Stop! Excuse me… excuse me… pardon…	**Judy:** Tu! Fermo! Scusate… permesso… scusate… permesso…
Duke: Bon voyage, flatfoot!	**Duke:** **Statt'** bu**on'**, ah **sh**birro!
Judy: Hey! Stop right there!	**Judy:** Ehi, fermo dove sei!
Duke: Have a donut, copp**ah**!	**Duke:** Beccati la ciambella!
FruFru: Oh my God, did you see those leopard print jeggins? *(she screams)*	**FruFru:** Oh mio Dio, av**e**te visto quei jeggins leopardati? *(grida)*
Judy: Oh! *(she catches the doughnut)* I love your hair…	**Judy:** Oh! *(afferra la ciambella)* Bella acconciatura…
FruFru: Aah… thank you…	**FruFru:** Aah… grazi**e**…
Duke: *(he giggles)* Come to papa!	**Duke:** *(ridacchia)* Bella di papà.
(*Zootopia*, 2016, min. 28:40)	(*Zootropolis*, 2016, min. 28:40, adaptation)

Table 3
African American English in *Zootopia* and Neapolitan accent
in its Italian adaptation.

Different previous studies on language variation in *Zootopia* have come up with different perceptions on Duke Weaselton's accent: while Soares identifies his speech as an African-American Vernacular one (2017, p. 30), Dore (2020) briefly mentions he speaks with Brooklyn accent. Basing on these two insights and the fact that the two accents generally share several features, one may suggest that the character speaks African-American New York English (Blake *et al.* 2015, pp. 288-291), but in order to make a safe assertion, a deeper study including interviews with the filmmakers, the dubbing-actor Tudyk and the audience would be needed. What is interesting for this study is the fact that Tudyk is neither Afro-American nor from New York, so he intentionally tried to affect an accent that would be associated with the world of criminality. Some of the features that he adopts are the use of the non-standard *ya* for “you” and the non-rhotic pronunciation of the colloquial word “copper” (associated with the working-class in the US – see Section 3.1). Furthermore, Soares (2017, p. 31) adds that in other scenes he also uses th-fronting and ng-coalescence (*nothing*: [nʌfın] instead of /nʌθɪŋ/).

The accent of Naples often has similar negative connotations in Italy, associated with robbery and smuggling. Perhaps this is why the character of Duke (whose surname in the adaptation becomes Donnolesi) is dubbed by the Neapolitan comedian Frank Matano (see Table 3), who emphasises his accent using [e] instead of /ɜ/ (*riesci*), the metaphony in the word *buono* ([bwon] instead of /bwɔno/) and the affrication of preconsonantic /z/ in the colloquial word *sbirro* ([ʃbir:o] instead of /zbir:o/) (Sobrero, Miglietta 2006, p. 93). The dubbing team’s choice to hire Matano for the part (and, perhaps, to ask him to emphasise his accent) was undoubtedly controversial. After the film was released, representatives of the *Movimento Neoborbonico* – a cultural association promoting Southern pride in Italy – complained about the fact that the film enhanced “unjustified” and “intolerable” negative clichés about Neapolitans (Armiero 2016).

In the scene above we also meet FruFru, daughter of the shrew mobster MrBig, who is dubbed by the Sicilian comedian Teresa Mannino. The use of the Sicilian regiolect in Italian dubbing is a widely employed strategy to translate the Italian-American accent (whose use in cinema was explored by Haller 1987), as shown by Parini (2009, 2019) in her analysis on the transposition of this language variety. The Italian adaptation of *Zootopia* apparently followed this tradition.

As shown in Table 4, in the Italian dubbed version FruFru’s accent is only marked in the use of [ɜ] instead of /e/ in several cases (*avevi*, *promesso*, *ieri*, *gigantesca*), even in final position making it sound almost an /a/ (*che*, *grazie*), while her father uses many other regional features (see Table 4) like the affrication of /s/ (*rispetto* [riʃpɜt:o]), [g] instead of /k/ (*casa*, *mancato*), the consonant doubling in initial position (*generosità*, *rivedere*), the affrication of the cluster /tr/ pronounced as [tʃr] (*trovare*, *mentre*, *costretto*) and the r-dropping when it is at the end of a syllable (*perché* [pek:e]) Mr Big’s idiolect is also marked on a morphosyntactic level through the use of the possessive *mea* (instead of *mia*, which, on the contrary, is used as a complement pronoun in Sicilian, like the Italian *me*) and *cu’* instead of the question word *cosa* (Sobrero, Miglietta 2006, p. 93; Parini 2019, p. 258). It is interesting to point out that, contrarily to what happened with the characterisation of Duke as a Neapolitan speaker, the use of the Sicilian regiolect for a mob boss did not trigger any formal protest or resentful reaction. Parini observed that even in the case of *Shark Tale* there were no indignant reactions and, as the scholar suggested, further research in the field of perception studies may offer interesting views on the hypothetical reasons (2019, p. 260).

Mr Big: I trusted you, Nicky. I welcomed you into my home. We broke bread together. Grandmama made you a cannoli. And how did you repay my generosity? With a rug made from the butt of a skunk. A skunk-butt rug. You disrespected me. You disrespected my grandmama, who I buried in that skunk-butt rug. I told you never to show your face here again, but here you are. Snooping around with this… What are you? A performer? What's with the costume?	**Mr Big:** **I'** mi fidavo di te, Nicky. Tu sei stato accolto in **g**asa mia. Hai mangiato alla mia tavola. La nonna t'ha preparato i cannoli. E tu come ricambi la mia **g**generosità? Con un tappeto fatto con le chiappe di una puzzola. Mi hai man**g**ato di ri**sh**petto. Hai man**g**ato di ri**sh**petto a **mea** nonna, che ho seppellito dentro al tappeto di chiappe di puzzola. Ti ho detto di non farti **r**rivedere mai più, ma te fai **tr**ovare men**tr**e ficchi il naso con questa… **Cu'** sei? Un'attrice? Pe**cc**hé hai un costume, eh?
(…) **FruFru:** Daddy! It's time for our dance. Ah! What did we say? No icing anyone at my wedding!	(…) **FruFru:** Papiiino, è l'ora del nostro ballo! Oh! Ch**e** cosa av**e**vi prom**e**sso? Niente tuffi nel ghiaccio al mio matrimonio!
Mr Big: I have to, baby, daddy has to. Ice 'em!	**Mr Big:** Ma devo, piccola, papino è cos**tr**etto. Freddateli!
FruFru: Wait, wait! She's the bunny that saved my life yesterday. From that giant donut!	**FruFru:** Fermi! Lei è la coniglietta che i**e**ri mi ha salvato la vita da quella ciambella gigant**e**sca.
Mr Big: This bunny?	**Mr Big:** 'Sta conglietta?
FruFru: Yeah! Hi!	**FruFru:** Sì! Ciao!
Judy: Hi… I love your dress…	**Judy:** Ciao… bel vestito…
FruFru: Oh, thank you!	**FruFru:** Ah, grazi**e**!
(*Zootopia*, 2016, min. 48:19)	(*Zootropolis*, 2016, min. 48:19, adaptation)

Table 4
Italian American accent in *Zootopia* and Sicilian accent in its Italian adaptation

Yax: Yeah, some mammals say the naturalist life is weird. But you know what I say is weird? Clothes on animals! Here we go. As you can see, Nangi is an elephant, so she'll **totally** remember everything. Hey, Nangi, these **dudes** have some questions about Emmitt the otter.	**Yax:** Sì, per alcuni animali il na**t**uralismo è strano. Ma sapete cos'è strano? Gli animali vesti**ti**! Siamo arrivati. Come vede**te** Nangi è un elefante, **sicché** si**c**uramente ri**c**orderà tutto. Ehi, Nangi, loro **c'**hanno da **ff**arti delle domande su Emmitt la lontra.
Nangi: Who?	**Nangi:** Chi?
Yax: Emmitt Otterton. Been coming to your yoga class for **like**… six years.	**Yax:** Emmitt la lontra, frequenta il tuo **c**orso di yoga da **tt**ipo… boh, sei anni?
Nangi: I have no memory of this beaver.	**Nangi:** Non ricordo affatto questo castoro.
Judy: He's an otter, actually.	**Judy:** In realtà, è una lontra.
Yax: He was here a couple of Wednesdays ago. Remember?	**Yax:** Dai, è stato qui due mercoledì **ff**a, te lo ri**c**ordi?
Nangi: No	**Nangi** No.
Yax: Yeah, he was wearing a green cable knit sweater vest and a new pair of Quarteway slacks. Oh! And a Paisley tie, sweet Windsor knot. Real tight, remember that, Nangi?	**Yax:** Ma sì, indossava un bel gilet di lana intrecciata e pantaloni di **vv**ellu**t**o a costine, sai. Ah! Aveva una cravatta con un motivo cachemire con un nodo mooolto stretto. Te lo ri**c**ordi, Nangi?
Nangi: No.	**Nangi:** No.
Yax; Yeah, and we both walked him out and he got into this big old white car with a silver trim. Needed a tune up, the third cylinder wasn't firing. Remember that, Nangi?	**Yax:** Ma sì, che siamo usciti con lui e lui è sali**t**o su quell'enorme au**t**o bianca con le rifiniture argentate – **c'**avrebbe anche avuto bisogno d'una aggiusta**t**ina al terzo **c**ilindro. Te lo ri**c**ordi, Nangi?
Nangi: No.	**Nangi:** No.
(*Zootopia*, 2016, min. 38:45)	(*Zootropolis*, 2016, min. 38:45, adaptation)

Table 5
Tuscan accent in the Italian adaptation of *Zootopia*

A domesticating approach was also adopted with another character, Yax (voiced in the original by Tommy Chong – see Table 5), a yak owner of a naturist club that speaks with a Tuscan accent, which is usually perceived as humorous with no particular negative connotations. In the source text, Yax speaks with a "relaxed" idiolect marked by a slow pace and the prolonging of vowel sounds, and he can be associated to the "surfer dude" trope due to his frequent use of some lexical items typical of this stereotypical figure, such as *dude*, *totally* and *like*.[7]

Yax is dubbed in Italian by the Tuscan comedian Paolo Ruffini, who makes large use of the main typical phonetic feature of his accent, which is known in Italian linguistics as *gorgia*, that is to say the substitution of voiceless stops with their corresponding voiceless fricative consonants when in post-vocalic position; therefore, sound /k/ is pronounced as [h] (as in *sicuramente*, *corso*, *ricordi*, etc.) and /t/ as [θ] (*naturalismo*, *vestiti*, *auto*, etc.). Other marked regional features that can be heard in the dialogue above are the substitution of palatal affricate /tʃ/ with the fricative [ʃ] (*c'hanno*, *c'avrebbe*) and the gemination of consonants when they are in initial position, as in *farti*, *fa*, *velluto*, written in the text (Table 5) with a double initial (Sobrero, Miglietta 2006, pp. 88-89).

As regards the social implications of the Tuscan accent, in Yax's case they do not seem to follow the traditional stereotype of the witty and sassy Tuscan character (largely depicted in the history of Italian cinema by actors like Roberto Benigni and Leonardo Pieraccioni), and his voice quality is coherent with his "hippy" appearance, so it was probably adopted here just for comic purposes and with the aim of giving Ruffini the opportunity for a star turn, in Kozloff's words (2000, pp. 60-61). His lines, in fact, are loaded with aesthetic and commercial effects that keep the audience's attention on the character (Kozloff 2000), hence his accent is to be considered an integral part of his acting talent. In point of fact, more or less the same can also be said for the other *Zootopia* characters mentioned in this section, who were all dubbed by well-known Italian comedians.

4. Conclusion

The animated film *Zootopia*, which reached over $1 billion worldwide, is one of the most successful Disney films of the last few years. The population in the world of Zootopia base their discriminations on geographical origin, race, education, language and physical appearance, reflecting the exact same social mechanisms that we find in the real world, which is what creators explicitly denounced with this film, after spending some time gathering information about the world of animals and noticing similarities with the human world

[7] Visit the *TV Tropes* website (https://tvtropes.org/pmwiki/pmwiki.php/Main/SurferDude, last accessed 15/12/2019) to know more about the topic and to find other examples on this stereotypical character in fictional works.

(Guerrasio 2017). In particular, they wanted to give a lesson to present-day society (and especially the American society, where racial discrimination is still a big social problem) showing through the happy ending that race and physical appearance have nothing to do with being bad or good (Beaudine *et al*. 2017).

Nevertheless, the same creators, whether consciously or not, appear to have drawn on stereotypes traditionally connected to some linguistic varieties and accents in order to trigger humour, which is one of the main aims of animated films (Chiaro 2010; De Rosa *et al.* 2014). This article has tried to explore the varied linguistic scenery of the original version of the film, discussing phonological and morpho-syntactic features together with their social implications. Discussions on the presence of different American accents and how they might be perceived by viewers base mostly on previous studies on the film (Crewe 2017; Soares 2017; Nielsen 2019) and on personal insights that were built on online research (Reddit.com, Quora.com, Tvtropes.org) and then expanded through an attentive reading of manuals on accents and dialects in the USA (Lippi-Green 1997, 2012; Blake *et al.* 2015; Wolfram, Schilling 2015).

The second part of the paper has consequently analysed the Italian dubbed version, showing that localising and domesticating strategies were adopted during the translation process; as a matter of fact, three Italian regional accents can be heard in the Italian version: Neapolitan, Sicilian and Tuscan. Those were explored in the article through the analysis of some of their linguistic features and allophones and the illustration of their social significance and function in the text: humour is in two cases out of three triggered by stereotypes linked to the language varieties.

What this investigation could not explore, or at least not systematically, was the audience's opinion on the techniques of linguistic characterisation in the film, which could actually shed better light on the identification of accents and on their connotations in this context, both in the source and target text. Therefore, it would be interesting to explore reception and perception studies as a next step in this research, in order to enrich the analysis and discussion on the topic. However, as a result to the qualitative analysis described in this article, it can be argued that the Italian adaptation of the film creates the same atmosphere and funny tone of the original, making use of the same tools. This confirms that even though the use of regional varieties in the target text can be risky, in the case of animation this strategy is often used to reach specific ends. In fact, as Minutella argues, "animation allows for greater freedom and more leeway for creativity in the representation/manipulation of language variation" (2016, p. 253). Nonetheless, if we can dare to say that from the linguistic and translational point view the Italian adaptation works, it could obviously be argued that it is not ethically right to associate dialects to their traditional stereotypical connotations (e.g. Neapolitan for a smuggler, Sicilian for a mobster). In fact, the strategy undoubtedly enhances regional prejudice through language, undermining the aim of teaching children not to judge people drawing on appearance, ethnic origin or sex. This does not mean that adapters should avoid creativeness in the translation of accents and dialects, but before including language varieties in the target text they should ascertain that their use would cause no ideological controversy (Di Giovanni *et al.* 1994, p. 104).

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DEVELOPING AWARENESS OF INTERFERENCE ERRORS IN TRANSLATION
An English-Spanish pilot study in popular science and audiovisual transcripts

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Abstract – The use of astronomy discourse in the form of written and web/audiovisual texts has been gaining ground in undergraduate courses of specialized translation. These materials have been used at the University of León for the last four years during the last semester of the degree *Filología Moderna: Inglés*, as part of the course *Traducción inglés -español II*, basically geared towards awareness raising of translation problems and solutions available. The aim of this paper is twofold: a) to show the main differences between the language of astronomy in different genres (Stolze 2009; Byrne 2012; Tessuto, Bait 2017) in English and in audiovisual texts (Díaz Cintas, Remael 2007; Chaume 2012) in English and Spanish and b) to show which linguistic areas are more problematic for undergraduate students, e.g. types of technical dialects, nominalization chains, metaphoric language, among others (Rabadán 1991; Shuttleworth 2014). We will use two small comparable subcorpora of written research articles and popular science, and an audiovisual corpus of popular science in order to identify a) similarities and differences at different levels and b) a hierarchy of relevance. Our taxonomy will include linguistic, cultural, genre-based, and semiotic problems and their linguistic manifestations. We will also use an En-Es parallel corpus (Gutiérrez Lanza 2011) which will include the originals mentioned above and the translations made by undergraduate students during this period. They will be compared with a "standard" target text in order to identify which features are more problematic in English-Spanish transfer. The results will be collated both statistically and qualitatively so as to produce a tagset of errors to be applied to learners' corpora. The procedure is replicable for other domains, genres, and language pairs. These corpus-based data En-Es will be used to produce language pair focused training materials (López-Rodríguez, Tercedor-Sánchez 2008; Rabadán 2010).

Keywords: interference, translation error, astronomy, popular science, audiovisual transcripts.

1. Introduction

Contemporary translation training relies on technology, from translation memories and machine translation to the more modest grammatical and spellcheckers, to reduce the time and effort invested in the task. However, as with any use of language and translation technology, successful performance requires that the user can evaluate the outcome. A variety of (post)-editing strategies can be applied to both human and machine translation outputs, which require critical human assistance. Whether translating or (post)-editing, awareness of language-pair-dependent problems underlies successful performance. Human translation, partially informed by machine-mediated translation, is a given in student workflows, but errors can easily go unnoticed if cross-linguistic competence is not properly developed. An essential part of this competence is awareness of interference (Toury 1995/2012, p. 275), which frequently underlies translation errors, notwithstanding universal translation tendencies (Rabadán, Labrador, Ramón 2009).

Up to this date, errors have been discussed in three main contexts: institutions with responsibilities in language services, the industry, and academia. They obey to different interests: institutional guidelines such as EASE 2019 focus on providing simple, clear solutions to be implemented by authors and translators of scientific texts to be published in English. On the other hand, the industry has focused on maximizing the efficacy of machine translation post-editing, where time-rates are essential (O'Brien *et al*. 2014; Moorkens, O'Brien 2017; Massardo *et al*. 2016). Both institutional and industrial guidelines are addressed to professional language services providers and focus mostly on target language (TL) revision without recourse to the source text (ST), which makes them non-practical for the learning context. Academic approaches have traditionally addressed errors by producing taxonomies dependent on translation and linguistic models (Hurtado Albir 2001; House 1997, 2015, among others). These tend to be very efficient as a classification principle, but depend greatly on student proficiency in the source language (SL) and the underlying translation model. However, they do not address two conspicuous gaps: a) between translation errors and their textual triggers, and b) between translation errors and their pragmatic effects. Therefore, the relationship between formal decisions and textual outcomes is missing for the learner.

Another well-trodden academic path in the study of interference is the research into translation universals (Baker 1993; Mauranen 2004), i.e., trends of translated language considered to be independent of SL and directionality. Corpus-based studies have produced a substantial amount of work on the differences between translated and non-translated language, which has become known as "the third code" (Frawley 1984; Øverås 1998). Both quantitative and qualitative studies have pointed at phenomena such as simplification (Vanderauwera 1985), normalization, and explicitation (Blum Kulka 1986; Pápai 2004). The Explicitation Hypothesis, for instance, has been linked to increased readability (Toury 1995/2012, p. 227). It has also been criticized for its language pair-independent formulation, which fails to account for other factors, such as SL interference (Becher 2010, p. 29).[1] A wealth of language pair-dependent studies (Rabadán 2011; Loock 2013; Ramón and Gutiérrez Lanza 2018, among others) suggests that interference is possibly the most conspicuous of translated language features (Toury 1995/2012; Mauranen 2004) and that it necessarily rests on language pair-dependent contrastive differences, which are commonly associated with "obligatory adjustments" into the TL (Nida 1964; Nida, Taber 1969; Pym 2016).

A more recent approach to the problem is the *Multilingual Student Translation* (MUST) project (Granger, Lefer 2018), whose long-term goal is to produce "a language-independent, standardized *translation-oriented annotation system* (TAS)" to be used on student translations.[2] TAS comprises three main parts: (1) ST-TT transfer, which refers to discrepancies between the ST and the TT or between the TT and the translation brief; (2) language features, concerned with erroneous TT solutions, not necessarily connected to the ST, and (3) translation procedures, dealing with problem-solving techniques as unveiled by TT-ST comparison. Each of these parts contains multilayered categories and subcategories, each marked by a specific tag. Still at an early stage of development, MUST capitalizes on previous learner corpus-based research, and language-dependent errors seem to be part of a meta-tag "to mark suspected SL intrusion" which could be added to any of the TAS multilayer (sub)categories. TAS is meant to become a training and research tool. As such, it will be useful for descriptive empirical work, but error identification *per se* does not directly result in enhanced translation performance.

We hypothesize that translation errors derived from interference are better understood by students when they are directly related to the language and textual features of STs on the one hand, and to communicative outcomes on the other, on the assumption that performance will improve if it is linked directly to genre-specific, language-dependent characteristics. This pilot study has four aims:

(i) To raise students' awareness of how genre-related features may underlie text processing difficulties, by focusing on the main differences between

[1] A conciliatory view is Klaudy's Asymmetry Hypothesis (2009), which claims that explicitation is present in several transfer operations, independent of language pair and direction of translation.

[2] Quotations come from the ECETT/PaCor 2018 Book of Abstracts. http://eventos.ucm.es/19308/section/15272/international-symposium-pacor-2018-parallel-corpora_-creation-and-applications.html (25.07.2019).

the language of astronomy in academic English, popular science and multimedia transcripts (Stolze 2009; Byrne 2012; Tessuto, Bait 2017).

(ii) To relate ST features to translation errors and TT outcomes, by identifying problem areas in each of these genres, e.g., types of technical dialects, metaphoric language, among others (Rabadán 1991; Shuttleworth 2014).

(iii) To formulate a clear, accessible and usable procedure for quickly identifying errors, by defining a limited, self-explanatory, language-bound checklist to be used in translation practice, revision and (post)-editing. This checklist will include cause, error, and consequence tags that will serve a double function: signaling the error and providing constructive input. Thus, it will be possible for the user to relate the problem to its source and translation solutions.

(iv) To test the degree of improvement in student performance once the procedure has been implemented in class.

2. Method

2.1 Academic context

This paper reports on a qualitative pilot study carried out during four spring semesters, from 2016 to 2019, in a final-year optional undergraduate course in specialized translation open to Modern Languages majors. The aims of this course are not so much extensive translation training as focused awareness-raising of typical translation problems and the solutions available.

The technology offered to students includes machine translation algorithms such as Google Translate, terminological banks, such as IATE, field-specific lookup tools such as Skynet Dictionary of Astronomy, and general language resources, e.g., Lexicool, Acronym Finder, etc. Also available to students is dubbing and subtitling software for the audiovisual texts. However, they were not offered translation memory technology, as this would have prevented students from producing their translation solutions.

2.2 Corpus

Materials from in-class and take-home commissions have been collected and organized in the ASTROfest corpus, which contains three small subcorpora:

Content/Corpus	En_ASTROfest			P_ASTROfest		Es_ASTROfest	
Type	Monolingual En Multigenre Multimodal			Parallel En-Es Multigenre Multimodal		Monolingual Es Multigenre Multimodal	
Materials	AW	PS	MT	PS	MT	PS	MT
Word Number	4822	6507	2117	6507-10540	2117-3916	3672	2403

Table 1
ASTROfest: subcorpora.

- An English monolingual comparable subcorpus, En_ASTROfest, comprising written abstracts of professional academic writing (AW: 4822 words), web/magazine articles of popular science (PS: 6507 words) and multimodal transcripts of web audiovisual materials (MT: 2117 words).
- A bilingual parallel subcorpus, En-Es_P-ASTROfest, which includes the English originals (nine PS and four MT texts) and the corresponding student translations. The number of translations of each text varies between 2 and 6 per semester and have been selected among submissions graded between 40% to 70%. Higher or lower grades were not considered as they would not attest to typical processing problems and mistakes. AW texts have not been included in this corpus because, as the Spanish astronomy research community usually reads –and writes– originals in English, translated texts are rarely available.
- A Spanish monolingual subcorpus, Es_ASTROfest, featuring popular science (PS: 3672) and multimodal transcription of audiovisual texts (MT: 2403 words). PS texts compiled so far have been published in science supplements of Spanish newspapers such as https://www.abc.es/ciencia/ and websites such as https://viajealcosmos.com/, whereas MT texts consist of transcriptions of general interest TV programs such as *Lab 24*, broadcast by Spanish RTVE 2: http://www.rtve.es/alacarta/videos/lab24/. Again, this corpus includes no AW, as the Spanish research community publishes overwhelmingly in English. In this respect, the very few texts we managed to obtain were either summaries of previous English texts or shortened reports of those texts as published by the Spanish Astronomy and Astrophysics Association, and amounted to 200 words.

In the case of monolingual En_ASTROfest, texts were selected as follows:

- AW texts were obtained from high ranking metrics, Q1-2 journals in the field of Astronomy and Astrophysics, mostly written by non-native speakers who use English as their professional language. The result is texts that follow scientific editors' guidelines (e.g., EASE 2019), which show features of English as a Lingua Franca (ELF) and offer a recognizable rhetorical structure (IMRAD) typical of argumentative texts.

Their function is to promote the advancement of knowledge and to foster constructive discussion within the research community.

- PS texts were retrieved from websites such as *LiveScience*, *ScienceDirect*, *Nasa*, etc. These are written by scientific reporters whose role is to make scientific knowledge available–and appealing–to the general public. They produce everyday texts written in standard (human) English including clearly explained scientific terminology: e.g., *black hole*, *galaxy*, *rogue planet*, etc. These texts are informative and show the typical rhetorical organization of expository texts. Their function is to inform and educate the general audiences of the latest findings in "Planet Science."
- MT texts were obtained from various YouTube channels (*SCI Science Channel*, *Life Noggin*, *JASA stargazer*) and from *Nasa Goddard TV*, devoted to bringing science closer to society and the lay public. These short clip-like texts have been chosen because they show the characteristics of documentaries: they are informative and interact with the prospective user through persuasive devices aimed at catching and keeping audience attention. These documentary-like expository texts show a hybrid rhetorical structure, which includes a talk show format, and a series of interviews with experts in the field. In these texts, tenor is particularly relevant, as their function is first and foremost to educate entertainingly.

Since this is a qualitative pilot study, and the size of the corpora is not large, we have used simple statistics to collate the English language data. Quantitative findings are indicated in frequency per million words. In the future, expanding the study will require custom-made tools and inferential statistics.

2.3 Procedure

Drawing on a standard inventory of linguistic, cultural, and semiotic translation problems (Nord 1997), monolingual En_ASTROfest has been queried to produce a list of the most salient genre-specific, language-dependent problematic areas in our STs (see Tables 2 and 3). En_ASTROfest materials have been PoS tagged with TreeTagger,[3] and the SketchEngine browser[4] has been used to implement the queries, which include wordlist, keyword, multiword, and combinations of PoS tags and their positions to the right and the left. The latter query was particularly useful when locating nominalization and heavy characterization chains (Figure 1).

[3] http://www.cis.uni-muenchen.de/~schmid/tools/TreeTagger/
[4] https://www.sketchengine.eu/

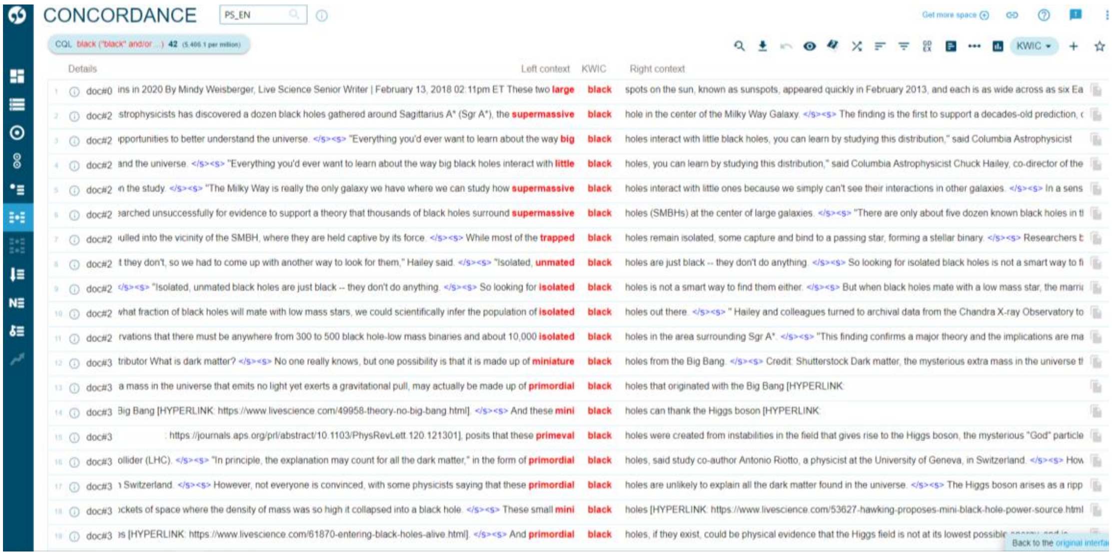

Figure 1
SketchEngine. En_ASTROfest: PS characterization chains.

The following part of our pilot study aims at relating those genre-specific, language-dependent problematic areas to translation errors, and undesirable outcomes. The English-Spanish parallel corpus En-Es_P-ASTROfest has been used to this effect. The texts were processed with TAligner 3.0,[5] which allows for the alignment of multiple TTs and their corresponding STs (Figure 2).

Our error classification benefits from already available taxonomies of translation techniques: explicitation, omission, word-for-word translation, etc. (Molina, Hurtado Albir 2002). Likewise, the parameters of textuality (intentionality, situationality, informativity, acceptability, intertextuality, coherence, and cohesion) have been used to identify TT areas suffering negative pragmatic effects (Rabadán, Fernández Nistal 2002, p. 26). Examples of causes, errors, and consequences are presented in a visual layout, accompanied by self-explaining tags to facilitate understanding. All of them have been annotated for the sake of awareness raising. We expect that, after some practice, students themselves will provide this information.

[5] This tool has been developed at the University of León and the University of the Basque Country. More information at http://www.ehu.eus/tralima/taligner.html and http://corpusnet.unileon.es/

Figure 2
TAligner 3.0: ST-TTs alignment.

To verify our working hypothesis that students will render better solutions by linking ST triggers to actual errors and consequences in the TT, our findings were made available to a group of students in the form of a checklist. This control group included ten students in the 2019 spring semester that, as part of their regular workload, had already contributed their commissions to the ASTROfest corpus. The testing was organized in two different formats: first, they were asked to apply the checklist to translations of a text they had previously translated; second, they were asked to identify errors in texts produced in previous semesters by other students and to produce alternative solutions. The results of the testing, i.e., the degree of improvement in the translations produced by the control group, will serve to (in)validate the usefulness of our checklist.

3. Results

3.1 Identifying genre-specific, language-dependent features of STs

Our analysis distinguishes three main types of textual features, which, in turn, derive from the linguistic, cultural, and semiotic characteristics of the STs.

3.1.1 Linguistic features of STs

AW texts constitute the default genre for scientific language, the *tertium comparationis* against which PS and MT texts are measured. They follow a strict rhetorical structure; generally, the IMRAD template (Swales 1990, 2004), often constrained by instructions from the journal's editors, and the vast majority of them are authored by writers who use English as a professional language but not necessarily as their first language. Scientific language is characterized by the use of expert terminology, which typically shows an absence of polysemy and ambiguity (Byrne 2012). Expert terms are often lexicalized metaphors that have acquired domain-specific meaning and may have learned, less well-known designations (e.g., *Cigar Galaxy* = *Messier 82*). AW avoids ambiguous strings and redundancy, fosters clarity, and favours highly conceptual language. Our corpus reveals that authors' stylistic preferences include an abundance of (i) definite articles (e.g., *the results of the present study, to estimate the dust composition*), (ii) nominalization and characterization chains (e.g., *mineral dust long-wave refractive index, ultra-strong radial magnetic field*), (iii) -ing forms (e.g., *Understanding the role of natural forcings, incoming ultraviolet radiation*) (iv) passive constructions (e.g., *is compared with grand solar minimum simulations, are predicted to be significant*), (v) –ly adverbs (e.g., *increasingly powerful storms, nonlinearly growing sea level rise, markedly reduced warming*) and (vi) hedging by means of tentative reporting verbs (e.g., *Our observations also suggest that…, […] have been proposed in the SMSMM model, imply that 2 °C global warming…*). All of the above results in the concept-laden language which defines expert-to-expert communication.

PS texts combine conceptual stringency with accessibility as their function is both to entertain and to educate readers (Byrne 2012, pp. 49-50). This stringency is achieved through fresh, lively language together with proper scientific terminology as well as illustrative pictures or multimodal simulations. Corpus findings indicate that defining features are (i) the use of pronouns, which, apart from indicating deixis and anaphora (Huddleston, Pullum 2002, pp. 1463-1482), allow experts to bring concepts closer to the reader (e.g., *If we had this monster sitting at the center of our Milky Way galaxy…*) (ii) the alternance of present and past tenses, which mark the exposition and narration of facts respectively (e.g., *the Cigar Galaxy is a starbust galaxy / the astronomers counted pixels of dust…*), (iii) informal features such as contractions (e.g., *could've, that's, isn't*) or very colloquial terms (e.g., *monster, sucks, stogie*), (iv) adverbial grading (e.g., *incredibly bright star, very large distance*), (v) everyday idioms (e.g., *eat them for breakfast*), (vi) comparisons with everyday phenomena used to relate astronomic concepts and dimensions to our known world (e.g., *like all growing* *boys, this supermassive black hole has a hefty appetite*), (vii) the frequent use of "light verbs" (e.g., *get, take, make, put: which makes the universe more transparent, taking the form of an incredibly powerful galactic wind*), which transfer the semantic load to the verbal complements, (viii) intertextual references to culture-bound aspects, such as popular narrative and TV series (e.g., *"dark ages"*), (ix) anaphora (e.g., these *extremely short flashes, and* hence *gamma-ray emissions*), and finally, (x) nominalization and characterization chains, also typical of AW texts, as a way of explaining abstract concepts in everyday language (e.g., *These massive, black-hole-powered beacons*).

MT texts also aim at entertaining and educating audiences through audiovisual channels. They are defined by language and image synchronization and by the differences between the language of narrators on the one side, and that of expert guests on the other: whereas narrators move in the neutral range of language written-to-be-delivered-orally, guest speakers favour a more informal and colloquial variety of English congruent with–real or fictitious–spontaneous conversation. This form of pre-fabricated orality includes the use of discourse markers, phonetic reduction, interjections, or hesitation periods (Baños Piñero, Chaume 2009). Our corpus-based analysis has revealed that defining features in MT texts include a massive use of (i) present tenses, for the presentation of facts (e.g., *identify, orbits*), (ii) definite articles (e.g., *The Earth, the violence*), (iii) nominalization and characterization chains (e.g., *our own cosmic neighborhood, a big, empty, sucking piece of space*), (iv) hedging by means of epistemic modals (e.g., *that might actually happen, one of them could be heading our way*), as opposed to AW preference for tentative reporting verbs (e.g., *propose, suggest*), (v) exclamative, interrogative, and conditional sentences (e.g., *watch out!, what if that home suddenly changed?*), in contrast to straight enunciation in AW and PS texts, (vi) markers of informal language and of orality (e.g., *burp, crush, spurt, anyway, you see, as a matter of fact, damn, hey, well, gonna, I'm, don't, you'd, there's, won't*), (vii) comparisons (e.g., *the more Earth there is, the more it will heat up*), analogies (e.g., *It was like… a vision of hell*), examples (e.g., *to say… Jupiter*) and anecdotes (e.g., *When I was a kid…*), (viii) everyday lexicalized metaphors, frequently based on culture-bound references (e.g., *Goldilocks Zone*), and (ix) rhetorical questions to retain the viewer's attention (e.g., *could it really happen?*).

Additionally, our genres share some basic, very frequently used (14,000 tokens per million and above, Table 2 in bold) language-dependent features, e.g., definite articles, nominalization, and characterization chains, present tenses, and -ing forms.

This review has resulted in a corpus-informed cross-genre *tertium comparationis*, where both genre-shared and genre-specific linguistic features are represented (see Table 2).

	AW		PS		MT	
	Raw	Per million	Raw	Per million	Raw	Per million
Definite article	**270**	**47,863.85**	**281**	**54,637.37**	**90**	**57,952.35**
Nominalization and characterization chains	**597**	**31,908.88**	**200**	**38,888**	**54**	**32,973.76**
Present tense	**72**	**12,763.69**	**98**	**19,055.03**	**28**	**18,029.63**
-ing forms	**107**	**18,967.89**	**78**	**15,166.32**	**22**	**14,166.13**
Pronouns	38	6,736.39	**100**	**19,443.90**	14	9,014.81
Anaphora						
Passive voice	119	8,509.13	39	7,583.12	11	7,083.07
Past tense	15	2,659.10	**57**	**11,083.03**	13	8,370.90
Light verbs						
Degree adverbs	3	531,81	15	2,916.60	7	4,507.44
-ly adverbs	39	6,913.53	44	8,555.36	**18**	**11,590.56**
Hedging	28	4,963,56	**52**	**10,110.88**	**20**	**12,878.40**
Epistemic adverbs	1	177.27	2	388.88	1	643.92
Epistemic modals	13	2,304,51	39	7,583.16	**16**	**10,302.72**
Tentative reporting verbs	14	2,481,78	11	2,138.83	3	1,931.75
Informal language	0	0	3	583.32	**36**	**23,181.12**
Orality	0	0	17	3,305.48	**41**	**26,400.72**
Contractions	0	0	12	2,333.28	**26**	**16,741,92**
Discourse markers	0	0	3	583.32	7	4,507.44
Interjections	0	0	0	0	5	3,219,60
Hesitation/Causing expectation	0	0	2	388.88	3	1,931.75
Conditional sentences	1	177.27	24	4,666.56	**41**	**26,400.72**
Exclamative sentences	0	0	1	194.44	9	5,795.24
Interrogative sentences	1	177.27	8	1,555.52	7	4,507.44
Analogy	0	0	6	1,166.64	13	8,370.96
Comparisons	4	709.08	23	4,472.12	**29**	**18,673.68**
Examples	0	0	1	194.44	1	643.92
Anecdotes	0	0	0	0	1	643.92

Table 2
Linguistic features across genres.

3.1.2 Culture-based features of STs

Acronyms, names, measurements, and culture-bound intertextual metaphors are also sources of translation problems[6]. Acronyms and names appear in two different contexts: when an institutionalized, descriptive equivalent exists (e.g., *James Webb Space Telescope (JWST)* > *Telescopio Espacial James Webb*), or when there is no equivalent, and the source term is accepted in the TL regardless of the meaning it stands for (e.g., *NASA*, *ESA*). Measurements tend to be localized, but there are occasions when critical revision is imperative since the equivalents designate different amounts in each of the languages (e.g., 1 *billion* in English corresponds to one thousand million, whereas in Spanish 1 *billón* equals one million of millions). More demanding

[6] Other types of intertextuality such as cross-referencing have not been considered here, since they belong to the scientific community as a superposed speech community.

are culture-bound intertextual metaphors, frequent in MT texts as a way of bringing specialized concepts within grasp of non-expert audiences (e.g., *balls rebounding off bumpers in a pinball machine*).

	AW		PS		MT	
	Raw	**Per million**	**Raw**	**Per million**	**Raw**	**Per million**
Acronyms / Names			**17**	**2,188.18**	**1**	**401,45**
Measurements	**7**	**1,240.89**	**15**	**2,916.60**	**9**	**5,795.28**
Overt (culture-bound intertextual) metaphors	**8**	**1,418.16**	**7**	**1,361.08**	**11**	**7,083.12**

Table 3
Culture-based features across genres.

3.1.3 Semiotic features of STs

Typical semiotic features of AW include formulae, tables, and graphs and charts. PS texts offer graphs and charts as well, together with photos, artistic recreations, and simulations. The latter may be combined with audiovisual features (e.g., a short video with spoken language). Although language-image synchrony is the most apparent feature of MT texts, they also include artistic recreations, simulations, and captions. All of them play a significant part in meaning-building and relate to written and oral materials in different ways. Ignoring their contribution to the text's make-up may have consequences in the coherence and intelligibility of the TT.

	AW	**PS**	**MT**
Formulae	√		
Tables	√		
Graphs and charts	√	√	
Photos		√	
Artistic recreations		√	√
Simulations		√	√
Captions		√	√
Synchrony: Isochrony			√

Table 4
Semiotic features across genres.

3.2 Relating causes, errors, and consequences

The linguistic, cultural, and semiotic problematic areas identified above have been linked to errors and consequences in students' commissions.

3.2.1 Errors depending on linguistic features of STs

1) Unidentified ST idioms or metaphors. Frequent errors include word-for-

word translation and poor choice of phraseology. These solutions detract from TT acceptability, and they may also affect informativity and audience engagement.

Unidentified idiom <un_id/met>	**Word-for-word TR <wwTR> Poor phraseology <p_phr>**			**Negatively affects:**
… eats suns like ours for breakfast [PS001]	… come soles como el nuestro para desayunar [PS001_TT5]	Se come el sol como si fuera un desayuno [PS001_TT8]	Se come al sol como nosotros el desayuno [PS001_TT6]	Acceptability <acc> Informativity <inf> Intentionality <int>: audience engagement

Example 1
Unidentified ST idioms or metaphors.

2) English characterization chains. Frequent errors include wrong word order, and, as a consequence, poor syntax. Abnormal text flow affects intelligibility and acceptability in the TT.

Characterization chains <ch_ch>	**Word order <wo> Poor syntax <p_sy>**			**Negatively affects:**
… busy star-forming centres [PS009]	… centros ajetreados donde surgen las estrellas [PS009_TT1]	… centros activos de formación estelar [PS009_TT2]	nuevas estrellas nacen en su activo centro [PS009_TT5]	Acceptability <acc>: intelligibility

Example 2
English characterization chains.

3) Cohesion markers. These are either omitted or poorly rendered. Since cohesion is unclear, the TT is difficult to follow and may present weak coherence.

Cohesion markers <coh_mk>	**Omission <o> Word-for-word TR <wwTR>**			**Negatively affects:**
See, there's a limit for how tall a tree can grow [MT002]	Mira, hay un límite hasta el que puede crecer un árbol [MT002_TT4]	Hay un límite de altura que puede llegar a tener un árbol [MT002_TT5]	Verás, hay un límite de altura para los árboles [MT002_TT6]	Cohesion and Coherence <coh>

Example 3
Cohesion markers.

4) (In)formal language. Informal language tends to suffer an upgrade in the Spanish TTs. This feature suffers from avoidance strategies: it is either ignored, and, therefore, the TT becomes more formal, or students use word-for-word translation, resulting in negative effects in tenor and audience engagement.

Informal language <(in)for_lg>	**Omission <o> Word-for-word TR <wwTR>**		**Negatively affects:**
… as it [the black hole] whipped through the solar system leaving disaster in its wake [MT001]	… por el sistema solar, dejando desastre a su paso [MT001_TT1]	... como si batiese el sistema solar, causando el desastre a su paso [MT001_TT3]	Situationality <sit>: tenor, formality scale Intentionality <int>: audience engagement

Example 4
(In)formal language.

5) Hedging is a staple feature in all three genres and is often a recurrent problem. Epistemic modals and adverbs, and tentative reporting verbs tend to be translated by their formal lexical equivalents, which do not have the same pragmatic functions in Spanish. In non-translated Spanish, these are conveyed by grammatical means such as verbal mood or certain tenses as the conditional.

Hedging <hed>	**Word-for-word translation <wwTR>**			**Negatively affects:**
Several ideas […] suggest that space and time are not actually smooth and uniform [MT004]	Varias ideas […] sugieren que el espacio y el tiempo no son en realidad lisos y uniformes [MT004_TT4]	Varias ideas […] sugieren que el espacio y el tiempo no es en realidad de una textura lisa y uniforme [MT004_TT5]	Varias ideas […] sugieren que el espacio y el tiempo no son, en realidad, suaves y uniformes [MT004_TT6]	Acceptability <acc>: intelligibility and text flow

Example 5
Hedging.

6) Intensifiers and emphasis markers are one of the most salient features of MT texts. When synchronized with speakers' gestures and supra-segmental features of speech, their function is to play up and focus on essential bits of information so catching viewers' attention. However, these are usually omitted by students, scaling down this foregrounding function. When used, they tend to be translated literally, producing unacceptable noise and hindering text flow in the TT.

Intensifiers/ emphasis markers <em_mk>	Omission <o> Word-for-word TR <wwTR>				Negatively affects:
It really is lost in space… [MT003]	Está perdido en el espacio [MT003_TT 7]	Está perdido en el espacio [MT003_TT 8]	Está perdido en el espacio [MT003_TT10]	Realmente está… perdido en el espacio [MT003_TT 9]	Acceptability <acc>: intelligibility Intentionality <int>: scaling down of didactic function

Example 6
Intensifiers and emphasis markers.

7) Features of orality constitute a further error-prone area affecting MT texts. Students tend to omit or tone down contractions, interjections, exclamative and interrogative sentences, hesitation marks, etc. Since this popular "avoidance strategy" moves away from the recreation of pre-fabricated orality, the resulting dialogue lacks credibility, which affects acceptability, tenor, and audience engagement.

Orality <ora>	Omission <o> Word-for-word translation <wwTR>			Negatively affects:
Oh! Are we already living in that? Damn! [MT002]	Ah, ¿Ya vivimos ahí? [MT002_TT1]	Oh, esperad. ¿No vivimos así ya? [MT002_TT2]	¿Ya estamos viviendo ahí? [MT002_TT3]	Acceptability <acc> Situationality <sit>: tenor Intentionality <int>: audience engagement

Example 7
Features of orality.

8) Obligatory adjustments are also problematic. Among them, tense sequence tends to be one of the main sources of student errors from English into Spanish, which produces a broken timeline, distorts the narrative, and affects both PS and MT texts. A possible-and likely-reason for this behaviour may be the sentence-by-sentence processing of the ST. Time sequence follows relatively fixed rules in Spanish, a heavily inflected language. Obligatory adjustments affecting function words such as articles or pronouns (Ramón, Gutiérrez Lanza 2018) may also contribute to lower acceptability if not dealt with according to TL usage.

Obligatory adjustment <ob_ad>	**Distorted narrative sequence <nar_sq>**		**Negatively affects:**
Superbubble formation could be a side effect of the mighty winds that gush out of newborn stars, NASA researchers wrote in a statement about the discovery. [PS010]	La formación de superburbujas podría ser un efecto colateral de los potentes vientos que desprenden estrellas recién nacidas, investigadores de la NASA escribieron sobre este descubrimiento. [PS010_TT02]	La formación de las burbujas podría ser un efecto secundario de los fuertes vientos que salen de las estrellas recién nacidas, los investigadores de la NASA escriben un informe sobre lo ocurrido. [PS010_TT03]	Acceptability <acc> Cohesion and coherence <coh>
If you haven’t seen Gaia’s new map of the Milky Way, you really should. [PS003]	Si no has visto el nuevo mapa de Gaia de la Vía Láctea, deberías hacerlo. [PS003_TT01]	Si no has visto el nuevo mapa de Gaia de la Vía Láctea, deberías. [PS003_TT03]	

Example 8
Obligatory adjustments.

3.2.2 Errors dependent on culture-based features of STs

9) Both in PS and MT, measurements (e.g., *billions*, *feet*) are not as stringent as in calculations given in AW, as their role is to give non-experts an idea of the magnitudes of the phenomena under discussion. Solutions range from unlocalized, word-for-word translation, which can be deceitful, to completely off the mark figures.

Measurements <ms>	**Unlocalized <unL10N>**		**Negatively affects:**
… a mass greater than 20 billion suns… [PS001]	… con una masa superior a la de 20 billones de soles… [PS001_TT1]	… es mayor que 20 millones de soles… [PS001_TT3]	Informativity <inf>

Example 9
Measurements.

10) Students do not identify many ST intertextual cultural references. Poor understanding results in word-for-word translation and in the absence of intertextual links in the TT, which significantly affects the semantic fabric of the text and readers’ engagement.

Intertextual references <intxt_ref>	**Word-for-word translation <ww_TR>**		**Negatively affects:**
… is like studying the early "dark ages" of the Universe… [PS001]	… es como estudiar los días oscuros del universo… [PS001_TT2]	… es como estudiar las primeras Eras del Universo… [PS001_TT4]	Informativity <inf> Intertextuality <intxt> Intentionality <int>: readers engagement

Example 10
Intertextual references.

11) Acronyms are also problematic when they have an institutionalized equivalent in the TL, but it goes unnoticed. Wrong solutions include word-for-word translation and the addition of footnotes that do not clarify much and may affect the informativity and the understanding of the TT.

Acronyms <acr>	**Word-for-word TR <wwTR> Explicitation <exp> Footnote <ftn>**			**Negatively affects:**
… were the first two sources identified by HESS's Cherenkov telescopes [PS003]	… las dos primeras fuentes identificadas por los telescopios Cherenkov de HESS [PS003_TT7]	… las primeras dos fuentes que los telescopios Cherenkov del sistema estereoscópico de gran energía… [PS003_TT4]	… las primeras dos fuentes que los telescopios Cherenkhov de HESS[1] **…**[PS003_TT3] ________ [1] Sistema Estereoscópico de Alta Energía	Informativity <inf>

Example 11
Acronyms.

3.2.3 Errors dependent on semiotic features of STs

Semiotic features (see Table 4) such as formulae, photos, artistic recreations, and simulations remain the same in the TT. When the information included in captions is relevant, it is usually provided in subtitles. Tables and graphs may also include translatable information, but the primary source of errors remains ST-TT isochrony in MT texts.

12) Isochrony: MT texts chosen for this study are short documentaries, about five minutes each. Following the Spanish norm, the narrator's speech is to be dubbed, whereas guest experts' discourse tends to be voiced-over. Synchronization in dubbing traditionally involves matching spoken discourse to lip movement, i.e., "phonetic synchrony" (Fodor 1976, p. 10), to body movements, i.e. "kinetic synchrony" (Fodor 1976, p. 72), and to the length of the utterances, i.e., "isochrony" (Whitman-Linsen 1992, p.

22). In this respect, classroom experience shows that isochrony is the most relevant of the three, as shorter or longer utterances severely disrupt the viewing experience, reducing the quality of both dubbing (Chaume 2007, p. 76) and voice-overs. Poor isochrony, understood as the wrong use or absence of expansion and condensation strategies, is one of the most conspicuous semiotic errors students make when dealing with MT texts: a significant variation in the length of translated utterances as opposed to the original ones negatively affects the acceptability of the TT. In the following example, although word count is very similar (ST: 61w. TTs: 62 and 60 w.), utterances tend to be shorter in English.

Isochrony <isch>	**Poor isochrony <p_isch>**		**Negatively affects:**
Destroying an entire solar system is nothing to a black hole. **But it's more than just a big, empty, sucking piece of space.** It's incredibly heavy. **To get an idea of just how heavy and dense a black hole is, imagine the Earth.** Now, start to crush it, and keep crushing until it's packed so tight, even the atoms themselves collapse [MT001] 61 w.	Destruir un sistema solar entero no es nada para un agujero negro. **Sin embargo, es más que un trozo de espacio vacío que lo absorbe todo,** es extremadamente pesado. **Para haceros una idea de lo pesado y denso que es un agujero negro, imaginad la Tierra**… ahora, empezad a aplastarla…y seguid aplastándola hasta que esté tan apretada que incluso los átomos colapsen [MT001_TT1] 62 w.	Destruir un sistema solar entero no es nada para un agujero negro. **Pero es más que un gran vacío absorbente.** También es increíblemente pesado. **Para hacerse una idea de lo pesado y denso que es un agujero negro, imagine la Tierra.** Ahora comience a apretarla, y siga hasta que esté compacta, tan apretada que hasta los propios átomos se colapsen [MT001_TT3] 60 w.	Acceptability <acc>

Example 12a
Isochrony.

However, the most frequent error in the translation of MT texts is word-for-word translation, whose cause may be found in the very nature of multimodal audiovisual texts: isochrony restrictions are so relevant that translations tend to be much too literal. As a result, the acceptability of the TT is negatively affected.

Isochrony <isch>	**Word-for-word TR <wwTR>**		**Negatively affects:**
Astronomers identify a new planet one hundred light years from Earth, at least four times more massive than Jupiter, and it’s gone rogue [MT003]	Unos astrónomos identifican un nuevo planeta a 100 años luz de la Tierra, al menos cuatro veces mayor que Júpiter, y que vaga en solitario [MT003_TT7]	Astrónomos han identificado un nuevo planeta a 100 años luz de la Tierra, cuatro veces más grande que Júpiter y es uno errante [MT003_TT8]	Acceptability <acc>

Example 12b
Isochrony: word-for-word translation.

3.3 Generating the checklist

This account of the most frequent causes, errors, and consequences has led us to compile the following checklist:

CAUSES: problematic areas	**ERRORS: absence/wrong use of TR techniques**	**CONSEQUENCES: negative effects**
LINGUISTIC CULTURAL SEMIOTIC	Distorted narrative sequence <nar_sq> Explicitation <exp> Footnote <ftn> Omission <o> Poor phraseology <p_phr> Poor isochrony <p_isch> Poor syntax <p_syn> Unlocalized <unL10N> Word order <wo> Word-for-word translation <wwTR>	Intentionality <int> Situationality <sit> Informativity <inf> Acceptability <acc> Intertextuality <intxt> Cohesion and Coherence <coh>

Table 5
Checklist of main causes, errors, and consequences.

Not surprisingly, the most frequent problems are not strictly translational, but rather have to do with ST processing and, more importantly, with the poor connection among problematic areas, translation techniques, and pragmatic effects. Regarding textual reformulation, problematic parts are not properly dealt with. Rather, students avoid having to apply translation/compensation techniques that would produce more accurate, but formally dissimilar translation solutions. Besides, when they make use of machine translation, they either do not edit their drafts or do so haphazardly. In general, they pay very little attention to the revision stage.

3.4 Testing the checklist

After 8 hours of in-class training using the checklist of causes, errors, and consequences presented in the previous section, control group students' results show improvement in the following targeted areas:

1) ST idioms are translated with acceptable, functional solutions such as "… se merienda soles como el nuestro" [PS001_TTcontrol], which perfectly reflect tenor and phraseological idiomaticity in Spanish (i.e., "merendarse" > "to easily overcome somebody or someone," "to eat a quick snack, mainly children"). This solution conveys adequate information, ensures audience engagement by keeping colloquial usage, and favours acceptability.
2) ST characterization chains are translated by more acceptable and intelligible options, such as "… centros de formación estelar muy productivos" [PS009_TTcontrol].
3) Cohesion markers, which are frequently ignored and greatly affect TT's cohesive force, are translated according to context: "Claro está, los árboles tienen un límite de altura" [MT002_TTcontrol].
4) ST informal language, aimed at ensuring audience engagement, is kept in fully functional translations which can be highly dissimilar formally to the ST resources, reproducing both tenor and meaning: i.e. "… como si Atila y su ejército pasaran por el sistema solar y destrozasen todo lo que se cruzara en su camino" [MT001_TTcontrol].
5) Hedging is translated by more economical and acceptable solutions such as a conditional tense: "… según varias teorías, el espacio-tiempo no sería homogéneo y uniforme" [MT004_TTcontrol].
6) Intensifiers and emphasis markers, which particularly in MT texts have an important function signaling viewers' involvement, tend to be omitted or reduced to unwanted noise in the TT. When reconsidered, control group students provided more efficient-and proficient-solutions, such as "Lo cierto es que (the truth is that) …", which conveys emphasis more clearly [MT003_TTcontrol].
7) Orality features, which had frequently disappeared altogether from students' translations, benefit from a more contextualized-and easier to follow-reinterpretation: "¡Uf! ¿Ya estamos en esas? ¡Mierda!" [MT002_TTcontrol].
8) Our checklist also called the students' attention to "obligatory adjustments," such as tense sequence. Pilot study evidence suggests that processing the text as a semantic unit instead of a succession of sentences reduces significantly this type of error, resulting in more acceptable sequences: "Los investigadores de la NASA anunciaron que la formación

de superburbujas podría ser un efecto colateral de los fuertes vientos que sueltan las estrellas recién nacidas" [PS010_TTcontrol]. In the case of pronouns, after the error training sessions, the generalized role of "you," used to address the receptors in general–and no one in particular–, gets a pragmatically accurate rendering as "Merece la pena ver el nuevo mapa de la Vía Láctea registrado por Gaia" [PS003_TTcontrol].

9) After training, figures for measurements were in all cases localized and correct: "… una masa 20 mil millones de veces mayor que el sol" [PS001_TT control].

12) Isochrony became the students' priority over purely semantic or word-for-word translation, which made TTs more acceptable: 12a: "Vale, hay que aplastarlo hasta que quede tan apretado que hasta los átomos se rompan" [MT001_TTcontrol], 12b: "Los astrónomos han identificado un nuevo planeta a 100 años luz de la Tierra. Cuadruplica la masa de Júpiter y va por libre" [MT003_TTcontrol].

There are areas, however, for which no noticeable upgrade has been observed after the awareness-raising training, among them, intertextual references to everyday life (example 10) and acronyms with an institutionalized equivalent in the TL (example 11). Both involve noticing and predictability skills, as well as content researching, but these tasks were not fully implemented by students. The solution remained word-for-word translation.

4. Conclusions and Further Work

This pilot study indicates that, independently of translation technology, the bottom line is cross-linguistic and translational competence; that is, how well students can produce equivalent text and how able they are to identify poor performance into the TL. The erroneous use of translation techniques such as omission or word-for-word translation, together with the frequent abuse of unedited machine translation, results in a fragmentary and, at times, unintelligible TT.

Awareness-raising work has focused on linguistic, cultural, and semiotic phenomena such as characterization chains, idioms, orality features, cohesion markers, culture-bound intertextual references, or isochrony, among others. The use of a clear, usable checklist including cross-linguistic differential tags related to salient features of the language, genre, and mode, seems to be more effective than research-based error taxonomies, as student errors are better addressed on a more concrete, language-and-direction-dependent basis. This checklist has been very welcomed by students, as it has helped them identify ST problematic areas underlying potential translation errors, and their likely negative effects in the TT. They also reported that the procedure also contributed to improving their foreign language and contrastive studies expertise. Plans include testing it with a wider group of students to enlarge our corpus for both PS and MT texts, revisiting the usability of error tags, and, eventually, using them to check the translation and (post)-editing performance in other domains.

However, the question remains whether interference, as an inherent, universal feature of translation behavior, can be trained. To further investigate the possibilities and limitations of our proposal, this qualitative pilot study also needs extensive quantitative verification in published translations. To this end, we have started to compile CETRI (Corpus de Español TRaducido del Inglés, Corpus of Spanish translated from English), which contains translations from English into Spanish published from 2010 onwards. It replicates the subcorpora in CORPES XXI, the corpus of contemporary Spanish sponsored by the RAE (2018), and includes a subcorpus of popular science, astronomy. Non-translated materials will facilitate the systematic contrast between translated solutions and original non-translated Spanish. This "verification of target-language-fit," which will show the degree of tolerance of native Spanish texts towards (accepted) cross-linguistic interference, has been successfully tested on general language texts (e.g., Rabadán 2007). It will also be used to verify other interference phenomena (e.g., changes in grammaticalization processes caused by cross-language contact), to unveil genre/domain-specific translation norms and strategies, or, more generally, to study the impact of language choices in the reception of the target texts. Our long-term aim is to verify the type of interference phenomena that can be attributed to "third code" performance, and those which cannot, so as to focus on actually feasible improvement. Our position remains that third code expressive solutions may underlie certain additions to the TL, but that TL grammatical capabilities are perfectly able to convey the functions expressed in the SL.

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PART 6 SPECIALISED DISCOURSE IN THE TEACHING AND LEARNING PRACTICE

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THE LEARNING DIALOGUE OF UNIVERSITY LANGUAGE STUDENTS IN A DIGITAL ENVIRONMENT FOR ONLINE TEXT ANNOTATIONS*

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Abstract – The article discusses how an open access tool for collaborative online interaction (Hypothes.is) can be used to enhance collaborative and individual actions of language awareness and critical multimodal awareness for groups of undergraduate and postgraduate university students of English as a foreign language. The research questions focus on how student online collaboration can contribute to (or hinder) the process of critical analysis of multimodal texts, and to what extent collaboration through a digital environment can promote learner autonomy and peer learning through shared discourse and online/offline actions. The digital environment which is the main digital context of interaction for the study is LearnWeb/CELL: CELL (Communicating in English for Language Learning) is a community hosted within the LearnWeb digital environment developed by the L3S Research Center at Leibniz University (Hanover, Germany) (Marenzi 2014) and it is customized as a collaborative environment for undergraduate and postgraduate language courses at the University of Udine (Italy). The LearnWeb developers have embedded an open access application for website annotation (Hypothes.is) in the LearnWeb/CELL digital environment, so that it can be accessed and used by students and teachers. In the study we focus on the reflective learning dialogue that takes place between students when they analyze texts collaboratively. In general terms, this learning dialogue is usually rather elusive and difficult to capture because it happens informally outside the classroom. Our starting hypothesis was that the digital functionalities and affordances of Hypothes.is in CELL would capture at least a part of that learning dialogue and, more specifically, they would record what the students decide to disclose and reveal through their online annotations. Within the limitations of a small-scale study, the paper discusses the students' individual and collective process of reflection on multimodal text analysis. This use of the digital environment allows teachers, researchers and the whole class to 'see' the powerful effect of learning with peers and from peers while developing learning autonomy and exploring learning strategies.

Keywords: language awareness; multimodal analysis; text annotations; learning dialogue; English FL.

* The paper was written by Maria Bortoluzzi on the basis of the common work done by all co-authors. More specifically, Ivana Marenzi contributed to writing Sections 1.2. and 3.1.; Ilaria Boato and Giorgia Salvador contributed to writing Sections 2.2., 3.1., 4.2., 4.3., 5.1. together with Maria Bortoluzzi.

1. Introduction

This paper presents a small-scale study carried out in Autumn 2018 to assess the innovative use of an open access digital tool for collaborative annotation (Hypothes.is) embedded in the digital learning environment (LearnWeb/CELL) used for English as a foreign language in university courses (undergraduate and postgraduate degrees in Foreign Languages and Literatures). A variety of studies show that digital environments for learning can help students become active agents of their language learning processes through online interaction and collaboration (see, among many others: Jones, Hafner 2012; Dudeney, Hockly, Pegrum 2013; Motteram 2013; Chapelle, Sauro 2017; Chanier, Lamy 2017). Learner agency is seen as a crucial variable in language-learning processes; van Lier (2008) recognizes language agency as the learner's ability to self-regulate, the socially mediated nature of sociocultural contexts, and the awareness of learners' responsibility for their own learning actions. This paper will address learner agency with the focus on collaborative learning (Miyake, Kirschner 2014).

In this paper we aim to investigate ways in which an open access tool for collaborative online interaction (Hypothes.is) can be used to enhance collaborative and individual actions of language awareness and critical multimodal awareness, namely the collective and individual ability to approach a complex multimodal text and interpret it taking into consideration the context, the complex interaction between addressers and addressees, and the interrelation between the verbal and visual aspects in contributing to meaning making and interpretation (see, among many studies: Baldry 2005; Kress 2003, 2010; O'Halloran, Tan, Marissa 2017) .

More specifically, the research questions of the present case-study focus on how student online collaboration can contribute to (or hinder) the process of critical analysis of multimodal texts, and to what extent collaboration through a digital environment can promote learner autonomy and peer learning through shared discourse and online/offline actions.

The study is at the cross-roads of different and complementary research fields: critical discourse studies (Fairclough 2003, 2006; Blommaert 2005; Mooney, Evans 2015; Goatly, Hiradhar 2016), multimodal studies for pedagogical purposes (Baldry 2005, 2011; Kress 2003, 2010; Bezemer, Kress 2016; O'Halloran, Tan, Marissa 2017), multiliteracies studies (New London Group 1996, 2000; Cope, Kalantzis 2009a, 2009b, 2015), language learning and technology (Dudeney, Hockly, Pegrum 2013; Motteram 2013; Farr, Murray 2016; Cappellini, Lewis, Rivens Mompean 2017; Chapelle, Sauro 2017).

2. Context of study and theoretical framework

The learning contexts of this research study were two English Language courses of Languages and Literatures degrees at the University of Udine (Italy) in the Autumn term (2018-2019): the 3rd year undergraduate course and the 2nd year post-graduate course.[1] The students' competences in English range from B2 to C1(Common European Framework of Reference, 2001, 2018) for the undergraduate course, and the postgraduate students have competences beyond C1. The main educational objective of the two courses is to enhance and promote reflective critical awareness in text analysis. The 3rd year undergraduate course deals with media discourse (Mooney, Evans 2015, 4th ed); while the 2nd year post-graduate course deals with ecolinguistics (Stibbe 2015).

In this research study we investigate the ways in which students use an open access application for online annotation of websites and documents to carry out collective reflections in small groups on multimodal text analyses.

2.1. The digital environment

The digital environment we decided to use as main digital context of interaction for the study is LearnWeb/CELL (Communicating in English for Language Learning). CELL is a community hosted within the LearnWeb digital environment developed by the L3S Research Center of the Leibniz University of Hannover (Germany) (Marenzi 2014).

CELL is customized as a collaborative environment for undergraduate and postgraduate language courses at the University of Udine (Italy). The LearnWeb developers have embedded an open access application used for website annotation (Hypothes.is) into the LearnWeb/CELL digital environment so that it can be accessed and used by students and teachers.

This means that students' annotations (see below Section 3.1.) are only accessible to the participants who sign up for a special interest group of the CELL community. The multimodal text analysis of the students can be seen only by the two class groups (undergraduate and postgraduate) and the teachers. We did not have any specific study to rely on about the use of the application Hypothes.is for critical multimodal analysis because this open access tool, embedded into the LearnWeb/CELL digital environment, to our best knowledge, had never been used before for this purpose and in this way.

There are several authoritative studies on teaching and learning multimodal analysis (among a vast literature, see Kress 2003, 2010; O'Halloran, Tam, Marissa 2017). In our case, however, more than on the

[1] Undergraduate degree course: Foreign Languages and Literatures; postgraduate degree course: European and Extra-European Languages and Literatures (the University of Udine, Italy).

actual use of multimodal analysis, we wanted to focus on the reflective learning dialogue that takes place between students when they analyze texts collaboratively. This learning dialogue is rather elusive and difficult to capture because it usually happens informally outside the classroom. Our starting hypothesis was that the digital functionalities and affordances of Hypothes.is in CELL would capture at least a part of that learning dialogue and, more specifically, they would record what the students decide to disclose and reveal through their online annotations. The study focuses on how the students use the digital tools for text analysis, the reflection that goes on between them while carrying out collaborative text analysis, and what of this reflection they choose to record online. As Chanier and Lamy remark:

> In computer-mediated interactive language learning (henceforth CMILL), learning is affected by the resources that are available to learners and their use. Therefore, the design of learning activities and research on their use needs to take into account of the materiality of the modes available to learners and how they are used to create meaning multimodally. (Chanier, Lamy 2017, pp. 429)

Due to the specific pedagogical focus of this study, we have adopted their working definition of multimodality: 'Multimodality is the complex relationship that develops between multiple tools and modes when they are co-deployed in different combinations, in learning situations to work toward particular objectives.' (Chanier, Lamy 2017, pp. 430).

2.2. The theoretical framework

As outlined in the introductory section, the research questions focus on how student online collaboration can contribute to (or hinder) the process of critical comprehension and analysis of multimodal texts, and to what extent it can promote autonomous and peer learning. As Chanier and Lamy (2017) state, the potentialities and affordances of the tools and environment need to be carefully considered. This research study tries to assess how a specific collaborative annotation tool can support students' analytical and critical skills through peer learning and autonomous learning processes. We investigate in what way self-reflection, organization of the analysis, knowledge sharing, peer feedback and discussion were instantiated in the specific online environment as related to its offline context of learning.

As O'Halloran, Tan and Marissa write:

> The ability to critically analyze and interpret multimodal texts (e.g., online news, social media postings, websites and videos) has become an important, if not indispensable, skill in the twenty-first century, where sites of information, knowledge construction and social interaction are increasingly governed by interactive digital media technology. (O'Halloran, Tan, Marissa 2017, pp. 147)

Our paper focuses on how a digital appliance not specifically created for multimodal analysis can contribute to what O'Halloran, Tan and Marissa (2017) call MACT: Multimodal Analysis for Critical Thinking. In the research study of O'Halloran, Tan and Marissa the software has purpose-built applications for multimodal analysis and critical thinking, whereas in the present study, the applications are open access and were developed for the general annotation of websites and documents and not according to multimodal theories and practices. This choice allowed the tool Hypothes.is to be embedded into the LearnWeb/CELL environment and used as a set of functionalities in which the students have to adopt their own specific labels and modalities for analysis through online exchange.

We situate our work in the area of multiliteracies for promoting critical thinking through autonomous and collaborative learning. A vast body of research has been carried out in the past decades on the relevance of critical (multi)literacy skills and, more specifically, media literacy skills for students in our 21st century society (among many others: the New London Group 1996, 2000; Unsworth 2001; Kress 2003, 2010; Ala Mutka 2011; Jones, Hafner 2012; Rheingold 2012). As early as 2000, Cope and Kalantzis (members of the New London Group) wrote about the need for change from literacy to multiliteracies: '[…] *literacy* education is about students in our classrooms becoming a part of the global world through mass media, the internet and the multiplicity of communication channels and through interaction with others' (Cope, Kalantzis 2000, pp. 6). Unsworth (2001, pp. 14) identifies three dimensions in literacy practice: 'recognition literacy', 'reproduction literacy' and 'reflection literacy'. The last step, where the student has the role of text analyst, is also referred to as critical literacy.

Greenhow, Robelia and Hughes (2009, pp. 249), following Scardamalia and Bereiter (2006), define as 'knowledge building' those 'environments whose affordances are interconnections, creative capabilities, and interactivity'. This ties in with Dooly and O'Dowd's (2012) view of learning in online networking: '[L]earning is understood as an organic process, fostered through cognitively challenging, meaningful use of language. Inevitably, engaging learners in online networking and publishing implies greater opportunities for communicatively-based language learning, thus facilitating learner-mediated dialogical use of the target language' (Dooly, O'Dowd 2012, pp. 14-15).

Collaborative learning (CL) is 'a fundamentally social process of knowledge building' (Miyake, Kirschner 2014, p. 420), during which 'learners work together to complete a task or solve a problem, and communicate with one another in this process.' (Kukulska-Hulme, Viberg 2018, p. 207). Networking and collaboration in language learning involve two main areas of learning: autonomous learning and peer learning. The literature on both these areas is vast. Here we just outline some of the aspects which are relevant for the present study.

Holec defines autonomy as the ability of the learner to take charge of his/her own learning (Holec 1981, p. 3). Little (1991) outlines the complexities of autonomy in learning. He writes that "autonomy is a capacity – for detachment, critical reflection, decision-making, and independent action. It presupposes, but also entails, that the learner will develop a particular kind of psychological relation to the process and content of his learning" (Little 1991, p. 4). Benson identifies 'control' as a key aspect at different levels: learning management, cognitive processes and learning content (Benson 2001). The autonomous learner becomes creator of learning content, and takes control over his/her learning process. Whereas the first studies on autonomy (1970s and 1980s) focused on individual learning, later on collaboration and the social dimensions have come to be considered crucial factors in developing autonomous language learning (Benson 2006, 2011, 2013). Today ICT technologies offer collaborative and interactive environments where the user/learner can create and re-contextualise learning content, and explore innovative modalities of learning processes (Cappellini, Lewis, Rivens Mompean 2017). Autonomy in language learning is now seen as a 'social construct' as well as a cognitive one (Murray 2014).

Autonomy, therefore, is a necessary basis for the practices of peer learning. Research has shown that learning processes among peers are conducive to enhancing meaning making and knowledge building, especially among people who share age, learning experiences, educational levels and common difficulties (Falchikov 2001, p. 1). As Williams and Burden write, 'working together with another person, either an adult or a more competent peer at a level that is just above a learner's present capabilities is the best way for the learner to move into the next layer' (Williams, Burden 1997, p. 40). Boud *et al*. (2014) clearly show how learning from and with each other should be mutually beneficial for the sharing of knowledge, ideas and experience between the participants. Thus 'peer learning' suggests a two-way, reciprocal learning activity in a formal context (the class) through formal and informal dialogue (online and offline).

Students engage in peer learning to find emotional and motivational support from each other or from a tutor and they collaborate in an open atmosphere of free communication or cooperation in the target language (Boud *et al*. 2014). Through peer learning practices, students can become more aware of their learning process and develop autonomy in language learning, through interaction, reflection, self-evaluation and critical awareness.

In the following section, we describe and analyze our case study.

3. Participants, tasks and tools

The two language courses of our case study are designed to provide the students with basic competences in discourse and multimodal analysis: reading and interpreting texts in context, identifying main viewpoints from verbal and visual cues, discussing identity construction of represented and interacting participants, including the implied or ideal reader of the text, etc.

The courses mainly address what Unsworth (2001) defines as ‘recognition literacy’ and ‘reflection literacy’ (see Section 2.2.).

Our study focuses on how the students recognize textual aspects (verbal and non-verbal), and reflect critically on them in collaboration and as autonomous learners through the interaction which we call ‘learning dialogue’. As mentioned in Section 2.1., the digital environment we adopt allows freedom in organizing the collaborative dialogue among the groups, and, as explained below, the tasks enable the students to choose how to carry out the learning dialogue when analyzing texts. Here we analyze and discuss how the students decide to use the digital tools to carry out collectively a critical multimodal analysis task. We are interested in the solutions they adopt to show their ‘learning presence and dialogue’ online (and offline).

As a starting point, we explained to the students that they would be using an innovative tool for collaborative annotation and through their work we would assess and validate its use in context. We set the tasks as part of student coursework assessment, but only volunteer students would carry them out using the online environment. All the other students would do the tasks during the traditional exam session (written and oral).

Out of 50 third year undergraduate students, 13 volunteers were divided into 6 groups; each group selected one online text (media or social media news): 6 online texts in total, 1 per group. We decided to divide the students into small groups (two or three members in each) to encourage them to take direct responsibility for their own collective work. The groups, however, were formed by the students themselves. Out of 30 second year post-graduate students, 17 students volunteered and were divided into 7 groups. They were also free to select the online texts to analyze according to the guidelines given during the course. Postgraduate students had one text per student (17 texts) and therefore each group had to annotate two or three texts (according to the number of students per group).

All the members of each class (even those who did not directly participate in the study) could see the analysis carried out online by accessing the special interest group on the CELL community. This means that not only could the whole classes access the text analysis and interaction carried out by their classmates, but the work done online can also be accessed as a resource by students of the future courses. This was explained to the students: they knew their work would be seen by other students and become an online resource.

As part of their tasks, the students had to use the online tools to annotate texts and identify crucial aspects related to representation of identities and fact-checking (participants, social groups, events, point of view, etc.). O'Halloran, Tan, and Marissa summarize their Multimodal Analysis for Critical Thinking (MACT) as follows:

> [T]he MACT approach encourages guided as well as self-directed group and individual learning, with the aim to
> - develop an understanding of the different text types/genres that students may encounter in everyday contexts;
> - systematically identify the main features, structures and ideas in functional texts from print and non-print sources;
> - plan, organize, summarize and synthesize pertinent information;
> - develop a critical understanding and appreciation of how visual, verbal and aural elements work together to create an impact and achieve their respective communicative purposes. (O'Halloran, Tan, Marissa 2017, p. 155)

Our students had to decide what to give priority to in their text analysis, and discuss within their group the relevance to give to the various aspects they noticed. Student discussions lead to prioritization of specific elements in their text analysis with reference to the relevance of particular features such as text type, layout and visual aspects, lexical choices, agentivity, verbal and visual metaphors, salience, erasure, etc. The students had no fixed template to follow, but during the courses we had provided them with tools and methodology for carrying out such analysis. They could also share questions with their colleagues and ask for feedback on their own reflections, establishing a peer dialogue and using both technical and informal language.

The digital tool is flexible: categories are not pre-determined and, when carrying out the tasks, users are free to adopt both technical/specific language learnt during the courses and their own wording. The LearnWeb/CELL environment allows the students to save, revise and share annotations of their analysis. They can also decide whether they wanted to work online in group analyzing the text together, or work individually on the same text at different times.

The expected and hypothesized final outcomes are that students would see and acknowledge the other participants' points of view and express their own. They discuss perspectives, increase knowledge through social interaction, develop autonomy in language learning, develop critical thinking and problem-solving skills (see Benson 2013; Murray 2014). Additionally, they can use and improve their own digital skills for specific learning purposes.

The two classes of students (all of them, not only the volunteer participants) were given a 2-hour workshop by Boato and Salvador about how to use Hypothes.is and the *LearnWeb* digital environment. They were also given the Guidelines written by Boato and Salvador to help them access the application and use its functionalities for text analysis. As far as the text analysis is concerned, the two courses (40 hours for the undergraduates and 20 for the postgraduates) were devoted to critically analyze multimodal texts.

The task given to the student specified that they could choose the text they wanted to analyze, and they should do so collaboratively (in pairs or groups of three) using the tool Hypothes.is. No minimum or maximum number of interactions or text annotation was required; this choice was done to enhance pair/group and individual autonomy and collaboration. Each pair or group would have to give an oral presentation of the salient findings of their collaborative text-analysis. For their presentation they had to use as visual support their text analyzed with Hypothes.is and uploaded onto the *LearnWeb* digital environment used for the class group (CELL). The classmates could access the work of each group online and could see it projected on screen during the presentations. A class discussion about the text and its analysis followed each group presentation and the class was supposed to ask questions or suggest further possible interpretations.

Both collaboration and student autonomy (in the sense of pair and group autonomy as well as individual autonomy) was expected at different times during the process: the formation of pairs/groups, the choice of the text to analyze, the way in which the group/pair decided to focus on some aspects of the text analysis, on the way they used Hypothes.is for their analysis and presentation, and their participation in class as active audience for their classmates' work.

3.1. Working with Hypothes.is

As a convention, we capitalize Annotation, Reply, Tags, Highlighting, Page Notes when we refer to the specific category listed below; we do not capitalize when writing generally about different types of annotation. Fig. 1 shows how Hypothes.is appears to users when annotating. The advantage of using this tool is the possibility for the students to annotate the multimodal text as it appears online with its co-text, images, graphic layout, etc.; annotations appear on the side or superimposed without changing the layout of the original text. This allows students to comment both on verbal and visual aspects of the text capturing the multimodal complexity of meaning in context.

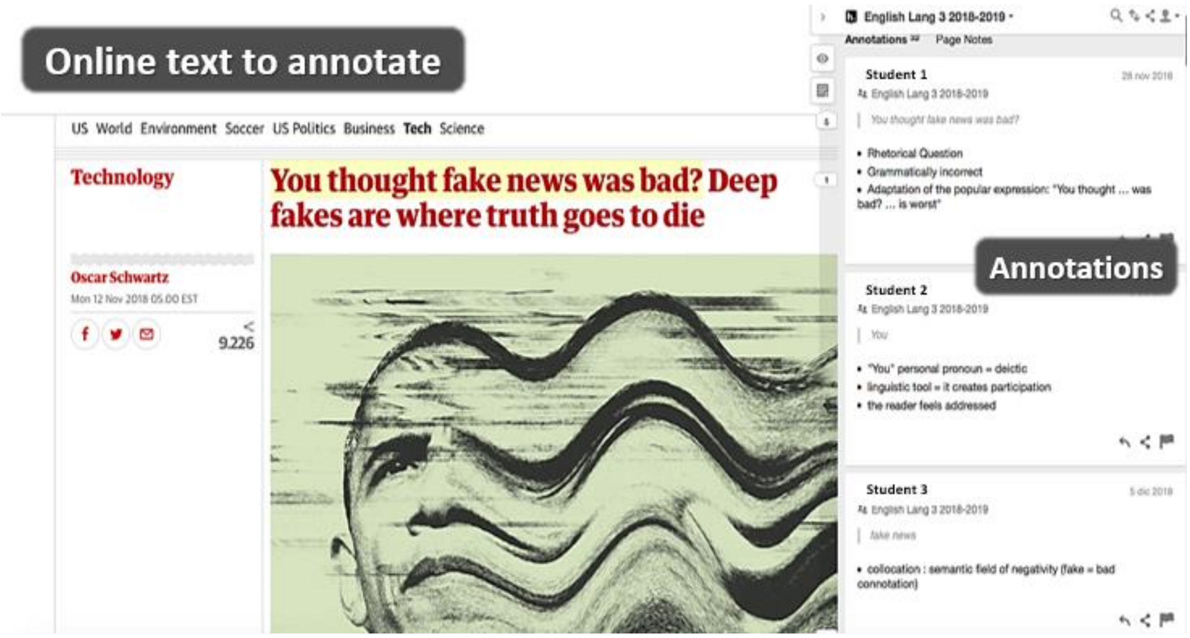

Figure 1
Annotation.

The following are the functions used by the students when annotating the texts:

- **Annotation**: comments appear on the side of the text. Only written text can be annotated (including headlines). It is also possible to embed different media within the Annotation function, as shown in Fig. 2 below. In this specific example, students embedded the link to the video mentioned in the article. In other instances, students added the link to an online dictionary entry or to a website related to the topic.
- **Reply**: it can be used to answer other annotations, thus offering the opportunity for a written collaborative dialogue online.
- **Highlighting**: it can be used to identify stretches of texts or multimodal aspects that the user annotates. Highlighting is only in yellow.
- **Tag**: it is used to identify key aspects students want to share and easily retrieve using ‘search’.
- **Page Note**: it allows students to comment on wider sections of texts such as layout, images, whole pages, etc. Hypothes.is does not have a specific function to annotate images and macro-structures, and Page Note can be used for this purpose.

Figure 2
Transmedia annotations.

In the following section, we present the methodology adopted by students when constructing the online learning dialogue.

4. Online and offline discussion for critical reflection on text analysis

Critical reflection on texts and text analysis are among the most complex aspects of learning, especially when they are carried out in a foreign language (English in this case). Generally, what tends to be seen is the end result of a text analysis which is in fact a complex process of close reading, reflection, text and multimodal analysis (Goatly, Hiradhar 2016; Bezemer, Kress 2016; O'Halloran, Tan, Marissa 2017). As O'Halloran, Tan and Marissa (2017) demonstrate, a specific software for multimodal analysis can help students in their individual and collaborative multimodal analysis for critical thinking. The present study focuses on the different ways in which students use the affordances and tools of a software such as Hypothes.is in CELL, which, since it was not developed specifically for multimodal text analysis, requires students to choose the language of interaction for annotating in groups. This flexibility (its drawbacks and limitations in Section 5.1.) has the undeniable advantage of allowing students to report an online learning dialogue based on autonomous learning and peer interaction: a dialogue that is rarely captured, and usually remains covert and neglected. What follows is a summary of the qualitative analysis on the student multimodal and critical reflection.

4.1. Collaborative construction of text and multimodal analysis and interpretation: the task

All groups annotated collaboratively in a collective construction of text analysis using different functionalities. As mentioned, the groups autonomously decided how to use the tools to carry out their task. This allowed the students of the group, other students who accessed their work, and the teachers to see an online collective analysis in which each student had the responsibility for and the autonomy of participating in the discussion. The task explicitly required collaboration, however, each group interacted in different ways and with different results.

Some groups had a dominant tagger/annotator. This is more evident in some postgraduate groups in which some individual students tended to annotate more and feel more responsible for the text they would present orally to the class. Some groups tended to be more balanced than others in terms of contributions from the partners. The task was also based on respecting autonomy in group dynamics; therefore, we did not specify a precise number of obligatory interactions or annotations that had to be carried out; the task did not have any word limit in annotations and online contributions. The result is a great variety in annotation length, highlighting and interaction. This freedom can better capture individual and group differences and it also allows more proficient students (either in written English or in text analysis) or more confident individuals to contribute more while helping less confident or less proficient students. This led to major variations in the number of annotations: from a minimum of 6 to a maximum of 64 for each of the 17 postgraduate students, and from a minimum of 7 to a maximum of 19 for the 13 undergraduate students.

4.2. The learning dialogue in annotations

We call ‘learning dialogue in annotations’ the final result of annotated texts in which all the students of each group contributed to the analysis and interpretation of the multimodal text by collectively annotating the text, using the tools and negotiating the results. Therefore the ‘learning dialogue’ is student discourse and action carried out online and offline and reported through the annotations. In this paper the unit for the learning dialogue is the original text with all its annotations. We identified three main typologies of ‘learning dialogue in annotations’. Number 1, below, is an expected outcome, whereas number 2 and 3 are interesting variations adopted by the students.

Here typologies are presented separately; in fact, not only are they not mutually exclusive, but also they overlap and blend.

- *Online block-annotation learning dialogue*. It is a use of annotations that most groups adopted in a variety of ways: they shared ideas and comments annotating the text individually in turns. In some instances, students did not interfere with what the others posted, they only added annotations without overtly responding to their partners' annotations. In this case, the learning dialogue is less explicit, but it is still clearly presented and probably negotiated offline as can be seen by the general coherence of the result, since in block-annotation there are no contradictory claims within the text analysis of each group. The data also show that if one student overlooked one aspect considered relevant by a partner, Replies or Annotations as comments were added in an ongoing dialogue exchange (see Example 1).

  Example 1. Group AT-RS[2]

  Text *The hidden climate change impacts of the tourism industry*
  AT: (dominant student) 15 Annotations and Tags; RS: 3 Replies used to add only very briefly some linguistic devices.

  Text *Stop biodiversity loss or we could face our own extinction, warns UN*
  RS: (dominant student) 29 Annotations and Tags; AT: 5 Replies to add linguistic devices or brief comments.

- *Online reported learning dialogue*. Some groups reproduced an online dialogue with turn-taking and online discussion (often using Reply). In some instances, the use of metadiscoursal features that confirm, acknowledge and add to what others wrote transforms the activity into an explicitly reported interaction and an 'academic dialogue': *I do agree with you, definitely, moreover,* etc. In these instances, the students captured and reproduced their learning dialogues by means of the virtual exchange collectively discussed and recorded online (Example 2).

  Example 2. Referring to comments made by one participant in the group, Group CA-IR-LP write in their annotations: 'I loved the comments ;) This really feels like a dialogue between friends.'

- *Face-to-face online learning dialogue*. We use this label for an unexpected find which is a blended offline-online mode of interaction. Some students met face-to-face and worked online on the learning dialogue. Therefore, the learning dialogue took place both offline and online in real time: they would discuss features face-to-face and report the

[2] Examples are reported using the initials of the students' names. In italics the text title or headline. Examples are reported verbatim.

results of this dialogue in the online annotations through their personal account. In this typology, the students used the offline dialogue seamlessly to plan, revise and enrich the online learning dialogue; the latter is on-record and more permanent because it is written online and 'more public' (shared with the class and the teachers). The students who adopted this modality wove their dialogue across digital and in-person learning contexts. For instance, Group AZ-FC-MB met after classes and each student used their individual laptop. They worked simultaneously on the common account and discussed face-to-face what each noticed in the multimodal text and wanted to annotate online. The final result is that annotations are evenly distributed throughout the text and, even though there is a difference in quantity of annotations (AZ 12, FC 19, MB 20), the quality of the analysis is similarly insightful for the three components of the group. Through their concerted effort, the three students managed to comment on rather complex text phenomenon; Examples 3-5 give three instances of their annotations (one for each group component).

Example 3. Group AZ-FC-MB AZ:'pragmatic presupposition: violence against women'

Example 4. Group AZ-FC-MB MB:'The journalist does not limitate (sic) the construction of his identity only to his gender, but through the reference to his family dimension he shows his vulnerable side too.'

Example 5: Group AZ-FC-MB FC: 'hard and fast news > it reports a crime'

In general terms, typologies 2 and 3 show a more complex level of collaboration and also a higher level of autonomy for both the individual learner and the group because each learner clearly demonstrates competences in negotiating the learning dialogue and making his/her voice heard/read in relation with the other voices in the group/pair. The evidence of this is on the greater coherence of annotation between the learners of a pair or group using typologies 2 and 3 more than typology 1. Typology 1 shows the autonomy of the learners and their ability to notice text features and interpret them; in some cases, however, this typology reveals limited collaboration. In a few instances, one partner in the learning dialogue tends to efface him/herself and only contributes by annotating the text or part of text s/he will have to present in class. The 'dominant annotator' usually prevails and takes over. Even in this case, however, there is an educational advantage in using the tool because shy, less confident or less autonomous students are supported by their group and helped in the task, as can be seen from the results. On the other hand, confident, autonomous students appear rather collaborative and active online and on-record.

In summary, to be able to see the 'learning dialogue' reported online (in its various instantiations) has allowed the teachers to see the potential of a flexible tool that can be used autonomously and collaboratively by the students in accordance with their learning preferences and online and offline interaction preferences.

4.3. Blending learning opportunities online and offline

Affordances are defined as 'the potential and constraints for making meaning' (Bezemer, Kress 2016, p. 23). In this section we summarize some of the main tools used by the students as affordances to demonstrate their individual and collective competence in text analysis and interpretation.

We also describe the use students made of potentialities and constraints of digital tools for multimodal text analysis.

Transmedia. This has been defined as 'the increasingly interconnected and open-ended circulation of media content between various platforms, where the subjects previously known as "the audience" are increasingly involved in the production of flows' (Jansson 2013, p. 287).

Some groups made the most of the tools offered by the digital environment to reach out to other media and modes: students embedded links to external references, pages, videos, dictionary entries, social posts, etc. which were relevant for their discussion, such as links to online dictionaries when they needed to discuss a term or a collocation, links to other texts, images, videos or even social media posts related to the issue (see Fig. 2).

The communicative impact of transmedia was also used for the oral presentations in class to give a wider scope to the discussion, show a relevant aspect which was not present in the text (an image or a short video clip), give a definition for a key term (dictionary entry), give authority to their presentation quoting from other texts related to the issues, etc. Transmedia affordances allowed students to explore the wider context of their text, understand it better (linking it to past events and present or future results), and give depth and validity to their analysis. Additionally, transmedia also have the aim of attracting the attention of the audience during the oral presentation.

Tagging. Tags in themselves are a digital tool that can be used for different affordances and give scope to a variety of meaning making: identifying a keyword or key concept, offering a key term for retrieving similar topics or language devices, underlying a concept. The 50 Tags used by the postgraduate students are selected key terms for text analysis. The students' complete freedom in using Tags (rather than selecting from a pre-established set) has the disadvantage that the system counts as different Tags a capitalized 'Salience' (2 occurrences), and 'salience' (8), which means 10 Tags in total. Other examples in which the label identifies similar items are the use of Evaluative Term and Evaluation (which are used similarly, but counted separately), Facticity/FacticityPatterns, Appraisal and its variations, etc. (as can be seen in Table 1). However, flexibility gives the students a wider scope for autonomy and exploration of their competences as language analysts. All postgraduate students used Tags for identifying linguistic devices and major patterns of analysis such as layout or visual features (see twelve top Tags in Table 1 reported with raw number of occurrences):

28	23	20	16	15	14
Epistemic modality	Appraisal pattern	Metaphor	Identity	Facticity pattern	Evaluative term
13	11	9	9	8	7
Appraising item (sic)	Evaluation	Appraisal item	Facticity	Salience	Nominali-zation

Table 1
Top tags and raw number of occurrences.

It is remarkable how the postgraduate students used Tags for linguistic and visual phenomena as the task required, rather than just content or topic. Thus, the functionality 'Tag' identifies self-selected key issues in technical terms in text analysis.

Often these Tags are also accompanied by an Annotation or a Page Note that elaborates on the relevance of the tag, as in the example below (reported verbatim):

> Example 6 Group EC: *might point out*
> Tag: epistemic modality
> Annotation: This expression is the first one of a long series of epistemic expressions indicating a low degree of commitment, related to a low level of facticity of truth in the text. As a matter of fact the majority of the expressions either indicates a probability or present some hedges.
>
> Example 7 Group FC-RC
> Tag: imagevisual features
> Annotations for each image: The illustration is really eye-catching as well as the contrast between colours. Worth mentioning is also the representation of the earth as transfigured because of human actions.
> The ground and the sky (natural elements) are drawn with warm colours (yellow and orange) while the human figure and the other objects (a plastic bottle, a barrel and a car wheel) which are waste, are represented by using cold colour (blue, grey and purple).

Using annotation for self-study. Some groups and individual students used the functionalities as explicit strategies for self-study and self-reflection.

One of many instances can be found in the text analysis of the group CT-CDL where linguistic devices and patterns are highlighted in bold in their annotations; annotations are also partly written schematically to support the easy retrieval of information and as textual landmarks for the oral presentation (see excerpt in Example 8):

Example 8: Group CT-CDL
Annotations: CONCLUSION
Need to promote and spread more visual metaphors
Why

- Images are cognitively *less demanding*
- Visual metaphors are *easier* to remember, imagine, see
- They give *concreteness*: abstract concepts often hide the reality of things
- Tag: #visualmetaphor

Using annotation for the oral presentation. A positive outcome was the use of the annotated text for the oral presentation of students' work in class.

The student speakers were able to show their analysis in context, focus on their priorities and choices and use the annotated text as an outline that could guide their oral performance. The student audience could choose how to access the article, co-text and wider context: either looking at the classroom screen displayed by the presenters, or by accessing the analysis online on their own laptop screen. This latter solution allowed the audience to scroll up and down the texts to follow the presentation better, read on, read the co-text, access the hyperlinks, see the images and layout better than on a distant screen, and also prepare questions for the presenters during the follow up class discussion. Thus, the audience can be more involved, more attentive, ask relevant questions and make more cogent remarks related to specific features they notice. Autonomous learning and peer learning, in this way, are enhanced by blending offline-and-online meaning-making affordances and opportunities for critical reflection.

Using annotated texts for study and revision. One of the major advantages of the annotated text is the opportunity it provides of accessing the learning dialogue, the annotations and reflections on the multimodal text for all students who sign up for the digital environment. Since the choices of texts annotations were the students' own, the variety of annotated texts and the variety of the learning dialogues offer interesting resources for revision and study to students who have similar tasks to carry out. Additionally, students who cannot attend lessons can access materials which are insights into the process of preparing for the written and oral tasks required for the exam. This solution gives students who did not participate in the research study the opportunity to see the level of critical language awareness required for this exam, and offers them resources for peer-revision and peer-study (annotated texts will remain accessible for future groups of students) contributing to increasing their study autonomy.

5. Discussion

This section summarizes some of the findings of the data analysis and the main educational assets and drawbacks of using this digital environment (Hypothes.is in *LearnWeb*/CELL) for enhancing autonomous and peer learning to promote critical multiliteracy.

The digital environment as used in this study contributed to making the individual and collective learning dialogue partly visible and accessible for further reflection and considerations to teachers and classmates. The learning dialogue is based on the autonomous organization by individuals and groups and is characterized by different collaborative actions for peer-learning. First the group had to choose the multimodal text to analyze collectively, then organize their own individual and collective way of analyzing it identifying the most salient aspects in relation to the multimodal analyses carried out during the course. Then the group had to negotiate the way they wanted to discuss their choices for the multimodal analysis: offline in presence, online via annotations, online via another medium, deciding timing (discussing before the text analysis or while they were writing the text analysis using Hypothes.is). They had to decide on revisions and what needs to be left on record for the whole class and the teachers to see online as far as the different annotations were concerned and the way in which they wanted to report their discussion.

They had to decide and organize their oral collective presentation of their work to the class using their text analysis on Hypothes.is to display the multimodal text; and they had to answer the questions of their classmates or discuss their comments.

More specifically, the learning dialogue was elicited by the need for annotating collectively the texts in context and interpreting the devices the students noticed and commented on. The original text was also given depth of context by relating it to other texts (through intertextuality and transmedia).

As discussed in Sections 4.2. and 4.3., in the data we can identify three main ways of representing the learning dialogue: 1. *Online block-annotation*, 2. *Online reported learning dialogue*, 3. *Face-to-face online learning dialogue*. Typology 1 is based on separate autonomous decisions accepted by the group (and sometimes supported or commented by other students in the group); Typology 2 and 3 are more focused on peer-learning and a more overt relational autonomy of individuals in the group. In Typology 2, the groups reported online and in dialogic form their negotiations (carried out online or offline and explicitly recorded through online annotations).

Typology 3 can be identified only through the observation of the teachers and demonstrates the relevance of face-to-face learning dialogue for the students while working directly online. The relational aspect of peer-learning is overtly on record in Typology 2, and observed 'in action' by the teachers in Typology 3. In Typology 3 in particular, the quality of interaction is enhanced by group autonomy through peer-learning actions which happen in a 'third space' by blending online and offline actions and discourse (Dooly 2011, p. 334).

To summarize, the learning dialogue through annotations showed (and required) the autonomy of the learners in their choices of text to analyze, strategies to carry out the task and final results to share online and 'on record' with the class and the teacher. This dialogue and multimodal annotation process became blended in place and time. Students reported in a variety of online ways their offline dialogue, and their online annotated text became an effective support for their offline oral presentation in class. The audience (classmates and teachers) could follow the class presentation through the online environment as well as the projection on screen of text and annotations; this enabled them to follow better, read co-text and context, possibly accessing links provided to facilitate comprehension and exploring the wider context of production and interpretation of the text.

The analyses and reflections presented by the students as well as their choice of text are resources for study and revision for other students (also students belonging to different academic years). The annotated texts become exemplifications of the variety of how critical multimodal analysis can be carried out and developed, what aspects can/might be selected and what multimodal features noticed and commented on. This is a resource for exam preparation and revision, especially for the students who cannot attend courses.

One of the most complex aspects of the teachers' job is tapping into the learning process and finding ways to render it less elusive in order to value it and reflect on it with the students. In our case study, individual and collective learning dialogues are not only visible (at least partly), but also on record and shared collectively. Peers can learn from the learning process of others, as well as from the competences (and limitations) of other students.

In terms of both autonomous and peer learning, this series of learning actions and learning discourse can promote communication in the target language at different levels of competence, different registers (technical written annotations, informal oral dialogue, formal oral class presentation). The exchange of points of view and procedures in multimodal analysis contributes to enhancing autonomous and peer learning. The transmedia embedding of external resources such as dictionaries, links, video can help students in the analysis, autonomous study and peer-exchange.

5.1. Limitations of the study

The study is small scale and its results can be useful as a pilot analysis for follow-up research studies. This section summarizes some of the problematic aspects detected during planning and data gathering. First of all, we soon noticed that the two-hour workshop devoted to teaching the students how to use the tools of the digital environment and give them controlled hands-on practice was far too limited. A longer practical workshop would be needed both to present the functionalities and their potentialities, and to exemplify how and what can be annotated. Boato and Salvador wrote Guidelines for using the platform; however, guidelines for how to annotate and how to use the potential affordances of annotations are needed. A video could be prepared to help students navigate and use the environment for critical multimodal analysis.

As evidence for the need of better training, we can mention the fact that undergraduate students did not use Tags at all, whereas postgraduate students did in a very interesting way (see Section 4.3.). This is due to the fact that the postgraduate group had an additional, informal short training session (1 hour) when they were explicitly told how to use Tags. The same applies to the limited use of Page Note, which potentially can be used to annotate layout, images and macro-structures. Also, some groups never used Reply, but replied using Annotation; this choice creates the impression of switching to a different topic, rather than a continuity in the student dialogue. Another relevant aspect is that the students would have certainly profited from the use of a specific checklist for multimodal analysis.

A series of technical issues should be also solved if the environment is to be used for a wider project. More specifically, there is the need for a more user-friendly interface between the *LearnWeb*/CELL environment and Hypothes.is. Sometimes annotations disappear or become ‘orphan’ showing that the system is not yet stable. Archiving online texts with annotations for research purpose and for retrieving them later is still problematic at the time of writing.

Methodological limitations are also to be addressed as far as task setting is concerned: to obtain comparable data, more stringent requirements would be needed for the task (length of annotation, number of annotation, balance between verbal and non-verbal aspects, etc.). Additionally, the relevance of face-to-face interaction (for the purpose of analyzing and annotating the text collectively) shows that it would be necessary to voice-record the offline dialogues; these dialogues greatly contributed to the 'learning dialogue in annotations' and are only partly captured or inferable through observation and annotation analysis.

5.2. Concluding remarks

This small-scale qualitative study has investigated how students' online collaboration can contribute to the process of raising critical awareness when analyzing multimodal texts, and to what extent it can promote autonomous and peer learning. As summarized in Sections 4 and 5, using a digital environment such as Hypothes.is in *LearnWeb*/CELL has the advantage of making visible part of that otherwise elusive but crucial process which is the individual and collective learning dialogue. The students use a variety of solutions that show the richness and originality of the individual and collective process of reflection on multimodal text analysis. The digital environment also allows the teacher, researchers and the class to 'see' the powerful effect of learning with peers and from peers while developing learning autonomy and exploring learning strategies.

Using a digital environment, the students create their own 'third space', namely a co-created space at the intersection of online and offline worlds. The concept of the 'third space', derived from Bhabha (1994) and Kramsch (1993), is re-contextualized by Dooly (2011) as a learning opportunity. She writes:

> Seeing the 'third space' as an opportunity for users to co-create a 'third' culture, through the combination of multiple cultures (including e-cultures), implies that the virtual communities can be where members build a sense of joint enterprise and identity around a specific area of knowledge and activity and share a repertoire of ideas, commitments, memories and ways of doing and approaching things. (Dooly 2011, p. 334)

The present study shows that this 'sense of joint enterprise' can be elicited and explored through specific tasks and can contribute to critical meta-reflection in the blended space of the offline and online learning dialogue. In this joint enterprise students use a variety of discoursal and digital features that signal reflection, interaction and negotiation in autonomous and peer learning.

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THE MWSWEB PROJECT
Accessing medical discourse in video-hosting websites

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Abstract – Video corpora are one form of specialised corpora that can be used to promote the use of video-hosting sites, such as YouTube and Dailymotion, in domain specific university language learning courses. The article reports the experiences of a group of researchers, working in a variety of roles and from different perspectives, to promote the use of videos hosted on such sites in English for Medical Purposes (EMP) courses. The article describes how the MWSWEB platform modifies access to such sites in ways compatible with corpus-based exploration of domain-specific videos thereby encouraging university students to build their own video corpora under the guidance of their teachers.

Keywords: video corpora, annotation and transcription; OpenMWS; House Corpus; EMP (English for Medical Purposes).

1. Introduction

This chapter[1] describes three English for Medical Purposes (henceforth EMP) case studies that illustrate the goals of the MWSWeb Project undertaken in the light of the growing engagement with online videos characterising many aspects of university research, teaching and training. The existence of online

[1] The chapter brings together four papers presented at the International Conference on *Specialised Discourse and Multimedia: Linguistic features and translation issues* held in Lecce (Italy), 14-16 February 2019. Section attributions are as follows: Sections 3 and 7 were written by Davide Taibi; 4 by Anna Loiacono; 5 by Ivana Marenzi; 6 by Francesca Tursi; 8 by Deirdre Kantz; 1, 2, 9 and 10 by Anthony Baldry. The MWSWeb platform is the work of one of the authors, Davide Taibi, and is accessible to authorized users at: http://mws.itd.cnr.it. A few weeks after submitting this chapter for publication in February 2019, we learned that Francesca Tursi, who for many years worked as a CEL specialising in Medical English at the University of Foggia's Language Centre, had passed away. We miss her very much and dedicate this chapter to her memory.

video-sharing sites like Vimeo.com (November 2004), YouTube.com (February 2005), Dailymotion (March 2005) and TedTalks on Ted.com (June 2006) has removed some of the previous impediments to the construction and use of video collections in Higher Education. For example, video annotation projects are no longer dependent on the constant need to convert video tapes into digital files hosted locally on University servers (Baldry 2004, 2005; Coccetta 2004, 2008, 2011). In their turn, however, video-hosting sites have generated other hurdles which need to be overcome. Not least of these are the difficulties in meeting and catering for undergraduates' expectations about training in video analysis in a society which encourages them, as a means of career promotion, to make their own video CVs and video demonstrations (Hafner 2014). Alas, all too often these 'encouragements' come without the appropriate skills or awareness of the complexity of video genres (Coccetta 2020; Taibi *et al*. 2015) and hardly ever with the provision of *what-if* functionalities that allow videos to be broken up and re-assembled in different ways. This is, instead, a key aspect of the case studies presented in this chapter which illustrate the potential of the MWSWeb platform, the cornerstone of the MWSWeb Project.

The cases studies describe the step-by-step construction of collections of online videos in the context of EMP teaching and learning, each of which constitutes a multimedia corpus that helps users identify different types of video sequences thanks to the MWSWeb platform's various search mechanisms that retrieve data from the tagged corpus. While the design and implementation of the MWSWeb platform was undertaken by the research team (Taibi, Marenzi, Ahmad 2019; Baldry 2019), various aspects of corpus construction, including the manual annotation process, have been entrusted in the MWSWeb Project to students enrolled in language-related degree courses (LANG students). Their successful engagement with various transcription and annotation tasks and the ease with which they have carried them out is a demonstration that undergraduate students are capable of, and derive benefit from, the construction of online multimedia corpora (Ackerley, Coccetta 2007a, 2007b; Baldry 2005, 2012; Coccetta 2004, 2008, 2011; Baldry, Kantz 2009; Loiacono, Tursi 2019; Taibi, Marenzi, Ahmad 2019). As documented below, the case studies illustrate how LANG students' efforts have helped to provide teachers with access to online multimedia corpora which have proved to be particularly useful when engaging with undergraduate students enrolled in medical degrees (MED students) and with postgraduate students entrusted with healthcare worker duties in hospitals (HCW students).

So far in the MWSWeb Project, the online MWSWeb platform has undoubtedly assisted all the University students involved, regardless of the category to which they belong, by making available tools that stimulate the critical reflection required in all forms of university training but which have not so far emerged in the context of video-sharing websites. A good example is the playlist. Previously the preserve of disk jockeys, the playlist is now used to provide structured online video pathways, a first step towards sharing experiences of videos on a common theme. The Khan Academy's successful implementation of structured film sequences on medical themes (www.khanacademy.org) is an impressive example. However, despite their successful use for the delivery of stepped sequences of lessons (Snelson 2010), playlists seem unlikely to undergo further development in ways that correspond to the level of critical reflection on videos that students require when facing up to the digital age's demands. The same may be said of other ways of structuring and guiding user interactions in video-hosting sites. The *channels* found in the video-sharing sites listed at the start of this chapter are little more than an index to collections of videos produced or promoted by specific individuals or organisations while viewers' *comments* unsystematically mix significant critical insights with less illuminating observations.

Although the case studies presented below illustrate the use of tools that adapt video-hosting sites to EMP needs, the MWSWeb Project is, in principle, concerned with the needs of all Higher Education students. Online multimedia corpus tools that allow videos to be broken up and recombined are important in promoting any student's capacity to incorporate different perspectives in their thinking about videos regardless of whether they are LANG, MED or HCW students or whether they belong to any other student category. LANG students, in particular, lack the facilities for hands-on corpus-based exploration which underpin the task of learning how to make comparative critical observations on a video's semiotic organisation and how this might be affected by changes to soundtracks (as happens with dubbing changes), videotracks (such as when overlays, captions and subtitles are added or modified) or when supporting texts (multilingual transcripts, video overlays) are introduced (Baldry *et al*. 2007).

In its demonstration of how the MWSWeb Project is attempting to address these shortcomings, the chapter is organised in the following way. After an introductory section (Section 2) explaining the background and early stages in the development of the MWSWeb Project, the chapter describes three case studies assigned to LANG students whose completion was essential in the development of EMP courses. Specifically, Section 3 describes the role LANG students played in tagging the multimedia House Corpus, the first corpus interface to be constructed in the MWSWeb platform, while Section 4 explains how their work has supported the first stages in the construction of an EMP multimedia corpus concerned with MED students' encounters with colour-based medical grading systems. Likewise, Section 5 describes LANG students' roles in creating scene typologies in the House Corpus, while Section 6 illustrates how these were used in EMP lessons for MED students concerned with the expression of pain. Section 7 instead describes LANG students' engagement with the transcriptions and annotations that need to accompany YouTube videos when the latter are accessed through the OpenMWS interface, a second corpus interface that has now been added to the MWSWeb platform. Section 8 instead describes HCW students' engagements with online tools incorporated in this second interface and also recounts the part LANG students have already played and are expected to play to this end. A brief discussion of the results so far achieved and the conclusions about the MWSWeb Project are given in Sections 9 and 10.

2. An overview of the MWSWeb Project

Before presenting the three cases studies mentioned above, a brief summary of the main facts and stages of the MWSWeb Project is in order. As will be apparent from what has been stated above, so far two stages have characterised the development of the MWSWeb platform, the cornerstone of this undertaking. The first, now completed, stage was concerned with the development of a specific multimedia corpus, the House Corpus (Baldry 2019, Coccetta 2019; Loiacono, Tursi 2019; Taibi, Marenzi, Ahmad 2019), which provided scene-based access to the House M.D. series hosted on the Dailymotion site. This was followed by a second stage of development that introduced the OpenMWS interface. As its name suggests, the latter has broadened the possibilities for student-centered projects by providing access to specific sequences in the videos hosted on the YouTube site. The first two case studies presented below mainly concern LANG students' transcription and annotation of scenes in videos in relation to the House Corpus and the House M.D. TV series (Sections 3-7), while the third case study (Sections 7-8) details their work using OpenMWS to transcribe and annotate sequences in YouTube videos.[2]

In ways detailed below, the MWSWeb Project promotes the active and voluntary participation of university LANG students to master and test out the viability of the methods used for the transcription and manual annotation of online videos. All the case studies described below involved LANG students' engagement in the construction of corpora to be used in EMP teaching for the benefit of MED and HCW students. In this respect, the MWSWeb Project also constitutes a test of the students' ability to complete multimedia corpus construction tasks. In other words, besides exercising

[2] In passing we may mention that the project is a successor to the MCA and MCAWeb projects that successfully performed some of the multimedia corpus-construction tasks described below (Ackerley, Coccetta 2007a, 2007b; Baldry 2005, 2011; Coccetta 2004, 2008, 2011) but did not specifically address the issue of access to video-hosting sites. In this respect, as with any software platform, there is a need for constant road-testing through case studies and the subsequent introduction of improvements (Baldry *et al*. 2020; Marenzi, Kantz 2013).

LANG students' discourse analysis skills, their direct participation in the construction of specialised multimedia corpora ensured their greater awareness of the nature and functions of multimedia corpora (Baldry 2012). 'Video annotation' and 'video analysis' are, of course, key terms in the design of many computer systems. Most of these, however, relate to projects undertaken in a research laboratory environment requiring the participants to have advanced IT skills. This chapter, on the contrary, is concerned with video analysis that can be handled by LANG students whose digital skills roughly correspond to ECDL Base Modules (http://ecdl.org/about-ecdl/base-modules). As such, the MWSWeb Project is ultimately concerned with assessing LANG students' individual and collective perception of the value of video annotation and transcription and, above all, whether they feel that such tasks lead to better understanding and critical appreciation of videos in the specialised domain of medical and healthcare science.[3]

In the MWSWeb Project promoting students' annotation and transcription skills and developing new video analysis tools go hand in hand. As described below, without the LANG students' participation, it would not have been possible to complete the various stages in the project, which effectively would have led to the project's termination. The ultimate measurement of success for the MWSWeb Project does not lie in responses to anonymous questionnaires but rather in the students' ability and desire to complete the tasks assigned and to provide feedback that are inputs for new tools. In this respect, at the very outset of the MWSWeb Project and before initiating the participating students' online engagements with specialised corpora, an initial offline task was undertaken that identified all the medical acronyms in the House M.D. TV series. This task required the students to read through all the episode transcripts and annotate each acronym. As well as providing encouragement to proceed with the online aspects of the MWSWeb Project, the successful completion of this task also made it possible to improve the House Corpus interface by incorporating specific acronym search tools and adding the scene-by-scene highlighting for acronyms exemplified in the top-left hand corner of Figure 1. Both these resources have proved particularly useful in EMP teaching to medical undergraduates (Loiacono, Tursi 2019). This preliminary stage also experimented the use of online 'message boards' (i.e. shared documents in a Google Drive) as a point of contact between the participating students and the research and development (R&D) team.

[3] The student annotators are Italian undergraduate students studying for a 'Language Mediation' degree (*Scienza e Tecnica della Mediazione Linguistica*). Their annotation activity started in October 2017 and, at the time of writing, some 50 students have participated in the project, as part of the fulfillment of their first-cycle degree requirements. Francesca Bianchi is thanked for her recruiting assistance.

3. Scene-based multimedia corpora

Before presenting the first EMP case study (Section 4), it is appropriate to outline some of the key features of the House Corpus which had to be completed before any road-testing case studies could be undertaken. In this respect, a crucial aspect to the functioning of the House Corpus is the division of episodes into scenes, defined as the point in an episode where the camera cuts to a different location and/or group of interactants. Breaking up episodes into scenes and episode transcripts into scene transcripts allowed each occurrence of a word or word combination in a search result to be presented in relation to the scene in which it occurred, as illustrated on the right-hand side of Figure 1.

Figure 1
Scene-based contextualisation of a medical term: *swab*.

Searches of the 6300 scenes that make up the House Corpus identify occurrences of specific words. For instance, the searched-for word *swab*, which appears four times in the example shown in Figure 1, is in red. In addition, a further highlighting possibility relates to medical acronyms, which are shown in blue when, that is, the end-user activates the Highlight Acronym functionality shown in the top left-hand corner of Figure 1. Overall, Figure 1 illustrates the synchronisation that a multimedia corpus requires between a written transcript and scene viewings. Various types of utterance-by utterance transcript and video synchronisation are increasingly found in video-hosting sites, often as a response to crowdsourcing requests for translations to be uploaded so as to increase the number of potential viewers. As Figure 1 shows, rather than utterance by utterance, the synchronisation in the House Corpus is undertaken on a scene-by-scene basis in keeping with the characteristics of TV soaps in general, medical dramas included.

However, in its original form the House Corpus was not a multimedia corpus and was not able to support corpus searches for specific words, nor did it have the further possibility of viewing specific scenes in which these words occur. The first task given to the LANG student annotators was thus to help convert the transcript-based House Corpus into a multimedia corpus. In order for this task to be completed, it was essential to provide intuitive tools. In this respect, Figure 2 shows the Video Bar in the Transcript Annotation interface corresponding to the scene shown in Figure 1. The Video Bar is an online form providing an easy way to fill in and/or modify the data required to make scene viewings possible. The annotations that the students had to provide were: the point in a specific scene where the dialogue starts (Time Point); the duration of the scene calculated with reference to the point in time where the dialogue ends (Time Span); the link (Video) to the episode in the Dailymotion site. Initially, the data needed for the online insertion of data into the Video Bar was collected offline in a Microsoft Word table but the level of accuracy shown by the students soon persuaded the R&D team to switch to an online procedure.

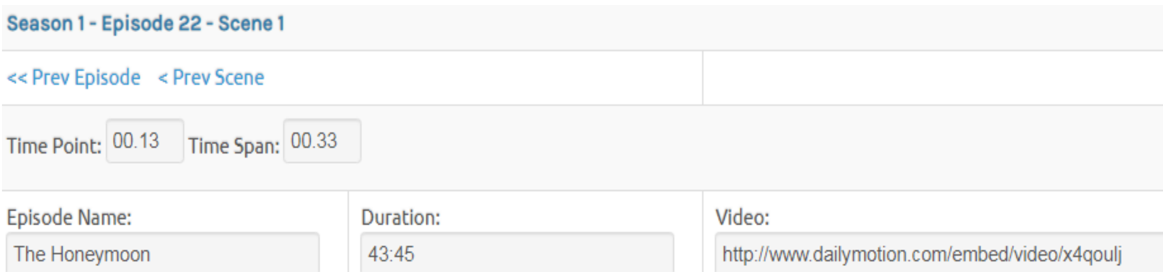

Figure 2
Video Bar: online insertion of data needed
to ensure synchronised transcript and scene viewings.

As Figure 2 also shows, each episode's overall duration was included as an optional item in the information to be inserted in the Video Bar. Even though this information is not used by the MWSWeb platform in the execution of its tasks, it was nevertheless included to make it easier to spot cases where the original link was no longer supported by the Dailymotion website. In fact, a subsequent recheck undertaken by a second group of LANG students revealed, somewhat discouragingly, a considerable number of such cases. More encouragingly, the recheck highlighted the students' quality assurance skills: the students spotted and applied the changes made necessary by the longer duration of the replacement videos, which included modifying all the time points and time spans in the episodes in question. The successful completion of this first stage in the MWSWeb project in the second quarter of 2018 and subsequent rechecking a year later by a different team of students, suggests that students' continued participation is associated with the positive experience of being in the 'driving seat' and knowing that a concrete outcome will be the result of the efforts they have put in. Scene-based multimedia corpora work well with TV medical dramas, so much so that the next step undertaken by LANG students as regards the tools made available in the House Corpus interface of the MWSWeb platform related to the issue of annotating recurrent *types* of scene (see Section 5).

4. Colour systems in medical tools

This Section looks at colour systems as they relate to EMP teaching to MED students. The use of the House Corpus has been essential to this end and has provided inputs for subsequent developments, specifically an online module, *Reflections on colour-based grading systems in the English-for-medical-students syllabus*, designed to encourage learning about the functions of colour in medical grading systems. Ultimately, the goal and design of such a module has been dependent on providing answers to the following questions: Are there any differences with general English? Are there any special forms to be learnt? What L1 interferences, if any, undermine the proficient use of colour terminology? How can access to videos via the House Corpus and OpenMWS assist in this? How aware are students of the functions of colour in healthcare?

We may take the last question first as it is all too easy to reach the conclusion that medical students are colour blind, not in the sense that they are unable to distinguish between the various colours of the rainbow and name them in English but rather because of their need for greater awareness of the role colour plays in healthcare in different settings. Take, for example, the photo in Figure 3 which illustrates an oxygen mask with Venturi valve adaptors, a system designed to deliver high-oxygen flows with each valve delivering different but constant oxygen concentrations. Based on the Venturi effect discovered by the Italian physicist, Giovanni Battista Venturi (1746-1822), whereby air flow is attenuated by being sucked back when passing through a tight nozzle, the valves regulate the percentage of oxygen that hospital systems (100% pure oxygen) deliver.

In the 2017-18 academic year, the photo and table shown in Figure 3 were presented by the author of this Section to students in the second year of their six-year degree course in Medicine with the explanation that the valves are arranged stepwise with colours indicating specific combinations of oxygen flow rates and oxygen concentrations. When asked in a written exam to describe the functions of Venturi masks, only two of the twenty candidates made any mention of the use of colour as a grading system. None of them explained that each colour indicates the valve's control over oxygen flow and oxygen concentration or that, as a further safety precaution, this information is also indicated numerically on the valves in the manner shown on the right-hand side of Figure 3. Nor did they indicate that numerical systems and colour coding systems often go hand-in-hand in medical systems, reflecting the frequent convertibility between the two.

COLOUR	OXYGEN FLOW (LITRES/MIN)	PERCENTAGE OF OXYGEN
Blue	2	24%
White	4	28%
Orange	6	31%
Yellow	8	35%
Red	8	40%
Pink	12	50%
Green	15	60%

Figure 3
Venturi valves (left-hand side) and the colour grading system with numerical correlates (right-hand side).

So why did this happen? There are various possible answers. One could very well lie in the assumption that describing colour systems requires no special EMP skills – *i.e.* once you can name a colour in English, there is nothing else to be learnt. In other words, knowledge acquired at school about inflected forms such as *redder, reddest* and *reddish* already goes beyond what will be needed in a hospital clinic. This assumption is certainly borne out by the House Corpus' search facilities which, for example, pinpoint the single example of *blackened* in the entire corpus. In other words, a miniscule role is played by inflected colour-related forms in this TV series. In fact, as Table 1 shows, there is a 1:38 ratio between inflected and non-inflected forms.

ASE FORM		ADJECTIVAL STRUCTURES				VERBS	NOUNS	TOTAL
		-ish	-{e)y	-er	-est	-/(en)+ (s/ed/ing)	Plural Nouns	
1. Black	255	0	0	0	0	1	2	258
2. Blue	121	1	0	0	0	2	1	125
3. Brown	67	1	0	0	0	2	1	71
4. Green	89	1	0	0	0	0	1	91
5. Gray/grey	43	1	0	0	0	0	1	45
6. Orange	47	1	1	0	0	0	0	49
7. Pink	38	0	4	1	0	0	0	43
8. Purple	31	2	0	0	0	1	0	34
9. Red	223	4	0	0	0	1	0	228
10. White	336	0	0	1	1	1	2	341
11. Yellow	65	0	0	0	0	0	0	65
TOTAL	1315	11	5	2	1	8	8	1350

Table 1
Ratio of inflected to non-inflected colour terms in the House Corpus.

The House Corpus thus provides very clear answers to the first two EMP questions asked above: there are no substantial differences with general English and few special forms to be learnt. We may also mention in passing that, in our experience, little L1 interference is detectable when MED students' describe colours, with only a few examples of a spurious definite article placed before a base form (as in **The red is a warning colour*).

So clearly, the answer to the question raised above had to lie in a lack of experience in the use of face masks and colour systems in medicine and healthcare. So, in the following academic year (2018-19), the author's courses to MED students included a focus on these aspects with the support provided by: a) the author's course book with its many references to colour systems (Loiacono 2018); b) the possibility, thanks to efforts of the student annotators described above in Section 2, of undertaking classroom viewings of some of the 86 scenes which use the term *mask*. These illustrate the many different types of mask that exist and the functions to which they are put.

As shown in Figure 4, the distribution of these scenes in the House Corpus is revealed by the Scene Summary tool which identifies and counts the number of *scenes* in which words and word combinations occur. Unlike this tool, a second tool, the Word Summary tool, identifies and counts the number of *tokens*. Intriguingly, comparison of the occurrences that these tools retrieve allows experienced users to make hunches about scene characteristics. For example, in the case of a search for *oxygen mask*, the fact that the Scene Summary count (40) almost coincides with Word Summary count (41) leads, correctly, to the conclusion that there must be just one scene in the entire series in which *oxygen mask* is part of the dialogue (S07E23, Scene 5) and that otherwise this expression is almost always part of the metatextual commentary on the actions carried out by doctors in these scenes.

Web Word Summary Scene Summary Dialogue Summary

Search term: mask

Seasons	Episodes																							
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Tot
Season 1	1	0	1	0	0	0	0	0	0	1	0	0	1	0	0	0	1	0	0	0	0	0	-	-	5
Season 2	0	0	2	0	1	1	0	1	0	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	7
Season 3	1	0	0	2	0	0	3	1	1	0	3	0	1	2	0	0	1	3	0	1	5	0	1	1	26
Season 4	1	3	0	0	0	0	0	0	4	0	1	1	0	0	1	1	-	-	-	-	-	-	-	-	12
Season 5	0	0	0	2	1	0	0	0	0	0	0	1	2	0	0	2	0	0	0	1	0	0	0	0	9
Season 6	1	0	1	1	0	1	1	0	1	1	0	0	1	0	0	0	1	0	0	0	1	0	-	-	10
Season 7	1	3	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1	1	0	2	-	9
Season 8	0	0	0	2	0	1	0	0	0	0	3	0	0	0	0	0	0	0	1	0	0	1	-	-	8
																								Grand Total	86

Figure 4
The *Scene Summary* tool indicates the number of scenes
per episode in which the searched-for word occurs.

While this in itself is a useful indication of the typical differences between written and spoken forms of medical discourse in English, it also points to the need, in future, to rely more on videotrack annotations to clarify what type of mask is involved. Even so, further investigation using the House Corpus search tools (combinations of acronyms, single words, multiwords) made it possible to illustrate the differences between oxygen masks, protective masks and other non-medical masks such as cucumber masks (S03E19, Scene 31). It also made it possible to identify scenes showing patients, rather than doctors, wearing masks (13 scenes contain both references to *mask* and *patient*) and vice-versa scenes showing doctors wearing masks, rather than patients, (16 scenes contain both references to *mask* and *doctor*). So, when the 2018-19 course began with a reminder that masks and colour systems are closely related to issues of HCW and patient safety, it became much easier to find scenes that help characterise medically relevant colour systems in terms of various intersecting verbal/visual events. For example, the scene illustrated in Figure 5 shows a nasal cannula rather than a mask worn by a patient, while a protective white mask (that looks slightly bluish in the theatre's lighting conditions) is worn by the doctors. In the same scene, the patient's responses to questions about flashcards with coloured objects are used to stimulate and monitor brain impulses which are shown in different colours on a computer screen and different colours are also used to represent different body functions on life-support monitors.

SEASON: 5 - Episode: 13 - Big Baby - Scene: 28

HOUSE: Not only will this allow us to clock your brain's processing speed, you'll also get free cable for the first three months. [Sarah laughs slightly. House sits in front of her, wearing a mask but no gloves. He shows her a flash card.] What's this?
SARAH: A blue car. Is that part of the test?
HOUSE: Nope, my lease is up next month. You like? [She smiles wanly.] I'm gonna ask you a series of questions designed to stimulate left-brain function - logic, reasoning, problem-solving. Or as my mentor, Old Ben, liked to call it, "The dark side." If we find slow areas, we know we found damage. We treat. You go home. Ready?
SARAH: I'd nod yes, but I can't move my head.
HOUSE: [showing another flash card] This pen is red. Its ink is red. Is all ink red?
SARAH: No.
CAMERON: Nerve conduction's 12. 8 meters per second. Right within range.

Figure 5
A scene illustrating medical tests in which colours come into play.

The scene shown in Figure 5 is one of numerous examples in this TV series illustrating a clinical test on an individual patient in a clinical setting. However, among the colour-based medical systems with which MED students first come into contact are those used in Emergency Medicine to triage patients into different treatment groups (Loiacono 2016, pp. 12-17, pp. 32-33) which engender patient flows in hospitals that use further classification systems, some colour-based, but all of which need to be mastered by MED students (Loiacono 2012, pp. 52-72; 2013, pp. 216-231). Yet, unlike other TV series focusing on the ER room where triage takes place, in the House M.D. series, triage is not foregrounded. Of the seven instances of the word *triage* in the entire series, four occur in one episode (S06E22, Scene 3) dealing with an extra-hospital mass disaster emergency where triage systems based on different colours and principles from those used in hospitals are used. This, in other words, constitutes a shift in the intra/extra hospital cline with which MED students need to become familiar but which, alas, is only partly satisfied by this TV series, as, in general, many other examples of the differences between hospital and non-hospital settings which make use of colour in relation to patient safety need to be taken into consideration.

A good example are diabetic pens which are coloured in order to distinguish between those that inject short vs. long-lasting insulin, both of which are usually needed by insulin-dependent diabetics but at different times of the day. A study to this end (Lefkowitz 2011) established that, compared with the standard approach of using a differently coloured label or a different injection button colour, ‘full pen body colour’ (i.e. pens incorporating a specific colour throughout their structure) enhanced a patient’s ability to differentiate between the two types. This is a medically significant feature because in non-hospital settings, where diabetics have to fend for themselves, errors arise owing to their often poor visual acuity and impaired colour vision as a result of diabetic retinopathy. Ultimately, and although not designed for this purpose, the diabetic pen example neatly summarises a basic dilemma facing EMP teachers (and, of course, students) of how to resolve the paradox whereby colour is firmly rooted in visual semiosis but also at the very same time comes to be described in oral and written discourse through language.

Many types of medical equipment and supplies from epi pens to sharps bins raise the issue of the need for healthcare workers (future doctors included) to cope with medical colour codings and to describe them. A further complication is where colour systems are integrated with other medically relevant semiotic systems such as numerical systems and sound systems, a requirement that the House Corpus partly satisfies. As Figure 6 shows, a classic example relates to the ability of medical students to describe hospital monitors where sounds, colours, numbers and even acronyms are interlinked.

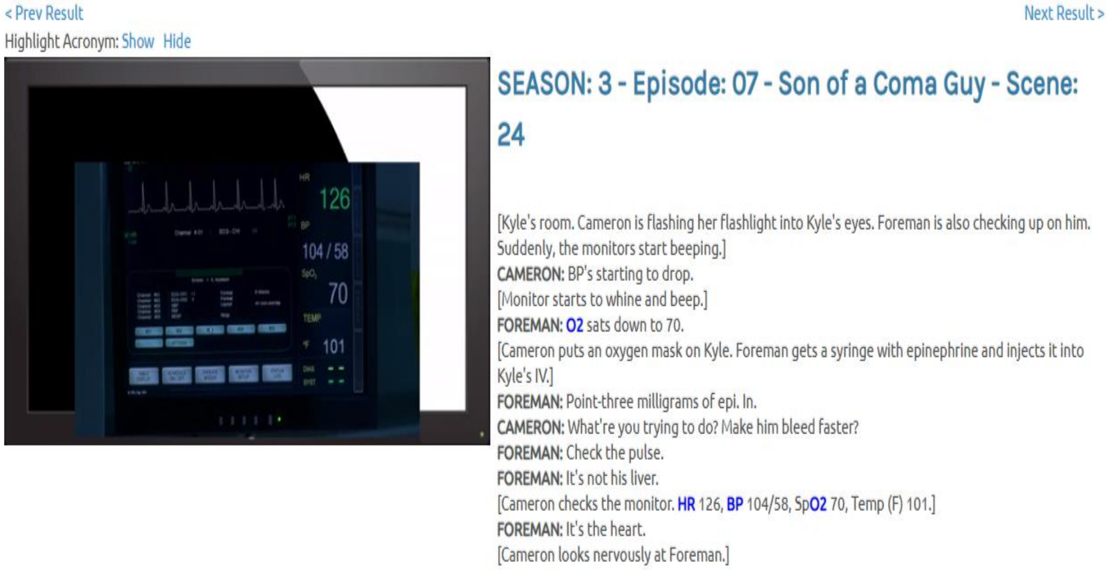

Figure 6
A scene showing hospital monitors' acoustic and visual warning systems.

As well as a useful example of the need to stimulate greater awareness of colour systems in different healthcare contexts, this illustration can be used to exercise the considerable skills needed to describe monitor functions in English, a task which includes the rather complex linkage between the warning beeps of monitors and their visual warnings such as colour changes and flashing regarding which space restrictions preclude further discussion. In its efforts to construct an analytical framework that ensures that medical students are not, as it were, fazed or dazzled by colour, there is a need to go beyond the affordances of the House Corpus interface and to extend the illustrations of colour-based medical grading systems available to EMP teachers by including (as indicated in Loiacono 2018) videos hosted on YouTube. As further described below, this can now be undertaken through OpenMWS. This further step will facilitate EMP teachers in the complex task of adapting the theoretical insights about the semiotic potential of colour put forward in various publications (Kress, van Leeuwen 2002; van Leeuwen 2011) to the training needs of MED students.

5. Classifying Scenes into types

In preparation for further road-testing (see the second case study presented in Section 6), the demands placed on the student annotators' video analysis skills were increased in the subsequent stage of MWSWeb experimentation. This highlighted the "value of specialized corpora in the process of encouraging students to advance their critical discourse analysis (CDA) skills" (Taibi, Marenzi, Ahmad 2019, p. 151) by exploring the subordination of lexicogrammatical selections to textual and intertextual forces in the production of discourse. In this stage, two additional Annotation menus – Voice Annotation and Hands Annotation – were added to the original Transcription Annotation menu. The LANG students were asked to apply annotation labels associated with the first of these menus to the entire corpus. This task explored and mapped out the role of voice prosodies in the construction of meanings and identities in the often emotionally-charged dialogues that characterise the House M.D. series. By ticking a series of check boxes, the students also annotated each scene in terms of character types, making it possible to ascertain how these dialogues are distributed across different social and professional groups: doctors, patients, caregivers, non-medical professionals and other social categories. However, the value of specialised corpora, and the role of the MWSWeb project in providing hands-on experience of such corpora, can best be exemplified with a single example: the annotation of the corpus in terms of Scene Location types, a submenu of the Transcription Annotation menu.

This task required students to select an appropriate label for each scene from one of three lists provided. As Figure 7 suggests, the first list related to hospital scenes, the second to scenes shot outside the hospital, the third to scenes that were difficult to classify. In the latter case, students were asked to make message board suggestions and to re-annotate the scene once an annotation they had suggested had been incorporated.

Figure 7
A partial view of Scene Location annotation options.

Though at first carried out by the R&D team, the task of incorporating annotation options into the inventory shown in Figure 7 was subsequently entrusted to the students, a step that entailed making the password to the Settings tool visible (see Figure 19 in Section 7). In this way, a final set of just over 100 Location labels was constructed from the initial set of twenty, the final result indicating a hospital/non-hospital ratio of 3 to 2. The annotations undertaken in this stage of the research were an important step in making it possible to carry out corpus searches capable of producing scene maps which help determine the overall structure of each episode (Taibi, Marenzi, Ahmad 2019). Figure 8 shows one such map, relating to the distribution of M.D. Office scenes in this TV series.

Search Result

Web | Word Summary | Scene Summary | Dialogue Summary

Search term:

Seasons	Episodes																							
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Tot
Season 1	1	2	3	2	4	6	4	4	2	0	0	5	4	5	6	3	2	5	4	5	2	2	-	-	71
Season 2	5	5	7	4	4	3	2	4	8	2	7	5	3	3	4	1	2	2	1	2	9	4	7	2	96
Season 3	10	6	6	2	4	2	1	8	5	7	1	2	1	4	7	1	6	1	1	1	1	3	5	5	90
Season 4	12	4	6	6	3	2	0	0	0	0	0	0	0	0	0	0	-	-	-	-	-	-	-	-	33
Season 5	8	4	2	2	7	3	3	1	12	7	4	3	9	4	5	9	2	9	3	7	2	7	8	9	130
Season 6	0	0	5	6	7	3	2	2	2	2	5	3	5	7	5	2	0	5	4	4	1	2	-	-	72
Season 7	0	6	6	3	0	8	7	5	6	2	7	2	3	3	5	1	4	0	3	3	4	1	1	-	80
Season 8	0	4	9	10	4	3	5	2	8	2	1	1	5	3	2	4	2	5	6	3	6	2	-	-	87
																								Grand Total	659

Figure 8
Distribution of M.D. Office scenes
per episode in the House M.D. series.

The overall tally indicates that just over 1 in 10 scenes in this series take place in this context. Likewise, some 500 scenes were shot in the Conference/Diagnostics Room where Dr. House, using his famous whiteboard, carries out brainstorming sessions with his team. Comparison with the ten times smaller number of scenes located in the Emergency Room throws light on the core features of this medical drama series, whose focus on the difficulties associated with differential diagnosis emerges as a defining feature. It distinguishes this series, for example, from other TV series, such as the US ER series or the UK Casualty series, where interaction with patients and healthcare workers in emergency situations predominates.

Student annotations have ensured that such characterisations of TV series are supported by the precise quantifications that corpus techniques supply. However, as part of the quest to provide specialised corpus awareness and training for all the participating students, annotation of the House Corpus was designed to encourage all students to explore the distributional aspects of specialised corpora and to reflect on the corpus construction requirements needed to map out such distributions. Awareness of these aspects was constantly ‘plugged’ in this stage of development of the MWSWeb Project. A third annotation interface, Hands Annotation, was created adopting a questionnaire-like approach to scene type annotation. This records annotation selections for hand movements separately for each student. It also allows consistency checking to be carried out, as the different decisions made by each student can be compared and assessed. Where there is overall agreement, the annotation is accepted, but where this is not the case further analysis is requested. This is especially significant in those cases where decision making is subjective in nature and thus likely to engender greater variation in annotations. This is clearly the case with the interpretation of functions of hand movements where uncertainty and differing interpretations are far more likely than in the case of location annotations (Arizzi 2019a, 2019b).

6. Using Scenes typologies in EMP teaching

It is hardly surprising that for many years now, the author of this Section has incorporated scene-by-scene analysis into her classroom teaching of episodes in the House M.D. series that highlight pain and pain management. This is clearly a major area of investigation in EMP courses for medical students that includes analysing oral and written discourse relating to: diagnosis (doctors discussion); history taking (patient/caregiver interviews); analysis of lab and other tests, and, in general, presenting the phraseology typically used in English to express and describe the suffering that pain causes.

Web | Word Summary | Scene Summary | Dialogue Summary

Search term: pain

Seasons	Episodes																							
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Tot
Season 1	2	5	14	0	1	4	3	2	1	2	15	3	2	8	2	3	1	0	12	5	27	8	-	-	120
Season 2	7	1	1	0	1	0	2	15	1	7	2	26	16	5	2	1	2	3	6	15	18	6	5	7	149
Season 3	13	13	13	2	15	6	4	11	15	15	14	7	2	26	3	8	3	7	2	2	7	0	20	11	219
Season 4	3	1	7	6	6	6	3	4	5	4	6	6	0	1	5	1	-	-	-	-	-	-	-	-	64
Season 5	10	4	1	6	2	3	23	3	11	6	1	87	1	4	6	18	1	0	5	9	2	0	5	4	212
Season 6	1	6	14	4	9	10	2	0	3	3	4	7	3	1	2	1	8	5	14	3	0	8	-	-	108
Season 7	0	1	17	3	1	1	3	6	12	10	3	1	1	4	4	3	3	3	0	4	7	12	12	-	111
Season 8	2	3	8	0	1	2	1	4	1	1	1	8	0	0	3	1	2	2	7	5	12	6	-	-	70
																								Grand Total	1053

Figure 9
Distributions for *pain* using the *Word Summary* tool.

The MWSWeb Project assists this task. With a few key strokes, the *House Corpus* presents the results of searches for the word *pain*. As Figure 9 shows, the Word Summary tool establishes the overall frequency of *pain* at 1053 occurrences – roughly one token per thousand words in the House Corpus. More useful for the EMP teacher, however, is the *Scene Summary* tool (Figure 10). Besides identifying the 653 scenes out of a total of 6310 (almost a 1-in-10 ratio) in which *pain* appears, it provides a scenes-per-episode count for this word, and thus guides EMP teachers as to which episodes to investigate and which to discard.

Search Result

Web | Word Summary | Scene Summary | Dialogue Summary

Search term: pain

Seasons	Episodes																							
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Tot
Season 1	2	3	7	0	1	3	3	1	1	2	10	3	2	6	2	3	1	0	6	3	14	8	-	-	81
Season 2	4	1	1	0	1	0	2	9	1	3	2	10	9	4	1	1	2	3	5	9	11	4	2	5	90
Season 3	5	5	6	1	8	4	3	8	8	10	8	4	2	13	1	6	3	4	2	1	4	0	9	6	121
Season 4	3	1	5	4	5	3	3	4	4	4	6	4	0	1	4	1	-	-	-	-	-	-	-	-	52
Season 5	5	3	1	5	2	3	11	3	6	4	1	21	1	3	4	11	1	0	4	7	1	0	5	3	105
Season 6	1	3	10	2	8	7	2	0	2	2	3	4	2	1	2	1	4	3	8	3	0	6	-	-	74
Season 7	0	1	14	2	1	1	2	5	5	10	3	1	1	4	1	2	3	2	0	4	6	8	5	-	81
Season 8	2	2	5	0	1	2	1	3	1	1	1	3	0	0	3	1	1	2	4	5	8	3	-	-	49
																								Grand Total	653

Figure 10
Distributions for *pain* using the *Scene Summary* tool.

While all this confirms convictions about the centrality of pain in EMP teaching, of far greater practical value for the EMP teacher is the combined ‘word plus annotation’ search illustrated in Figure 11.
Having typed in the word *pain* in the Word section of the Search Panel, an EMP teacher can select one of the options in the Voice Intensity and Modulation subsection of the Voice menu. As shown in Figure 11, in this example, the *2.5 Intensity changes (e.g. whispering, yelling, shouting)* filter was chosen because the expression of pain is often accompanied by disruptions to expected voice qualities.

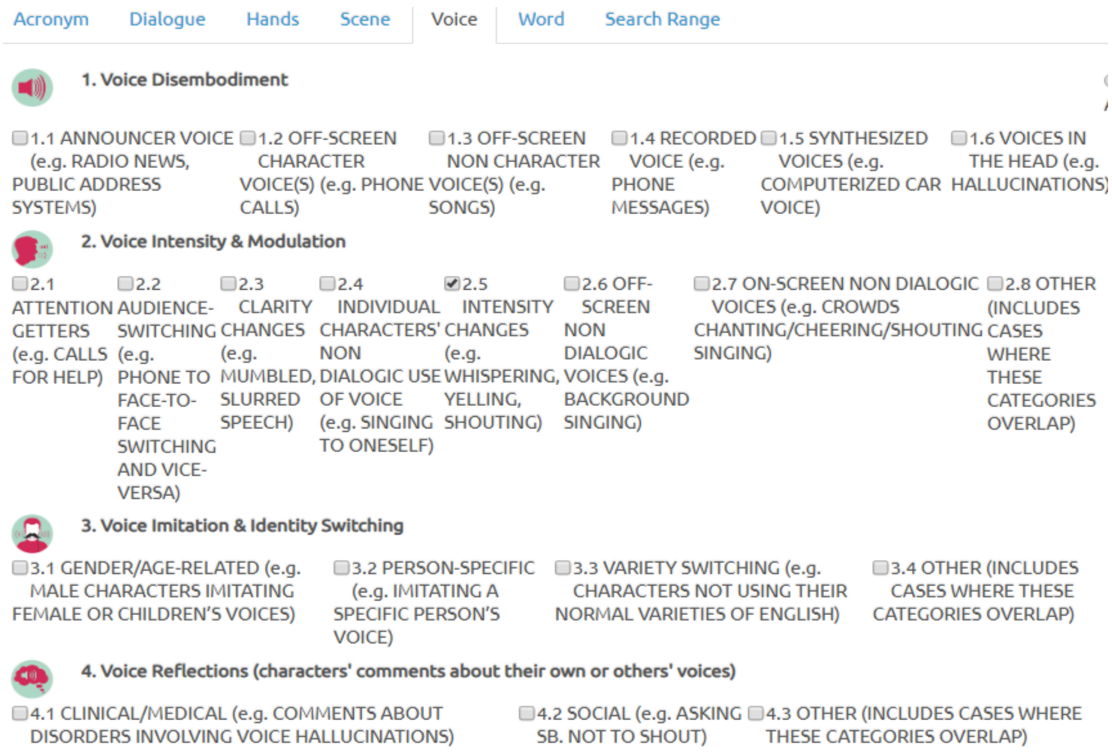

Figure 11
The Voice menu used as part of a joint word + annotation search.

This type of search helps pinpoint the most relevant scenes. Significantly, it reduces the number of scenes identified by the search tools, from the 653 shown in Figure 8 to just 96, thus simplifying the EMP teacher's task of selecting significant scenes. Many of these scenes highlight conflicts, partly signalled by changes in voice characteristics. These include those scenes in which Dr. House's *own* pain, and hence his Vicodin addiction, is foregrounded. Indeed face-offs between Dr. House and his female boss, Cuddy, on this issue are a salient feature in this medical drama series. One such example is highlighted in Scene 5 in *Finding Judas* (S03E09):

> CUDDY: You forged prescriptions!
> HOUSE: Allegedly.
> CUDDY: *Your pain has become my pain*. From now on, you get reasonable doses at reasonable times.
> HOUSE: But I hurt in an unreasonable way.
> CUDDY: Then dip into your secret stash.
> HOUSE: Tritter took it.
> CUDDY: Then move on to your secret-secret stash.
> HOUSE: I ran out.
> CUDDY: [*annoyed, whispering*] Then move on to your secret-secret-secret stash!

Such scenes can be detected by adding the filters available in the Dialogue menu to those already selected and described above, thus further restricting the number of scenes the EMP teacher needs to take into consideration. The Dialogue menu allows scenes to be selected in terms of characters groups, specific characters and/or the number of interactants participating in a scene. In other words, combined word plus annotation searches provide EMP teachers with small but useful sets of examples. Given the added possibility of scene viewings, this allows EMP teachers to explore the physical and mental pain of both patients and doctors, and naturally doctor-patients, in terms of how mutual understanding and participation in pain is expressed.

Selecting which scenes to present is a further consideration for EMP teachers when using a multimedia corpus. As Figure 12 shows, once episodes with the highest number of ‘hits’ for *pain* have been identified, using the Word Summary and Scene Summary tools illustrated above in Figure 9, a further search can be made which produces a useful and easily manageable scene list.

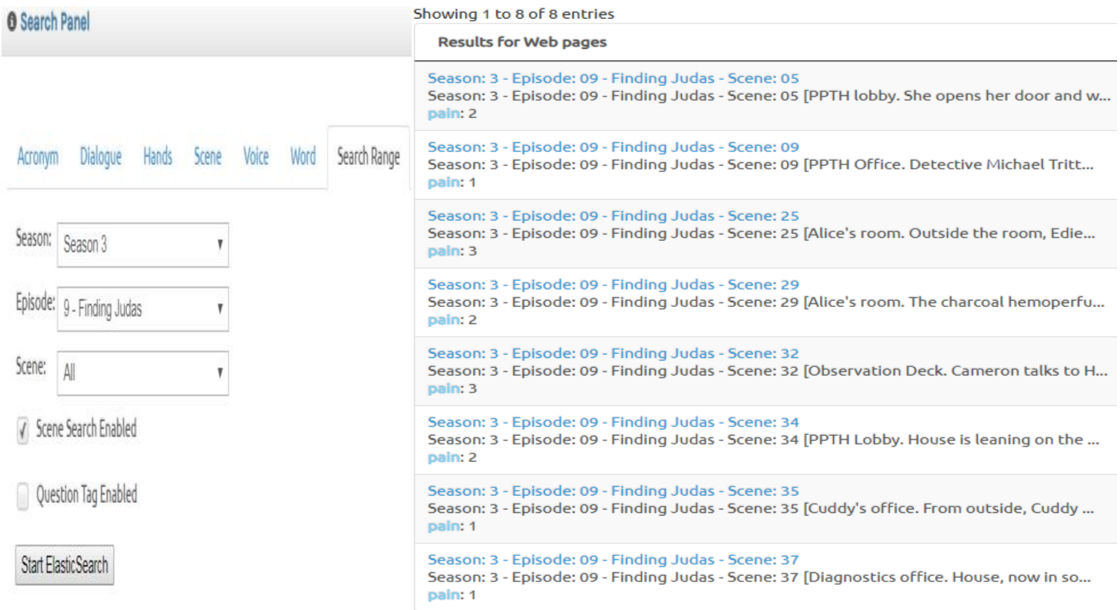

Figure 12
The Search Range filter (left) produces a ‘playlist’ of relevant scenes (right).

As may be appreciated from the ‘Prev Result’ and ‘Next Result’ buttons in the top-left hand and right-hand corners of Figure 13, the scene list allows an EMP teacher to browse efficiently through the scene transcripts and play each scene in a constant and comparative flow.

Figure 13
The EMP teacher can browse quickly through the list of scenes.

As well as illustrating expressions such as ‘cope with (the) pain’, ‘muscle pain’, and ‘dismiss pain’, the scene list helps EMP teachers to illustrate supposedly ‘simple’ constructions such as ‘to be *in* pain’ also exemplified in Figure 13. In reality, this is quite different from the formula used in the medical students’ L1 (usually Italian) and is further characterised subsequently in the scene list by related expressions such as ‘cry (out) *in* pain’ and ‘*in* serious pain’.

Significantly, Voice menu annotations frequently link voice quality to pain not on the basis of the scene transcripts but on the basis of the LANG student annotators’ viewings of the scenes. This aspect highlights the significance of the multisemiotic approach undertaken in the MWSWeb project which assists the EMP teacher in convincing medical students that it is one thing to be able to read medical English but quite another matter to master oral discourse in English – regardless of the variety of English used or type of oral discourse (written-to-be-spoken in the case of a TV series).

The examples shown above illustrate the significance of combined word plus annotation searches. They also illustrate the value of the manual annotations undertaken by student annotators. This may be further appreciated when alternative search strategies are taken into consideration. There are many verbs in English often associated with the expression of pain, such verbs as ‘cry’, ‘holler’, ‘howl’, ‘screech’, ‘scream’, ‘shout’, ‘shriek’, ‘wail’ and ‘yell’, all of which are used in House M.D., for which word searches (as opposed to word plus annotation searches) in the House Corpus are a possible but time-consuming and tedious task. At best, such searches would miss out the many expressions in English that express voice intensity other than through the use of verbs, which include expressions like ‘at the top of his/her voice’ or more simply, as House’s closing turn in Figure 14 illustrates, through words like ‘loud’.

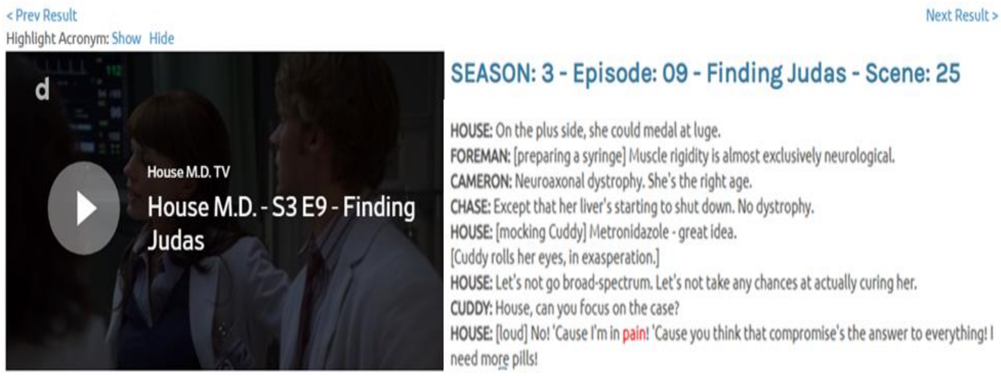

Figure 14
The EMP teacher can identify scenes illustrating voice features.

On the contrary, as illustrated above, a multisemiotic approach that links word searches to annotation searches for features such as voice quality provides a convincing alternative. As mentioned above in Section 5, all the scenes were annotated by LANG students for their voice characteristics, the result of their reading through the scene transcripts and listening and watching the individual scenes. We can be grateful to them for this, because combined word and annotation searches contribute considerably to facilitating video-based EMP Teaching.

7. OpenMWS

The OpenMWS stage in the development of the MWSWeb platform marks the transition from a ‘closed’ version of the platform, concerned with the annotation of a single medical genre (all the episodes in the House M.D. TV series) to an ‘open’ version that extends the range of medical and healthcare genres that can be accessed. Still in its initial stages, the current version of OpenMWS allows all videos on the YouTube site to be accessed, transcribed and annotated. One advantage is to allow students to play a more significant role in the various stages of video analysis including decisions on which videos to select, transcribe and annotate in the process of corpus construction. As detailed below, this is particularly the case with the annotation phase. Whereas in the House Corpus stage of the MWSWeb Project, students were essentially asked to add annotations to a pre-existing corpus, OpenMWS requires greater creativity in the formulation and application of annotations and is thus a test of the participating students’ digital readiness to transcribe and annotate online medical and healthcare videos. It entails a transition from familiar word processing to less familiar spreadsheet tools and to separate procedures for transcription and annotation. As Figure 15 shows, before annotation can be carried out, students must upload the Overview, Resources and Composition files to the OpenMWS system via the Annotation Project window.

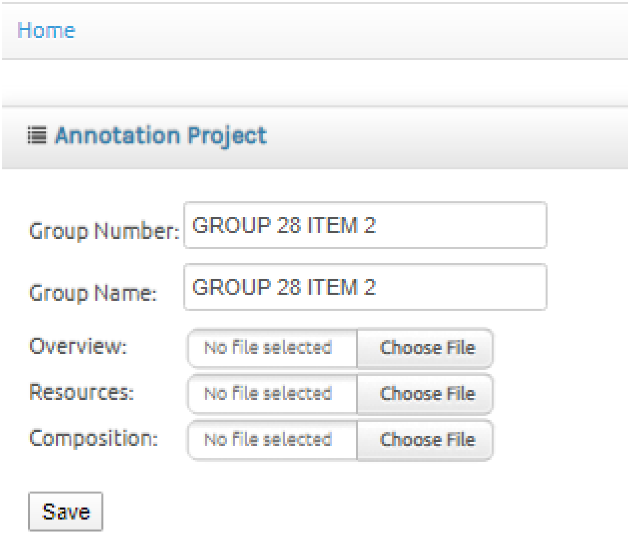

Figure 15
The Annotation Project upload page of OpenMWS.

The first of these Excel files, the Overview file, is a metadata file which includes the YouTube video link plus basic information about the video (e.g. video title, target audience, and video producer). Once uploaded to OpenMWS, the latter takes the form shown in Figure 16.

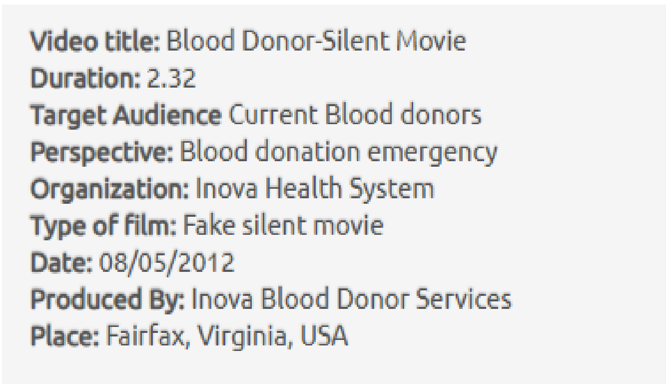

Figure 16
Presentation of Overview file data in the OpenMWS interface.

Introduced as a result of the need to extend the information previously recorded in the House Corpus as part of the Video Bar, the Overview file is divided into three parts. Like the Video Bar described above, the first part relates to the film's credentials as a video and thus includes the video's YouTube link, its title and duration. The second part, instead, provides some basic aspects of the video's features, specifically what type of video it is – for example a whiteboard animation, mini-lecture, simulation or, for the example shown in Figure 16, a fake silent movie called 'Blood donor silent movie'. It also includes information about its intended target audience – junior doctors, hospital staff, patients or, in this case, blood donors. The third part collates data about when and where the video was created and by whom.

As such, the Overview file functions somewhat like a library catalogue card bringing together basic information about each video. All this data constitutes a useful pointer to a video's cultural identity and the variety of English that, in all probability, it uses. Unlike the Video Bar in the House Corpus, the Overview file does not relate to individual scenes in an episode but to the entire video. This has meant that Time Point and Time Span data (see Figure 2 in Section 3), which define the way a video is split up into smaller units, have been transferred to the Resources and Composition files. For reasons of space, Figures 17 and 18 show just the first five sequences of a student's transcription of these files, again relating to the video indexed in the Overview file shown above in Figure 16. For the record, the student's original transcription broke the film up into twenty-seven sequences.

	A	B	C	D	E	F	G	H
1	GROUP 8	SEQUENCE	TIMEPOINT	TIMESPAN	ORAL DISCOURSE	SOUNDS	WRITTEN DISCOURSE	VISUAL IMAGES
2	ITEM 1	SEQUENCE 1	00.00	00.01	NONE	MUSIC: SUNFLOWER	TITLE: INOVA FAIRFAX HOSPITAL "ANY GIVEN DAY"	*FRAME 1*: FRAMED TEXT (TITLE)
3	ITEM 1	SEQUENCE 2	00.02	00.02	NONE	MUSIC: SUNFLOWER	NONE	*FRAME 2*: AERIAL SHOT OF THE HOSPITAL
4	ITEM 1	SEQUENCE 3	00.05	00.03	NONE	MUSIC: SUNFLOWER RAG (THE	DR. SESE: THE PATIENT IS GOING TO NEED BLOOD.	*FRAME 3*: DOCTOR (DR. SESE) WITH CLIPBOARD IN FRONT OF PATIENT'S BED *FRAME 4*: INTERTITLES (DR. SESE'S WORDS)
5	ITEM 1	SEQUENCE 4	00.09	00.14	NONE	MUSIC: SUNFLOWER RAG (THE ROARING TWENTIES)	DR. SESE: OH NURSE! NURSE: YES? DR. SESE: PLEASE CALL DOWN TO THE BLOOD BANK. OUR PATIENT NEED 0-. NURSE: OK!	*FRAME 5*: DOCTOR (DR. SESE) WITH CLIPBOARD IN FRONT OF PATIENT'S BED *FRAME 6*: INTERTITLES (DR. SESE'S WORDS) *FRAME 7*: NURSE FROM BEHIND THE WALL *FRAME 8*: INTERTITLES (NURSE'S WORDS) *FRAME 9*: DOCTOR (DR. SESE) WITH CLIPBOARD IN FRONT OF PATIENT'S BED *FRAME 10*: INTERTITLES (DR. SESE'S WORDS) *FRAME 11*: NURSE FROM BEHIND THE WALL *FRAME 12*: INTERTITLES (NURSE'S WORDS)
6	ITEM 1	SEQUENCE 5	00.24	00.06	NONE	MUSIC: SUNFLOWER	NURSE: DR. SESE NEEDS BLOOD RIGHT AWAY. 0 NEGATIVE.	*FRAME 13*: NURSE AT DESK *FRAME 14*: INTERTITLES (NURSE'S WORDS)

Figure 17
Resources: visual and verbal transcription for a blood donation film.

Figure 17 shows that in its current form the Resources file is a record of four types of resources: a) the video's oral discourse; b) its sounds, including music; c) its written discourse and d) its visual images, characterised in this and many other cases in terms of frames corresponding to shots of different people and places, and, intriguingly, in this case, intertitles like those found in silent movies. While the Resources file relates to a video's material form, the Composition file requires a video to be described in more abstract terms.

	A	B	C	D	E	F
1	GROUP 8	SEQUENCE	TIMEPOINT	TIMESPAN	SUBPHASES	PHASES
2	ITEM 1	SEQUENCE 1	00.00	00.01	1. PRESENTATION	1. PRESENTING THE HOSPITAL AND ITS DAILY ROUTINE
3	ITEM 1	SEQUENCE 2	00.02	00.02	2. AERIAL VIEW OF THE HOSPITAL BUILDING	1. PRESENTING THE HOSPITAL AND ITS DAILY ROUTINE
4	ITEM 1	SEQUENCE 3	00.05	00.03	3. DOCTOR CHECKING PATIENT'S RECORDS	2. PATIENT'S PARAMETERS UNDER THE REFERENCE RANGES
5	ITEM 1	SEQUENCE 4	00.09	00.14	4. REQUEST FOR BLOOD TRANSFUSION	2/3 PATIENT'S PARAMETERS UNDER THE REFERENCE RANGES + START OF THE EMERGENCY
6	ITEM 1	SEQUENCE 5	00.24	00.06	5. FIRST FORWARDING OF THE REQUEST	3. EMERGENCY IN PROGRESS

Figure 18
Excel Composition file showing some Subphase and Phase divisions.

As the part of the Composition file shown in Figure 18 indicates, this entails spelling out its basic division into phases and subphases and thus interpreting the functions that these sequences play in the video's meaning making (Baldry and Thibault 2006a). The examples shown relating to the Overview, Resources and Composition files point to the shift from the substantial certainties associated with the scene-based annotation of the House Corpus to the greater uncertainties of transcription and annotation in OpenMWS. The generic label Sequence, illustrated in Figures 17 and 18, shows that the participating students had to decide for themselves how to divide up a video into its component parts. However, although no explicit instructions were given to the students, the sample Excel templates, given to the students as a guide, characterised videos in terms of transcription models that have been developed over the years (Baldry 2000; Thibault 2000; Norris, 2004), in particular those with a special focus on textual units such as *transitivity frames*, *subphases*, *phases* and *macrophases* (Baldry, Thibault 2006a, 2006b; Baldry *et al*. 2020).

Finally, in this Section we need to consider the second-level annotations that OpenMWS permits. Figure 19 compares part of the Settings functionality in MWSWeb (left) and in OpenMWS (right). The settings for the House Corpus on the left relate to work undertaken by LANG student annotators to classify scenes in the House M.D. series in terms of the types of event they enact (see Section 5 above). Instead, those on the right relate to the further annotation of a video's soundtrack with OpenMWS in terms of voice prosodies on a par with those used for the House Corpus (see Figure 11 in Section 6), though with a more complex model which includes, for example, clearer gender and age-related annotations that reflect the far more generalizing nature of the OpenMWS settings. Thus, while some of the events shown in the left-hand column are general hospital events such as Discharge from Hospital and, as such, could be applied to all videos concerned with this type of event, many other annotation labels are specific to characters in the House Corpus, such as the various face-off labels, which have limited currency.

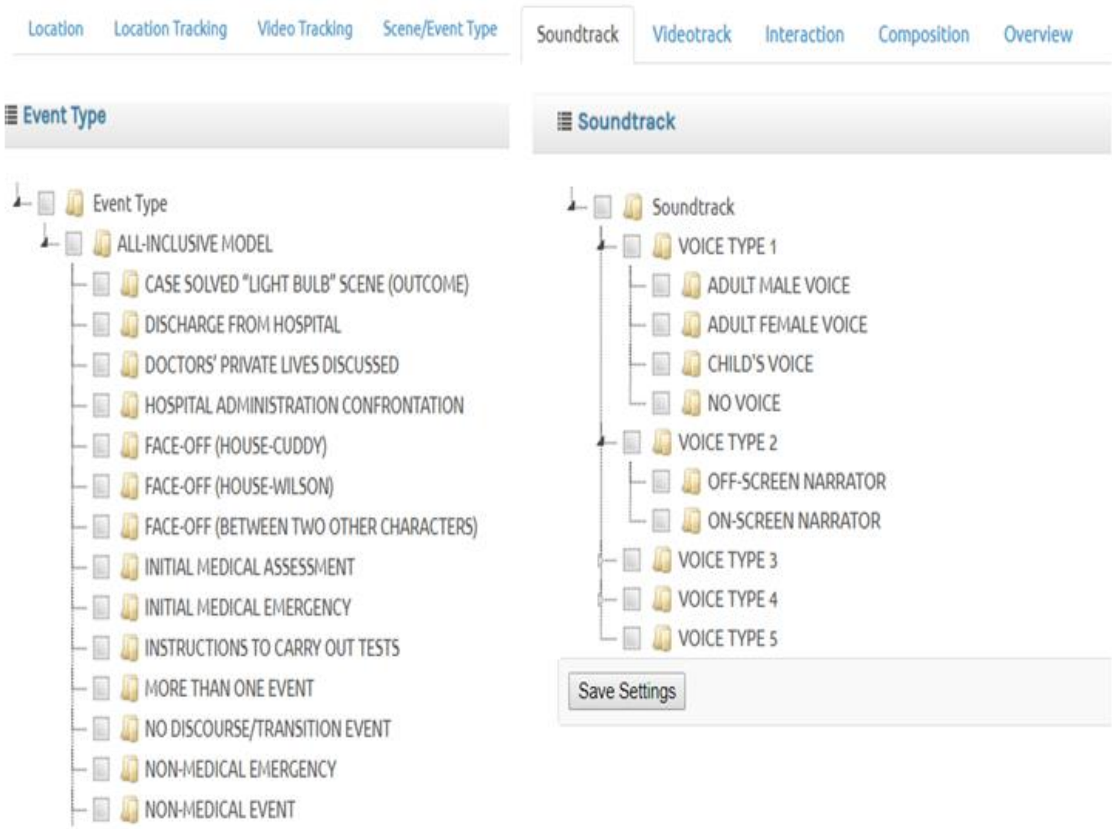

Figure 19
Settings for the House Corpus (left) and OpenMWS (right) compared.

The OpenMWS settings, on the contrary, are designed to be usable across a very large number of videos, as are the five main menu categories to which each set of annotation labels is associated, as shown in the menu bar in the top of the right-hand part of Figure 19. For example, the Interaction category is home to sets of annotation (not shown) relating to gaze and gesture. How well the redefined categories work in practice and how well they will support the subsequent stages in the project remains to be seen.

8. OpenMWS and its role in EMP for HCW students

Even though still in its initial stages, the OpenMWS platform is providing solutions for some of the complex demands of EMP teaching to HCW students. This final case study thus describes the development of a module entitled *Risk Management and Specialised Multisemiotic Discourse in Medical Training: Examining ethical, scientific and procedural principles* and the support role that OpenMWS is providing. The module in question is designed to meet the EMP needs of postgraduate students, most of whom are doctors seeking qualifications and hospital experience predominantly in a clinical specialty.[4] While they are required to attend an EMP course in order to pass an EMP exam and acquire credits, there is considerable discretion over the formalities that need to be met, arising partly from the complex logistics and course organisation which include: a) taking into consideration the students' busy work schedule which often requires them to be absent from the campus where the courses are held; b) squaring the different organisational needs and timetables of the dozens of specialties involved; c) the requirements of individual students who need to be able to write about their *personal* clinical experiences, but with clear reference to their specialty.

All of these characteristics may be viewed as encouragement to use online methods of assessment. This, however, is something which cannot be successfully achieved overnight as the conversion from an entirely classroom approach to a fully online approach takes many years. A first step towards online methods of assessment in the first two years of application (starting in September 2017 and September 2018) was the requirement for students to complete an online summative test, which, alongside the two remaining four-hour frontal lessons, was extended to two online tests in the third year of application (September 2019), the first a preliminary contact and formative test, the second a mainly summative test.

[4] The postgraduate training courses in question allow graduate doctors to become either hospital specialists or GPs. On average, such courses last four or five years. They involve partnerships between universities and teaching hospitals. In some cases, specialties are open to non-medical graduates, for example in the Microbiology specialty. EMP is usually part of the five credits awarded as *Ulteriori conoscenze linguistiche, abilità informatiche e relazionali*, *i.e.* further linguistic, IT and relational skills. For further details, see https://www.miur.gov.it/scuole-di-specializzazione. The 2017 *bando* advertising the teaching position for the EMP course for residents at the University of Pavia, where the author teaches, indicated that the acquisition of linguistic skills was directed towards acquiring a level of English sufficient to allow the understanding of texts and participation in scientific and clinical conferences, an objective that needs to be considered in relation to what may best be described as the heterogeneous nature of these students' previously acquired skills in written and spoken discourse in the medical and clinical domain. This arises, in part, from their prior training in universities and hospitals in Italy other than the one where they are undertaking their specialty training.

All of this requires considerable effort as regards obtaining a constant supply of materials meeting the standards expected in EMP teaching. As detailed below, the support of the OpenMWS project is essential to this end. However, towering above all other needs is the requirement to find a single subject matter that in some way applies to all the HCW students but which is also clearly medically, clinically, scientifically, socially and ethically stimulating. In the belief that the issue of the human body as a source of multimodal meaning-making is a perspective that every EMP teacher in the medical area can and must communicate with the required authority (Kantz and Marenzi 2016), a decision to explore hospital risk management was made for the first few years of experimentation. A further decision to foreground the relationship between anaesthetics and the human body in its conscious, semi-conscious and unconscious states was also made. This highly specialist field has considerable relevance for HCW students in specialties other than anaesthesiology, some of which were not immediately apparent, but which emerged thanks to the interactive nature of the online module design.

In this respect, a very practical solution when evaluating large numbers of HCW students – typically averaging two hundred per year in the university where the author works – is to use Google Forms which record all the answers and the students' credentials in Google Spreadsheets. These forms, accessible in a Google Drive, give teacher-testers the opportunity to create online tests made up of different types of questions including: short and longer answers to open questions; true or false questions; multiple choice and check box questions. They also allow the teacher-tester to import images and to create links to YouTube videos, which can be viewed directly from the Google Form, albeit not with the possibilities for the selection of specific sequences that OpenMWS provides. The forms can be divided into various sections making it possible to present an online test in a page-by-page format in which a specific question about an image, film or specific sequence in a video can be asked. As the test is essentially concerned with a HCW student's ability to reflect carefully on the issue of risk management in hospitals and to demonstrate a capacity to comment on the overall contents of the test in the form of written summaries, it is important to avoid a blocking procedure, often present in online tests, whereby an answer to a question has to be given before moving on to the next.

Since the priority is to provide a setting in which these students can express their *personal* beliefs about risk management, including scientific, ethical and procedural aspects in a proficient and compelling way in English, no arrangements to conduct the online test at a specific time on a specific day have so far been required. Instead, the students are informed that there is a two-week time span within which to undertake the test. This has proved to be a major source of encouragement to students as it provides an opportunity for them to view the test at leisure and to carry out careful reflection in preliminary sessions before submitting the final version of their test answers.

Overall this solution has been much appreciated by students as it introduces the necessary flexibility in management of their studies. Table 2 reproduces a small selection of the original (uncorrected) answers given for one of the online questions reproduced at the top of the table. As the added underlining shows, all the answers reveal the students' concern with patient safety and, minor lexico-grammatical slip-ups apart, indicate an ability to express these concerns fluently.

Q5.5. In what way do such risks relate to your specialty?
1. Being a Public Health resident, my job is to provide safe and efficient treatments to patients, by monitoring the activity of surgeons, nurses and anaesthetists. Thanks to the development of specific checklists, we provide a useful tool to minimise the risk of human errors in the theatre, making sure surgeons and anaesthetists follow all the recommended steps to guarantee patient safety. (Student 1 Hygiene and Preventive Medicine)
2. We should explain better risk and benefit from every treatment, medical or surgical, because none of them are completely safe. (Student 1 Internal Medicine)
3. The Public Health Specialist is responsible for the organization and control of all health activities in order to provide safe and efficient treatments. Paediatric surgery represents a critical area where an optimal organization and a careful control are fundamental to minimize risks and where empathy and the ability to manage the patient's fears play a key role. (Student 2 Hygiene and Preventive Medicine)
4. There are no orthodontic procedures that require general anesthesia in a child. However, in general dentistry, sedation or general anesthesia may be appropriate to ensure the safe, efficient and competent delivery of dental procedures in children that experience high anxiety due to fear or low tolerance to pain, that require complex or invasive dental procedures, that are medically compromised, or simply that are unable to remain still during the dental treatment. In these cases, the patient is usually treated in the hospital, where all of the parameters can be monitored. (Student 1 Orthodontics)
5. In Orthodontics there are not procedures that require general anesthesia. However, in general dentistry, it is quite common to sedate the patients using nitrous oxide in order to be able to perform different dental procedures. This type of sedation, which is used when patient is particularly nervous or not collaborative and especially in children to ensure a safe and efficient outcome, does not have any kind of risks. Other times, when the patient requires more invasive treatment or when he is not in good health conditions, dentists choose to treat him under general anesthesia in hospital, to be able to monitor all vital parameters. (Student 2 Orthodontics)
6. Children are vulnerable and often unaware. You need to be able to making them feel safe. They must not feel pain; they must have their mother next door and feel this experience like a game. This reduces the risk of causing a psychological trauma. (Student 1 ENT)

Table 2
Answers indicating the relevance of risk management to all the students.

In addition to general questions about risk management, students were asked to compare two very similar NHS videos (1. https://youtu.be/_iaJ4rXaRek; 2. https://youtu.be/868vvyZ_8jk) on General Anaesthetics produced to reassure and educate children on what would happen before their operation. One film was addressed to children under the age of eight (under eights), the other for children over eight (over eights). The task was to check the differences from various perspectives: the nature of the off-screen oral discourse used was one such perspective, as was the social perspective on attitudes shown towards children of different ages such as the assumption that only children over eight will have a mobile.

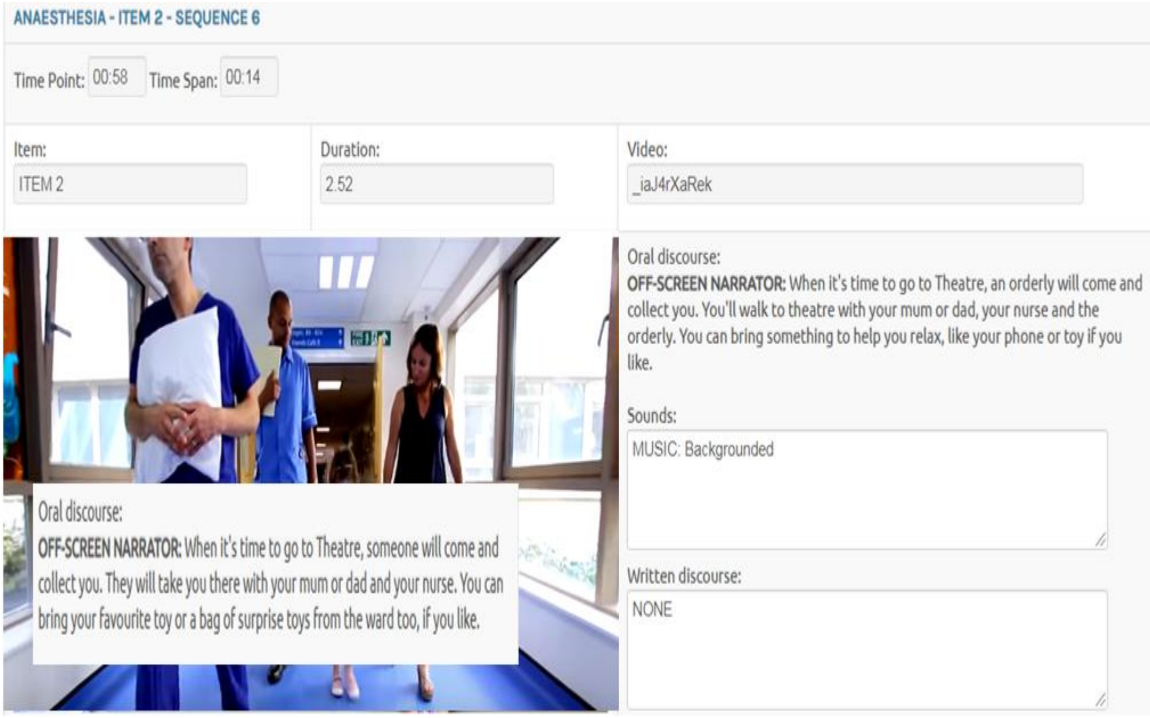

Figure 20
Screenshot indicating a test of students' ability to detect discrepancies.

In the current stage of research, it is not possible to access Google forms from OpenMWS, but this is sidestepped by providing online instructions requiring students to access specific OpenMWS video projects. As Figure 20 also suggests, the upload procedures of OpenMWS are such that the Overview file for the first film (under eights) and the Resources file for the second (over eights) can be deliberately 'mixed up' so that the students heard the soundtrack for the first film, but read the oral discourse transcript for the second film. In this way, as illustrated in Figure 20, they were required to spot, compare and comment on specific sequences containing discrepancies. In other words, they had to engage with the point where the over-eights' soundtrack and transcript refer to an *orderly* while the under-eights' soundtrack and transcript (shown in the overlay) replace this with the generic term *someone*. The latter is a lexical item that is more comprehensible to the 4-year old child represented in the film and by implication to other children of the same age.

Table 3 provides a selection of answers given to three questions about these two NHS videos.

Q3.3. What fears are addressed visually and verbally?
Young children usually are accompanied by parents and they can take their puppet with them to avoid feeling alone and unsafe (Student 1 Emergency Medicine)
Q4.1. The films do not explicitly explain the divide between the over 8s and under 8s. Can YOU?
[…] the procedure is in fact the same and the focus of both illustrational videos is to make the child feel safe and under good care, the medical staff acts in a different way with the older patient in order to make him feel regarded more like "young adult" and less like a child. (Student 1 Orthodontics)
Q4.2. The films look the same: apart from the difference between age and sex, what other differences are there?
Young children require the help of parents to be taken to the theatre and need familiar items to feel safe. Contrariwise, older children still have their parents next door, but they seem more independent of their parenthood and objects. The latter are also more smiling and interactive with the medical staff. (Student 1 Diseases of the Cardiovascular System)

Table 3
Answers relating to videos about children's fears regarding anaesthetics.

Analysis of the students' answers serves two functions. The first relates to the grading of each answer. The development of a grading system that provides each student with feedback about the level of achievement reached and the gaps in their proficiency will be the subject of a separate publication. The second is to learn about the experiences of risk management that all the students come up against, which is relevant to the current purposes as it shows how the video corpus services provided by OpenMWS can underpin and perfect further online interventions on this theme. Systematic analysis of the answers clearly indicates the need for the MWSWeb team to further engage undergraduate LANG students in the selection, transcription and annotation of videos relating to patient safety. They also indicate the need to extend the nascent corpus to the relationship between risk management and the avoidance of pain (see the highlighted words in Table 2 above), given that the purpose of anaesthesia is after all to control pain as well as muscle movement. This is an important ethical principle, which Italy has recognised with the introduction in 2010 of legislation relating to pain and pain management centres.[5] Associating videos about pain management is an important step as regards enriching the overall value of this online course, in particular as teaching and (formative) testing components can be further brought together in this way, even though with the current configuration this is only possible, as mentioned above, by incorporating instructions in the Google Form for the OpenMWS system to be opened in a separate browser window.

In conclusion, the experience acquired in this case study can be summarised as follows: the interplay between data acquired from HCW students as regards their hospital experiences and the construction of video corpora has allowed the various aspects of a general, overarching issue, such

[5] www.domedica.com/en/law-on-chronic-pain-management-existent-in-italy-but-not-very-well-known/ (20/07/2019).

as risk management in hospitals, to be underpinned by the development of a specialist corpus that already assists the task of catering for each of the dozens of medical specialties involved, but which, with further development, will address even more precisely each HCW student's specific interests and EMP requirements.

9. Discussion and Future Research

Three case studies of the use made by EMP University teachers of online video corpora have been presented in Sections 4, 6 and 8 of this chapter. They have illustrated the implementation of the principles that underpin the MWSWeb Project and the value of the involvement of LANG students outlined in Sections 1 to 3. Many of the examples given in this chapter highlight the fact that the meaning potential (Halliday 1978) of an online video is a focal point in critical video analysis (Baldry 2016), an aspect which lays bare another need, which the chapter has attempted to address, namely the positive interdisciplinary focus and stimulus that online video annotation promotes. The case studies are also a clear demonstration that, in the medical area, EMP teaching is part of a wider framework and that the MWSWeb platform has contributed to developing EMP activities that work within this framework. Further stages of development using the OpenMWS version of the MWSWeb platform will allow the validity of the transcriptions and annotations constructed by LANG students to be compared through corpus searches. This, and the provision of access to video-hosting sites other than YouTube, will depend entirely on the outcome of the current stage of development. The chapter has thus demonstrated how written and oral discourse constantly engage with other semiotic resources such as voice prosodies (Section 6) and indeed how, in the construction of meanings, other semiotic resources such as colour and numerical systems interact with each other as well as with discourse (Section 4).

In addition to the description of the corpora based on scenes (Section 3), scene types (Section 5) and video sequences (Section 7), the chapter has also touched on other aspects of research currently being undertaken in the MWSWeb Project such as the correlations between the events that typically take place in hospitals (see Figure 19 in Section 7) and other medically relevant semiotic systems such as body movements and postures (Section 8), which thanks to the Hands Annotation interface (Section 5) help explore the functions of hand movements, in terms of their general deictic functions, specific textual functions, and even specialised surgical functions (Arizzi 2019a, 2019b). Equally, provision has been made in the OpenMWS interface for annotations to be carried out in relation to other meaning-making resources such as gesture and gaze (Section 7).

In this respect, the chapter is a celebration of multimodal transcription (Baldry 2000, 2016; Baldry, Thibault 2006a, 2006b; Thibault 2000) which has come of age. Section 8 has reconstructed the research pathway that has led to the construction of the various versions of the MWSWeb online system as a video annotation system capable of carrying out multimodal transcriptions in an online form. The intersemiotic nature of many contemporary genres (Kress, van Leeuwen 2001) dictates the need for such online tools. Multimodal transcriptions are unquestionably an important tool for both scholars and students in the analysis of multisemiotic texts, films and, in particular, videos (Taylor 2004) so that their online implementation is clearly a welcome step.

Alongside the three case studies presented, there are others in the initial stages of development that are part of the ongoing engagement of LANG students some of which have not yet road-tested the capabilities of the MWSWeb platform.[6] However, this should not overshadow other aspects of the project. As indicated in Section 2, a test of the project's viability in promoting sustained interest has been the transition to increasingly higher levels of achievement which, step-by-step, have been placed on the LANG students' shoulders. Thus, during these first three stages, the annotation tasks were gradually but successfully shifted from an offline to an online format. This corresponded to an increase in the digital and discourse analysis skills that the students were required to demonstrate. It also corresponded to a concomitant increase in the MWSWeb platform's ability to turn the students' labour into results that could be immediately perceived by them.

A comparison between the Transcript annotation interfaces used for the House Corpus and OpenMWS (Figure 21) illustrates that, despite the differences described in Section 7 and Section 8 above, there is considerable continuity in the overall design and in the immediate satisfaction that students derive. This is attested by the number of videos that each participating student completes in the course of their apprenticeship as well as the overall accuracy and consistency of their work.

[6] Following the completion of the case studies and their road-testing, many more videos relating to blood donation, patient safety and discharge, risk management in hospitals have so far been transcribed and annotated by LANG students as well as others on non-EMP themes.

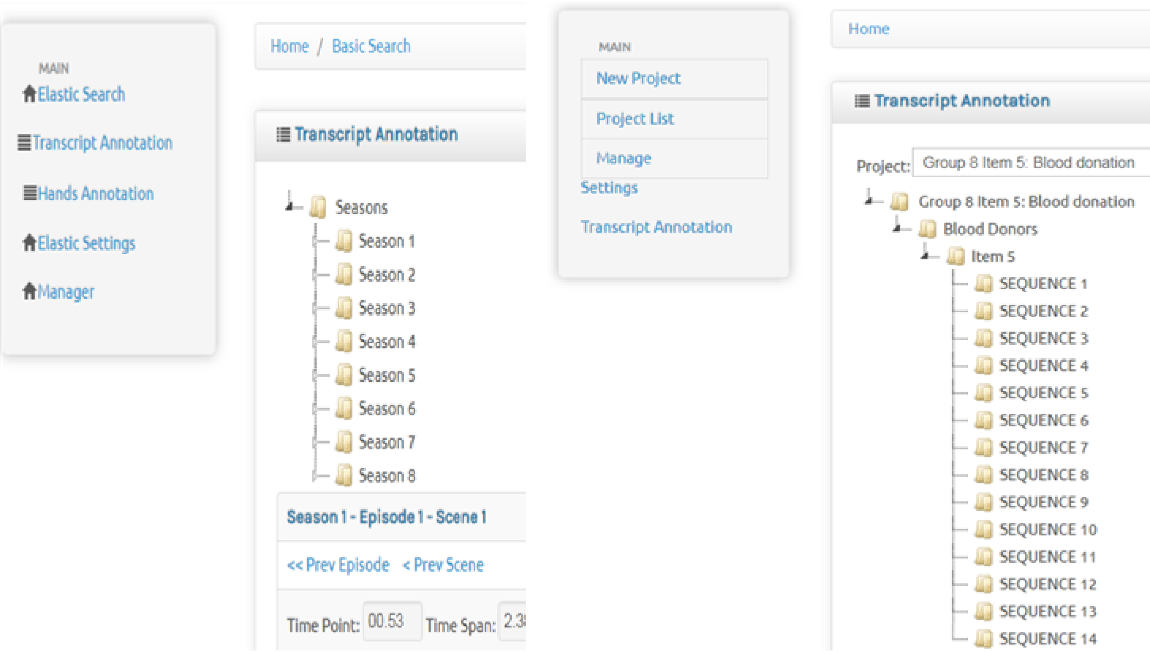

Figure 21
Comparison of the House Corpus (left) and
OpenMWS Transcript (right) annotation interfaces.

We can briefly exemplify how this need for consistency is currently being met and explained to student annotators as a critical factor by examining Figure 22, a fragment of an OpenMWS Resources file relating to a video promoting blood donation in India (https://youtu.be/rIxe0q2GEdM). This takes the form of a performance text in which the characters are represented visually by matchstick figures and verbally by male off-screen speakers.

	A	B	C	D	E
6	ITEM 5	SEQUENCE 5	00.41	00.15	**HOSPITAL CLERK (ON PHONE) [MALE OFF SCREEN NARRATOR]:** HELLO, SIR. WE ARE CALLING FROM GIVE LIFE HOSPITAL. YOUR UNCLE RAJARAM MET WITH AN ACCIDENT. PLEASE COME IMMEDIATELY. **ASHOK [MALE OFF SCREEN NARRATOR]:** ACCIDENT?
7	ITEM 5	SEQUENCE 6	00.57	00.05	NONE
8	ITEM 5	SEQUENCE 7	01.02	00.41	**ASHOK: [MALE OFF SCREEN NARRATOR]:** I AM ASHOK. MY UNCLE RAJARAM JOINED IN THIS HOSPITAL. PLEASE, TELL ME THE CONDITION OF MY UNCLE. **HOSPITAL CLERK [MALE OFF SCREEN NARRATOR]**: RAJARAM? OH, TREATMENT IS GOING ON, BUT WE NEED 0+ BLOOD FOR HIM. AT PRESENT WE DON'T HAVE IT. PLEASE, GET IT FROM YOUR SIDE OR ELSE ASK DONORS. **ASHOK [MALE OFF SCREEN NARRATOR]**: ONE SECOND. THIS IS VERY BIG HOSPITAL IN THIS CITY. HERE ALSO BLOOD IS NOT AVAILABLE? SO STRANGE! **HOSPITAL CLERK:[MALE OFF SCREEN NARRATOR]** IN INDIA SCORES OF PEOPLE ARE THERE, BUT VERY FEW PEOPLE ARE DONATING BLOOD VOLUNTARILY. **ASHOK [MALE OFF SCREEN NARRATOR]**: THIS IS ALSO SO STRANGE! SORRY, GIVE ME YOUR PHONE, PLEASE. **HOSPITAL CLERK [MALE OFF SCREEN NARRATOR]**: SURE

Figure 22
Student transcription showing two types of transcript tags.

In the House Corpus, ‘transcript tags’ were restricted to metatextual labels embedded in the transcript relating to the names of the characters in the series which, as illustrated in Figure 1 in Section 3, are placed at the beginning of each line and provide a cue for the actor playing the character in question. In other words, in the House M.D. series, ‘transcript tags’ are a closed and predetermined set, as is typical of performance genres, whose further role as searchable items in the House Corpus is illustrated in Section 6 in relation to the search filters available in the Dialogue menu. However, in the case of OpenMWS not all ‘transcript tags’ are predetermined. As Figure 21 shows, there is a need to distinguish between performance genre transcript tags such as ‘Hospital clerk, ‘Ashok’ and ‘Man n.1’ which belong to a specific video and more general transcript tags which are relevant to a much larger number of videos and hence far more suitable for wider-ranging corpus searches. Figure 21 shows how the label ‘off-screen male speaker’ has been added as a tag that correlates with the textual functions of the characters. This tag allows this scene to be linked in corpus searches to similar functions in other videos. Instructing students to embed both types of transcript tags in the Oral Discourse column of the Resources file has thus been a first step in building a blood donor video corpus, for which the initial corpus search transcript tag set is:

1. OFF-SCREEN vs ON-SCREEN;
2. MALE vs FEMALE;
3. CHILD vs. ADULT [the latter need not be specified];
4. NARRATOR vs SPEAKER;
5. UNDECIDED = detectable in searches but to be discussed and adjusted.

The items in this set can be combined (*e.g.* ON-SCREEN, FEMALE CHILD, SPEAKER) and are used even where no specific name is attributed for a speaker or narrator. UNDECIDED is a very important label in corpus construction as it allows student annotators to express doubts and trains them to consult others when in doubt. In relation to the ambiguous use of matchstick figures in the Indian blood donation film that the student annotator transcribed (Figure 21), a student wrote: “I don’t know if I missed it in the film, but I can see no distinction between men and women. For this reason, I don’t know if I should assume only men are represented or not”. Indeed, the small collection of blood donation videos that has so far been collected, transcribed and annotated, suggests that, as compared with the first videos on this subject, dating back over at least eighty years, considerable changes have occurred in the social and medical categories represented. It may well be that a recheck phase such as the one mentioned in Section 3 will be needed to decide whether it is appropriate to embed further indications of social and medical groupings in the transcription phase as transcript tags or in the annotation phase illustrated in Figures 19 and 21.

However, we may conclude this Section by briefly describing some of the tools in the MWSWeb interface that allow students doubts and misgivings to be collected and analysed. One of these is the House Corpus Location Tracking tool which requires the student annotator to indicate whether the choice of a location annotation was made on the basis of reading a transcript or watching and listening to the scene or whether no choice could be made. Since it is possible to carry out searches of these annotations, a picture of scenes that were difficult or impossible to annotate can be quickly built up. Likewise, the incorporation of an UNDECIDED category in the Voice menu of the House Corpus has made it possible to quantify the proportion of cases where it was not possible to determine the voice prosodies in specific scenes because of overlaps between categories or where the students felt they belonged to other unspecified categories. The figures for the four categories are reported in Table 4.

Voice annotation	**Nos.**
1. Voice Disembodiment	
1.1 Announcer voice (e.g. radio news, public address systems)	101
1.2 Off-screen character voice(s) (e.g. phone calls)	140
1.3 Off-screen non character voice(s) (e.g. songs)	641
1.4 Recorded voice (e.g. phone messages)	26
1.5 Synthesized voices (e.g. computerised car voice)	25
1.6 Voices in the head (e.g. hallucinations)	39
1.7 Voiceover (e.g. documentary-style description of events)	43
1.8 Other (includes cases where these categories overlap)	252
2. Voice Intensity & Modulation	
2.1 Attention getters (e.g. calls for help)	32
2.2 Audience-switching (e.g. phone to face-to-face switching and vice-versa)	289
2.3 Clarity changes (e.g. mumbled, slurred speech)	38
2.4 Individual characters' non dialogic use of voice (e.g. singing to oneself)	20
2.5 Intensity changes (e.g. whispering, yelling, shouting)	796
2.6 Off-screen non dialogic voices (e.g. background singing)	29
2.7 On-screen non dialogic voices (e.g. crowds chanting/cheering/shouting singing)	19
2.8 Other (includes cases where these categories overlap)	1678
3. Voice Imitation & Identity Switching	
3.1. Gender/age-related (e.g. male characters imitating female or children's voices)	29
3.2. Person-specific (e.g. imitating a specific person's voice)	252
3.3. Variety switching (e.g. characters not using their normal varieties of English)	442
3.4. Other (includes cases where these categories overlap)	390
4. Voice Reflections (characters' comments about their own or others' voices)	
4.1 Clinical/medical (e.g. comments about disorders involving voice hallucinations)	55
4.2 Social (e.g. asking sb. not to shout)	13
4.3 Other (includes cases these categories overlap)	7
OVERALL TOTAL	5356

Table 4
Quantification and distribution of annotated voice prosodies.

They show that the highest proportion of uncertainty occurred with the second (58%) and third categories (35%) whereas with the other categories the range was, as expected, less than 15% (12% for Category 1 and 9% for Category 4). Many of these uncertain cases are likely to be resolved when the categories are rechecked and further subcategories are included such as the possibility of associating the different voice characteristics in each scene with one of more characters. There are, indeed, many cases where multiple voice intensity changes in a specific scene have been included among the 'Other' choices. As the LANG students were allowed to express their doubts, the annotation so far carried out has been revealing, pointing to those circumstances where further research needs to be undertaken.

10. Conclusions

As with other professions, teamwork is essential for language-related careers, including those relating to EMP. This extends to the training of undergraduate students who need to keep pace with the demands and affordances of the digital age. As the role of video-hosting websites gathers pace in today's society, far more training possibilities are arising for online projects which simulate professional activities and exercise students' skills as regards the ways in which specialised discourse is accessed and used in the digital age. In this respect, the MWSWeb Project adds to the possibility of training students in the construction of specialised video corpora and provides the means to engage students in this construction in terms of a sequence of steps which include: the online dissection in the MWSWeb platform of videos hosted in video-sharing sites and their recasting as specialised but searchable collections through preliminary transcription and subsequent annotation. However, a further aspect of this training relates to the collective awareness that constitutes the basis of teamwork, an important aspect in any successful career. As discussed above, despite some significant exceptions, the MWSWeb Project has so far placed considerable emphasis on the individual performance of student annotators. However, as also discussed above, the next steps in the MWSWeb Project are designed to promote awareness of the collective responsibility that participation in any online project requires.

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