Communicating Specialized Knowledge

Communicating Specialized Knowledge:

Old Genres and New Media

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CHAPTER ONE

COMMUNICATING SPECIALIZED KNOWLEDGE:
INTRODUCTION AND OVERVIEW

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1. Communicating Specialized Knowledge: An Introduction

"Communicating Specialized Knowledge: Old Genres and New Media" was born out of the idea that domain-specific knowledge has two major dimensions to it: on the one hand, peer-to-peer communication that is primarily intended to further research within the disciplines; on the other, asymmetric communication of selected, 'filtered' knowledge to lay people.

Importantly, communicating specialized knowledge involves the construction, presentation and communication of knowledge (Kastberg 2010; Ditlevsen 2011) in texts that effectively adjust to the knowledge background, knowledge- and personality-related needs of the intended addressees within the relevant communicative setting. In this context, research in Languages for Specific Purposes (LSP) has made important contributions to the study of 'internal', peer-to-peer communication in traditional genres and remediated and emergent online genres. Working at the interface of theoretical and applied linguistics, specialized lexicography or terminology, and primarily taking genre-oriented and corpus-analytical approaches, LSP scholars have identified a number of recurrent features as broadly characterizing specialized communication in several domains of expertise. To name but a few: terminology, lexical density, extensive recourse to nominalization and modification within the noun phrase, frequent use of the passive voice and syntactically complex clauses, genre- and domain-specific metadiscourse and hedging.

The very same features, however, might hinder 'domain-external' communication and the ability of experts and professionals to reach out to lay people. This remains a problem that commands scholarly attention in the context of the cultural growth and socio-economic development of contemporary society at large. Taking inspiration from seminal work like Linell (1998) and Calsamiglia and van Dijk (2004), therefore, the focus of LSP studies has recently broadened to cover the merits and demerits of knowledge dissemination and popularization strategies in domain-specific discourses (cf., e.g., Henriksen, Frøyland 2000; Gotti 2014; Garzone, Heaney, Riboni, eds. 2016; Bondi, Sezzi 2017; Salvi, Turnbull, eds. 2017; Engberg et al., eds. 2018).

There are several reasons why experts should deliberately carry relevant parts of their specialized knowledge outside of their expert discourse communities and make them accessible to non-experts (adapted from Henriksen, Frøyland 2000; Allan 2002). Access to knowledge is a public good for all (UNESCO 2005). First, citizens interact with domain-specific texts on a daily basis (e.g., bank statements, tax reports and patient information leaflets). Additionally, domain literacy can earn citizens a better job while benefiting the nation as a whole. For instance, promoting financial literacy may help curb blind investments and prevent damage to individual households and the nation. In that sense, effective knowledge dissemination works towards empowerment of lay people, social inclusion and equality in the participation domain. As exposure to information in the digital world continues to grow, questions concerning the discursive strategies and the pragmatics of knowledge dissemination will continue to arise. For instance:

- against the backdrop of landmark publications such as Scollon and Scollon (1995), Linell (1998), Calsamiglia and van Dijk (2004) or Gotti (2014), questions about recourse to linguistic knowledge dissemination strategies (cf., e.g., Bondi, Cacchiani, Mazzi, eds. 2015);
- based on classics such as Barthes (1977 [1964]), Kress and van Leuween (2010) or Bateman (2014), issues concerning text/image pairs, multimodality and hyperstructural features in hyper-multimodal environments (cf., e.g., Lemke 2003; Engberg, Meier 2015), also in relation to web-page usability (e.g., Nielsen 1999; Farrell 2014; work by their associates at NN/g);
- questions about roles and relationships, social maneuvering and knowledge control in relation to the knowledge-oriented and personality-related needs of participants in and beyond the relevant

speech community and community of practice (Lave, Wenger 1991; Wenger 1998), also with an eye to the extended participatory framework of the web (e.g., Jenkins et al. 2006; Herring et al., eds. 2013);

- questions about relevance and credibility, reputation and trust (e.g., Petitat 1998, 2004; Marková et al. 2008; Luhmann 2014; Bromme, Jucks 2018).

2. Overview of the Volume

Using the tools of genre studies and corpus linguistics, the present volume takes the reader on a journey in and outside of disciplines and field domains like medicine and health, corporate communication, cultural heritage and tourism. Our research question is twofold. At the domain-internal end of specialized communication, what is at issue is the transfer of high-quality information (innovative research results) to peers and professionals. On the domain-external dimension, we acknowledge the significance of knowledge availability and knowledge accessibility outside scholarly circles and disciplinary communities (cf., e.g., Engberg et al. 2018). The question of interest, therefore, is one about 'intercultural communication' (Scollon, Scollon 1995), recontextualization (Calsamiglia, van Dijk 2004) and reformulation (Gotti 2014), or 'intralinguistic translation' of selected expert knowledge that is assumed to be relevant to the knowledge-oriented needs of different types of lay audiences in asymmetric contexts. The long answer will emerge as the following 11 chapters unfold.

Section I concentrates on *"Communicating specialized knowledge in and about health and medicine"*. Particularly, in Chapter 2 MICHELE SALA and STEFANIA CONSONNI compare and contrast *"Titles in medicine and science popularization"*, with the purpose of tracing the strategies typically used in online magazines of science popularization to effectively synthesize contents in terms of both clarity and impact. As a matter of fact, given their metatextual prominence, titles perform an important popularizing function in that they have to be informatively dense, yet transparent (rather than allusive). They have to include key elements with respect to the associated articles in order to function as an efficient retrieval device (i.e., containing semantic handles useful when browsing text archives), and to establish expectations and the interpretive paradigm for the ensuing text. Based on a corpus of articles published over a two-month period (July-August 2015) in the medicine section of the online magazines *Science Daily* and *Scientific American*, the authors identify the

most typical devices used to conflate complex contents into a (relatively) short sentence, facilitate comprehension without altering or banalizing meanings, and appeal to the lay reader.

Chapter 3 shifts the focus onto *"Filling gaps in medical knowledge: Comparative mechanisms in evidence-based medicine"*. The author, RENZO MOCINI, presents results from a study of comparative reference (Halliday, Matthiessen 2004; Breban 2010) as a major tool for knowledge construction and communication to practitioners in medicine. Quantitative and qualitative corpus investigation suggests that while evidence is conceptualized within a comparative framework, comparison is also largely employed as an effective reader-oriented strategy to structure discourse and facilitate interpretation. Comparative items are associated with interpersonal and textual meanings and used to foreground the role of the writer as the author, who intends to fill pre-existing information gaps while fostering the transfer of significantly meaningful evidence into health-care practice. That is, they represent a viable strategy for communicating knowledge and perspective from scholars to professionals 'in the field', with different expertise within the same community of practice (Lave, Wenger 1991; Wenger 1998).

In Chapter 4 – *"The dissemination of dietary treatments for refractory epilepsy: A preliminary analysis of web-based discourse on the ketogenic diet"* – SILVIA CAVALIERI moves to the popularizing end of knowledge communication, at the interface with health literacy (Muñoz Miquel 2012; Briones 2015). The chapter presents preliminary research carried out within a larger project aimed at exploring health literacy while liaising with caregivers. The purpose is to analyse the strategies employed for the dissemination of medical knowledge about the ketogenic diet to caregivers dealing with the web-based informative materials of two major UK and US foundations – the *Matthew's Friends Foundation* (https://www.matthewsfriends.org) and the *Charlie Foundation* (https://charliefoundation.org). Several strategies (Calsamiglia, van Dijk 2004; Gotti 2014) are identified, including scenarios, hypothetical interactions and exemplifications, which work towards the concretization of abstract information. Also important is the engagement factor: it is found to play a major role in instructions, which make recourse to the second-person pronoun and inclusive *we*.

In the same vein, Section II deals with *"Communicating specialized knowledge in and about business and finance"*. Chapters 5 and 6 bring to the fore aspects of citizens empowerment and knowledge communication as a prerequisite for informed decision-making in connection with finance and corporate communication. Crucially, they cannot in any way be set

apart from stance taking and self-promotion. Chapter 5, authored by CHIARA PROSPERI PORTA, considers *"Comparative mechanisms and relations in the dissemination of institution-centred financial knowledge"* and, more specifically, the uses and functions of comparative forms (Huddleston 2002a, 2002b) in the annual reports published in English by the European Central Bank and the National Bank of Greece (years 2010-2015). The texts swing between presenting information and facts for knowledge dissemination purposes and providing angle and perspective to different effects – for instance, in order to assess events and situations or legitimize actions and moves made by the principal (sensu Goffman 1982) organization (here, either bank) or other entities. When it comes to the unsatisfactory performances and dire situation of Greece's central bank, however, superiority markers are used to bring failure into the background and highlight any possible improvement, however small. Additionally, markers of equality are systematically used to signal alignment, in an attempt to reconcile Greek performances with the EU economic policies and standards, while comparative governors reflect an interest in minimizing the gap between standards and reality. In a slightly different manner, the expression of likeness in the ECB corpus goes hand in glove with self-awareness and commitment in guiding Member States to uniformity, while unlikeness discursively contributes to signaling institutional dominance.

Factual information and evaluative language (Hunston, Thompson, eds. 2000) combine to depict the principal organization and legitimize their actions in a vast array of traditional and online specialized genres. In this context, Chapter 6 turns to *"Developing corporate identity via companies's websites"*. Using data from the English websites of five Italian companies working in the renewable energy sector, EMANUELA TENCA argues that the overall macro-function of the websites – promoting the principal's image internationally and showcasing products and services both to experts and non-experts – is effectively served by an interesting combination of terminology, factual information and positive evaluative vocabulary. As a matter of fact, in the challenge to construct a positive identity around the five companies, at times evaluation tends to be marginalized by the provision of factual information and the overriding need to show ground-breaking expertise regarding products and services. This is key to enhancing credibility and consolidating reputation.

In Chapter 7, CECILIA LAZZERETTI shifts the attention from promotion and identity branding in the renewable energy sector to identity branding in museum websites. The chapter, on *"Museums and architectural identity: An exploratory study of museum web texts"*, starts our reflection

on *"Communicating specialized knowledge about cultural heritage and the arts"* (Section III). Working on the assumption that architecture is a relevant component of the marketing strategies applied to evaluate the brand appeal of a museum's collections and exhibitions, the author turns to 'museum web texts' as multimodal tools that are key to composing, developing and communicating a museum's public image (Pierroux, Skjulstad 2011). The main emphasis lies on the communication and representation strategies adopted by professional authors in order to establish the architectural identity of the museum on selected pages of two multi-site museum networks – the *Tate* family of museums and the *Guggenheim* constellation – so as to identify the distinctive textual features, evaluative devices (Thompson, Hunston 2000; Martin, White 2005) and discursive practices through which museums establish their architectural identity. While the focus is on language, the unequal status of text and images (Barthes 1977 [1964]) is also taken into consideration and images shown to expand and enhance the text (sensu Martinec, Salway 2005) besides making it more attractive (sensu Bateman 2014). Overall, data analysis suggests that architectural discourse can significantly contribute to branding the public image of the museums under investigation, asserting values of innovation, transformation, or continuity with the past.

Still staying with cultural heritage and the arts, the following two chapters turn to intralinguistic translation, knowledge dissemination strategies and cross-generational communication in tourist guidebooks and museum webpages for kids. In Chapter 8 – *"Knowledge dissemination through tourist guidebooks: Popularization strategies in English and Italian guidebooks for adults and children"* – GLORIA CAPPELLI and SILVIA MASI compare and contrast the popularization strategies at play in English and Italian guidebooks for adults and children (Calsamiglia, van Dijk 2004). Some noticeable differences are found cross-linguistically in guidebooks for adults and are readily understood as an evident expression of different communicative preferences and cultural orientation (Hofstede 1991). Crucially, it appears that, in order to create and enhance accessibility to new information, English tends to rely on the strong integration of various semiotic codes for edutainment (Buckingham, Scanlon 2003). Italian, on the other hand, seems to prefer detailed verbal anchoring to the reader's background knowledge and experience for formative experiences. While some of the distinctive features of the genre are preserved in Italian guidebooks for kids, however, such differences are significantly levelled out in guidebooks for children, which display a tendency towards simplification and informality in both English and

Italian. One plausible reason for this are similar assumptions on the knowledge- and cognitive-oriented needs of the intended age group (Myers 1989). Another, equally convincing reason is that Italian guidebooks for kids, a relatively new genre, were translated from English, hence retaining part of the features of the source texts. In fact, the analysis of parallel texts shows the systematic transfer of patterns such as a varied range of reformulation interventions, mainly through the addition of metalinguistic explanations, recontextualisation through different types of replacements, and substitution, not to mention the complementary relation between different semiotic codes.

ANNALISA SEZZI's *"Go on Art Adventure: Popularising art for children through museum websites"* (Chapter 9) takes the lead from the previous two chapters and brings to the fore the innovative popularization strategies adopted to engage and inform children aged 5-12 on the *Tate Kids* website, hosted and developed by the *Tate* family of museums. Besides the strategies typically adopted in popularization for adults (e.g., denominations, definitions, or paraphrases that adjust to children's cognitive skills, experiential and general knowledge; Calsamiglia, van Dijk 2004; Gotti 2014) the findings show a strong preference for patterns of dialogic interaction, including pronouns such as *we* and *you*, games, quizzes and other teasing activities, or questions that mime the classroom context while triggering engagement and promoting interaction. This comes with recourse to informal language and systematic anchoring of all web content to the children's assumed interests and experiences. By doing this, knowledge transmission is felt to be 'symmetrical'. Children take central stage as 'artists' and expert 'art critics' in interactive multimodal texts that bring text and images on an equal footing (Barthes 1977 [1964]; Kress, van Leeuwen 2006). The outcome is edutainment (Buckingham, Scanlon 2003) at its best.

One basic requirement for effective knowledge dissemination and popularization, though not for peer-to-peer communication, is to build common ground for mutual understanding (Clark 1996; Bromme, Jucks 2018). Accordingly, Chapters 2, 4 and 6, 7 and 9 argue for accommodating the information needs of the intended interlocutor. Building common ground for mutual understanding, however, is also a matter of social maneuvering, positioning and adjusting to the personality-related needs of the intended addressee. This is the topic of the chapters in Section IV, on the communicative implications of *"Negotiating roles and relationships for specialized knowledge communication"*. The section starts with Chapter 10, on *"Probability adjuncts as hedges in native and 'non-native' English web-mediated communication"*. Here, JACINTA

EDUSEI provides a preliminary reflection on probability adjuncts (Quirk et al. 1985) as one of several hedging devices adopted to strike a balance between being clear and being polite when communicating across cultures and backgrounds. Very broadly, the data suggests a positive correlation between authoritative voice and hedging when building common ground for mutual understanding and promoting inclusion.

Admittedly, we get an entirely different picture when building common ground ranks low in the priority list of core and active participants within expert communities. In this respect, Chapter 11, authored by SILVIA CACCHIANI, carries out a qualitative investigation into *"Verbal irony and other figurative tropes on the* Marginal Revolution *blog"* (years 2012 and 2016) – a scholarly blog hosted by the economist Tyler Cowen. Qualitative data analysis shows how the domain expertise and credibility of more and less active ratified participants affect recourse to irony (Attardo 2007 [1993], 2017, ed. 2017) and/or other figurative tropes for diverse socio-pragmatic effects (Colston 2015, 2017). Indeed, extreme evaluation, hyperbole and hyperbolic scenarios are available to active participants for persuasion, expressing emotions and negativity, as well as highlighting discrepancies. Certainly, expressing negativity is a clear move towards aggression, dissonance and non-alignment. Generally, however, active/core participants set aside aggression and attack, and express their opinion frankly, based on their credibility (or the ability to control survey evidence, facts, models, theories and the relevant literature). On the one hand, experts do not make recourse to sarcasm; on the other, negativity expression management, social maneuvering and ingratiation are, at best, exceptional. As far as this point is concerned, this means that core/active participants do not need to adjust to the personality-related needs of their interlocutors. The focus lies on arguing one's point of view and presenting opinions and objections, non-alignment and (dis)agreement convincingly. Yet, along with hedging and relatively less assertive speech acts, self-doubting and self-deprecating verbal irony for social maneuvering, catalyzation, ingratiation and bonding, are available to relatively less active participants. Though personal preferences and communication styles do affect individual choices, recourse to hedging and relatively less assertive speech acts appears to reflect marginal or marginalized roles and blogging personas. Experts appear to use irony differently, masterly combined with other linguistic strategies to achieve effects such as humor and persuasion in conversation starters.

Turning to the hacking community, in Chapter 12 – *"Hacking the 'Code': Tracking the ideational roots of web-based humor"* – ILARIA MOSCHINI brings to the fore the affiliative effects of irony and humor (or

benign irony; cf., e.g., Colston 2015, 2017). Multiple theoretical frameworks and methods are brought together in order to analyze in turn instances of remediation like the *Numa Numa* video, variation in the geek phrase *There is no place like 127.0.0.1* (i.e., your local host), Easter Eggs such as *the answer to Life, the Universe and Everything*, which finds its roots in science fiction but has been parodied and appropriated in a number of ways, also by NASA, and the intersemiotic cohesive devices (Liu, O'Halloran 2009) at play in internet memes, which show a co-combination of text and image (here, *Please wait while the wizard installs the office*, and Gandalf the Wizard). Humor is accounted for within Attardo's (2007 [1993], 2017, ed. 2017) General Theory of Verbal Humour, and the special status enjoyed by language play is grounded on the conceptual metaphor Code IS Language. Core members build credibility via recourse to clever jokes and witty humor, based not only on successful mastery of language play and ability to mix codes, but also on skillful participation in group-driven, collaborative forms of humor. Humor and laughter ultimately "afford a "quick probe" for establishing common attitudes" (Hurley et al. 2011, in Weitz 2017: 507), signaling in-group membership and fostering solidarity with other community members (Weitz 2017).

Collectively, the chapters in the volume bring up a variety of questions concerning effective communication strategies for constructing, controlling and negotiating knowledge, earning credibility and positioning oneself in or outside a given community of practice. As is natural, they cannot reasonably provide comprehensive coverage of the vast array of issues, genres, media configurations and disciplinary fields that characterize LSP studies. Yet, it is hoped that the chapters may serve as a useful introduction to a broadened view of LSP and to methods and approaches that are currently making inroads into LSP circles to that effect, at the interface of corpus studies and genre analysis, sociolinguistics, media linguistics and research on multimodality.

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across media in English: continuity and change in discourse strategies, ideologies, and epistemologies" (PRIN 2015TJ8ZAS).

SECTION I

COMMUNICATING SPECIALIZED KNOWLEDGE IN AND ABOUT HEALTH AND MEDICINE

CHAPTER TWO

ARTICLE TITLES IN ONLINE MEDICAL POPULARIZATION

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Abstract: Given the spread of Internet-based communication over the last two decades, the transfer of scientific contents to lay audiences through the Web has become an increasingly significant phenomenon, bringing together aspects stemming from specialized discourse, media communication and persuasive/promotional language. In specialized discourse standardized formulations, even with a marked gate-keeping function, are considered to be appropriate in order to transfer given meanings and instantiate specific interpretive frameworks; on the other hand, in media communication emphasis on rhetorical resources is accepted as a prototypical way to construct news, confer newsworthiness to events and convey ideology-saturated value judgement. In contrast, the popularization of medicine holds an intermediate position on a discoursal continuum, combining the need for informativeness and accuracy of specialized communication and the need for cognitive immediacy, effectiveness and the avoidance of gate-keeping effects which is dominant in media and persuasive communication. Since popularization affects not only the micro-linguistic and rhetorical level but also, and quite markedly, pre- and early-textual aspects, this analysis will focus on one of such elements, namely, the titles used in medicine news articles, with the purpose of tracing the strategies typically used in online medical popularization (*Science Daily* and *Scientific American*) to effectively synthesize contents in terms of both clarity and impact, so as to facilitate the process of text location and selection when browsing online archives.

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[1] Michele Sala is responsible for Sections 1-2, Stefania Consonni authored Sections 3-4.

1. Introduction

This chapter examines the use of newspaper article titles (henceforth ATs) in online popularization primarily aimed at the dissemination of health-related matters. Medical popularization, especially in its digital and electronic realizations, is a key element in disseminating scientific knowledge and specialized information from authoritative sources (i.e., expert research results) to the general public, that is, the lay audience sharing some interest in such matters without having the specialized epistemological and linguistic competence to process, interpret and fully understand primary source material.

This type of health-related competence, in today's digital era, is not just idiosyncratic or peculiar to some users, but – although superficial and non-specialized – is a distinctive identity-forming trait in Western societies, where the awareness of belonging to such cultures stems also from our knowledge of the rights/duties or possibilities/risks associated to various domains of social life (i.e., political, legal, financial, medical, etc.). As far as medicine is concerned, this is evidenced by the proliferation of popularized scientific and medical publications – both on paper and digital format – and the spread of health-related and self-medication blogs and fora (Tessuto 2015).

Web-based communication represents a privileged channel to make this type of information available to the larger public. However, given the amount and range as well as the quality and variety of such an informative offer, it becomes relevant to also provide ways for these contents to be easily retrievable and accessible, hence effectively understood and assimilated by users. The retrieval function of semantic and lexical handle is typically performed by the genre of titles, which are generally associated to almost all kinds of written texts, in that they "allow to locate relevant content, are used for indexing purposes and – most importantly, from the author's perspective – showcase a publication's strengths" (Giannoni 2014: 153).

By titles we refer to those structures, usually markedly short, which are associated to an ensuing, longer and more complex text, which they are intended to introduce by both synthesizing the relevant information and, possibly, presenting it in a way that is efficient and appealing for the reader. Although the idea of what is efficient and appealing is very elusive and depends highly on the type of audience, and on both content and context of the consumption, a text title can be said to be efficient when its relevance regarding the ensuing text is immediately understood, that is when it provides not only elements as to its content but also hints as to its

text type and pragmatics. On this basis, Virbel (2002) and Eyrolle et al. (2008) distinguish titles into: *thematic*, in that referential as to the informative material to be found in the following text; *generic*, explicitating the genre of the associated text (i.e., Business Contract, Editorial, Insurance policy); *functional*, pointing to the function of a given text unit within a larger text (i.e., Introduction, Conclusion, Summary, etc.); *framing*, indicating the sequential ordering of a text unit within a larger text, often combined with lettering and numbering (i.e., Chapter 1, Section a, etc.); *performative*, lexicalizing the function performed by a given text (i.e., Errata Corrige, Acknowledgements, etc.).

The appeal of a title, instead, has to be measured with respect to the audience's expectations and, to some extent, to its contextual appropriateness. As a matter of fact, in information-based settings straightforward, transparent and referential structures are bound to be appreciated as being more 'appealing' or preferable over ambiguous or allusive ones, in that responding to the reader's informative needs. Otherwise, in entertainment and leisure-oriented settings more playful, convoluted or even opaque formulations may be more appropriate, in that they both attract readers' attention and stimulate and challenge their interpretive abilities rather than simply inform them. In this sense, using Mansfield's (2006) taxonomy of newspaper ATs, it is possible to distinguish titles in terms of appeal, dividing them into *summary* titles, meant to provide the gist of the associated text's referential content, and *connotative* titles, those exploiting figurative language, intertextual references, acoustic or graphic effects, etc., whose function is to "arouse the reader's curiosity about the [content] that follows, but there is more work involved in decoding the message due to the writer's manipulation of the language for his/her communicative ends" (2006: 53). In medical popularization, titles associated to health-related articles are almost exclusively of *thematic* type, according to the classification by Virbel (2002) and Eyrolle et al. (2008), but their lexical and semantic realization may range from the *summary* to the *connotative* end of the spectrum defined by Mansfield (2006).

As already anticipated, popularizing medical websites feature articles aimed to report, synthesize and simplify the content of medical research papers authored by experts and published in specialized journals. Such entries are usually thematically organized in specific sections, and are made easily accessible through headline links, either arranged in specific menus or positioned on the homepage as a teaser redirecting to the full text of the article. In this context, ATs represent a particular and remarkably interesting genre, not just in terms of semantics, but for their pragmatic

effect and communicative impact on the audience, since they have a specific function and organic autonomy with respect to both the title of the original research paper they are intended to report about and the wording of the headline link. Differences in wording between the expert version of the text and its popularization are due to processes of conceptual reconfiguration and recontextualization (Calsamiglia 2003; Calsamiglia, van Dijk 2004; Myers 2003; Garzone 2006; Gotti 2013) and linguistic reformulation (Breeze 2015), which operate through the use of metadiscursive resources (ranging from generalization, description, definition, code glossing, etc. to the use of engagement strategies) meant to enhance lay readers' comprehension. Differences between ATs and their relevant headline links, instead, have to do with space constraints, "because the original did not fit into the assigned web space or format" (Mansfield 2006: 289) and may be the result of possible attempts aimed to balance informativeness and attractiveness (Martin 1998). As a matter of fact, given the type of information and the channel for its communication, popularizing ATs conflate both concerns: the need for informativeness and exactness – typical of expert texts – so as to allow the general public to find and comprehend the relevance of given contents, as well as the attractiveness of their wording, which must elicit the reader's curiosity but, unlike headline links, has to be pertinent and coherent with the associated article (especially in terms of word-choice, but also register and style) so as to facilitate retrievability through Web searches.

On these premises, the present analysis will investigate ATs in order to trace the strategies typically used in online medical popularization to effectively synthesize contents in terms of both clarity and impact, with the purpose to ease the process of text location and selection when browsing online archives in scientific publications.

2. Material and Methodology

For the purpose of this analysis we have selected a corpus of ATs taken from two free-access online magazines, the traditionally well-established *Scientific American*, and the relatively recent *Science Daily*. The former is the online version of a popular science magazine founded in 1845 and representing the oldest medical journal published in the US, while the latter was founded in 1996 with the specific purpose of providing daily updated information. Both publications are meant to transmit specialized and authoritative contents in a way that is clear, concise and easy to process.

A total of 270 ATs (135 per each website) have been collected, published in different subsections of the Health sections in both sources in the time span May-September 2015. Since health-related topics are heterogeneous, and since different contents imply different expectations on the part of the reader – hence different rhetorical styles on the part of the writer – for comparative purposes ATs have been here grouped in three macro-categories containing 90 samples each (45 per source), according to the content type of the associated article, namely: deadly pathologies (i.e., pathologies that, at least to the mind of the average lay reader, are likely to be perceived as being fatal if not properly treated, such as cancer, HIV, epidemics, pandemics, etc., henceforth indicated as DP), general pathologies (i.e., allergies, mental health, depression, etc., that is, those pathologies which might be dangerous but are not usually a direct cause of death, henceforth GP), and general healthcare (i.e., alternative medicine, dieting and healthy eating, wellness, etc., henceforth GH). The following table shows the distribution of ATs per Web source and per group.

Tab. 1: Distribution of ATs in the corpus

	SA	*SD*	*Total*
deadly pathologies	45	45	90
general pathologies	45	45	90
general healthcare	45	45	90
Total	135	135	270

Assuming that ATs always need to be informative, precise and complete to be effective (White, Hernandez 1991; Hartley 2005b, 2007; Eyrolle et al. 2008), therefore to minimize interpretive effort and maximize text retrievability and selection, we will here analyse the strategies adopted by online medical popularizations to attain such purpose by focusing on the way meaning is worded out in conceptual and syntactic terms and, more specifically, on the way ATs are organized in structural and lexical terms. At structural level (Fortanet et al. 1998; Swales 2003; Soler 2007; Jaime Sisó 2009), titling constructions will be distinguished into, respectively, conclusive, interrogative, compound and nominal.

At lexical level we will see how and in what proportion in popularizing ATs specialized content is modulated through markers indicating mitigation, evidentiality and attribution (Hunston 2003; Hunston, Thompson, eds. 2003; Hyland 2005; Hartley 2007) in order to boost exactness and credibility.

3. Results

3.1 Structural Level

ATs can be distinguished into four categories, according to different ways of syntactically organizing the informative material.

Conclusive Titles

Full-sentence conclusive titles (also declarative or declaratory, cf. Smith 2000; Goodman et al. 2001; Jaime Sisó 2009) are represented by structures which are syntactically and semantically autonomous in that containing finite verbal forms which specify the semantic relationship between the various lexical elements in the sentence, as can be seen in the following examples:

(1)   Scientists discover electrical control of cancer cell growth. (49)
(2)   Cognitive-behavioral prevention program for teens at-risk of depression shows benefit. (236)

Formulations like these are informatively dense, since they anticipate the relevant points of the associated article. In doing so "they attract the reader's attention but simultaneously run the risk of being over-optimistic" (Giannoni 2014: 153), in that over-general or over-simplified, thus leaving little space to nuances or articulated meanings.

Interrogative Titles

As the label suggests, interrogative titles are formulations constructed as or through questions, thus positing meanings interrogatively rather than assertively. These constructions may be intended to represent questions readers might have on a specific subject and anticipate cognitive gaps which are then dealt with by the ensuing article, or to actually question and cast doubts over certain meanings, signalling "queries in need of reply, interpretation, and conclusion" (Soler 2007: 100). This typology can be exemplified by texts like the following:

(3)   Is Food Addiction Making Us Fat? (127)
(4)   Why do people with schizophrenia misinterpret social cues? (178)

Such structures function as anticipatory devices meant to elicit the reader's curiosity about a given issue, although in different and very

specific ways. Polar questions, as in (3), offer a double possibility as to the relevant answer (either positive or negative), and the associated text is therefore expected to provide informative material to either confirm or falsify the propositional content being questioned. Open questions, as in (4), place instead the focus on specific elements, usually whys and wherefores regarding the overall meaning (i.e., the reasons or the ways a give state of affairs came about), thus reflecting the scope and focus of the associated article.

Compound Titles

Also referred to as *colonic* or *hanging* titles (Day 1994; Hartley 2005b), such structures are constituted by two semantically interconnected parts (phrases, clauses of even full sentences, both declarative and interrogative) normally joined by a colon, a full stop or a punctuation mark with a similar function (Jaime Sisó 2009). They are thus organized in theme-rheme clusters where the first part introduces the general topic and the second one makes it relevant by framing it in general-specific, major-minor, topic-method, problem-solution sequences or by contextualizing it with respect to specific scenarios. Some examples can be found below:

(5)   Taming hot flashes without hormones: What works, what doesn't. (108)
(6)   Hypoallergenic parks: Coming soon? (21)

With such formulations both informativeness and appeal are accounted for (Hartley 2007) in either part of the structure. One part is meant to attract the reader by positing general meanings, easily accessible and hence appealing to the lay public, and the other is meant to make such meanings informatively relevant with respect to both the expectations readers might have about the topic, and the actual content, along with the way of dealing with it which is to be found in the associated article.

Nominal Titles

These are structures either consisting of a single verbless expression, or containing verbal forms in the non-finite form (i.e., gerund, participle, *to* + infinitive, etc.). The type of language found in such formulations is commonly referred to as "block language" (Straumann 1935), headlinese (Garst, Berstein 1963) or economy grammar (Halliday 1967), and is typical of those genres or text types characterized by fixed space constraints (as is the case of advertisements, telegrams, book titles, etc.). Other features of such titles, besides the omission of the auxiliary verb (*be*,

have, *do*), may be the omission of definite and indefinite article, the frequent use of passives, the preference conferred to nominalization and to the use of condensed noun groups (Mansfield 2006), as can be seen in the following examples:

(7)   The flaws of HIV. (200)
(8)   Hereditary swellings caused by defective blood protein. (28)

Structures like the above are descriptive or indicative rather than informative, in that they exploit lexical elements as keyword with the purpose to give a general idea of what the ensuing article is going to be about, thus eliciting the reader's curiosity without necessarily satisfying it. As a matter of fact, the type of meaning relation between the various informative elements is left implicit and, in many cases, may be ambiguous if not just obscure (see (9), below).

Subtitles

By observing the samples in our corpus we have noticed that in many cases, possibly in order to balance informativeness and appeal, ATs are followed by a short paragraph – whose length may nonetheless vary considerably – used to complete, better articulate, specify or explicitate the type of content to be found in the following article, as can be seen in the extracts below:

(9)   Moldy Muffin Mystery.
       A fungi expert helps Scientific American ID the mold in a reader-submitted photo. (9)
(10) How Birth Control Pills Affect Your Nutritional Needs.
       Prescription medications can affect your body's absorption and utilization of nutrients. If you use birth control pills or HRT, make sure you're getting enough of these nutrients. (247)

Such formulations function as informative appendixes to ATs, giving writers more freedom and rhetorical space where to distribute information, thus allowing ATs to sacrifice informativeness for appeal and pragmatic impact in case both functions could hardly be attained at the same time.

The following table shows the frequency and distribution of ATs according to their typology and the presence of related subtitles.

Tab. 2: Distribution of AT types across the corpus

	deadly pathologies	*general pathologies*	*general healthcare*	TOTAL
conclusive	61	37	42	140
Subtitle	*25*	*20*	*23*	*60*
interrogative	4	13	5	22
Subtitle	*3*	*6*	*4*	*13*
compound	5	16	9	30
Subtitle	*2*	*7*	*4*	*13*
nominal	20	24	34	78
Subtitle	*12*	*14*	*24*	*50*
Subtitle total	*42*	*47*	*55*	

Some interesting trends are revealed by the occurrences in the table. The most noticeable is the general predominance of conclusive formulations in the three sub-corpora (with a total of 140 occ.). This is likely to be due to the domain's epistemology, in that medicine has to do with empirical and laboratory data, or case studies hinging on condition-consequence and experiment-results processes. Information about such contents is therefore most appropriately presented in assertive and referential terms rather than through formulations which presuppose interpretation or meaning negotiation.

Another significant trend concerns ATs dealing with DP topics: conclusive structures seems to be the preferred formulations both in absolute (within DP ATs) and proportional terms, that is by considering the wide gap between DP conclusive titles (61 occ.) and other title typologies (respectively, 4 interrogative ATs, 5 compound ATs, 20 nominal ATs), especially when compared to the (relatively) more homogeneous distribution of title types in GP and GH. As to the occurrence of subtitles, as we can see in the very last line of the table, DP ATs make a more limited use of such resources (42 occ.) when compared to GP (47 occ.) and GH (55 occ.). The assumption is that, given the type of content of these texts and the informative need on the part of a reader looking for such meanings, death-related articles are most easily located and found relevant when their ATs are informatively dense, complete, transparent and semantically autonomous (thus not requiring explanatory appendixes).

In GP articles, instead, the title typology is much more varied. Although in absolute terms conclusive and nominal constructions are the most frequently used (respectively 37 and 24 occ.) – as in both DP and GH – interrogative and compound titles, barely noticeable in other groups, are