

A PRAGMACOGNITIVE APPROACH TO THE STUDY OF SOME INTERNET SCIENTIFIC ARTICLES: HEADLINE TITLES

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69

1. Introduction

Nowadays, genre theory is increasingly seeping into the electronic media, notably as far as internet discourse is concerned (e.g. Agre 1998a, 1998b; Beghtol 2001; Crowston and Williams 2000; Kwasnik 2001; Kwasnik *et al.* 2001; Toms 2001). With the proliferation of new media and electronics modes of communication in public life, and the recent increase in the interdisciplinary nature of academic and professional discourse, there has been an increasing appropriation of lexicogrammatical resources and rhetorical strategies across discourse communities and genres (Bhatia, 2002), thus giving rise to new hybrid forms of *cybergenres* (Yus 2001). In fact, one of the main concerns of scholarship focuses upon whether the internet has already created some sort of ontological basis for its own discourse (see Agre 2000), and hence, a set of standardised constraints upon the genres that suit the medium. These web genres may be shaping people's subjectivities, or what is the same, the set of expectations users arise when accessing online documents. As a result, existing generic patterns (i.e. structural schemata and register choices) such as those forwarded by technoscientific research papers (see Swales 1990; Trimble 1985; and Zappen 1983) undergo an accommodation process in response to the medium and the assumed tenets of the internet audience. As Swales comments on "existing genres can be accommodated" (Swales 1990: 58), their constraints being

loosened or tightened in response to the new rhetorical dimension and kind of audiences.

Fairclough (1992, 1993, 1995) and Bathia (1993, 1995, 1998) among others, have studied this aspect of discourse manipulation by expert members of professional communities in different fields such as “fundraising discourse” (Bhatia 1998); “academic job and course advertisements” (Fairclough 1993); “book introductions and book blurbs” (Bhatia 1997); “memoranda of understanding” (Bhatia 2000) and “joint declarations” (Bhatia 2000). They also recognise to have found some instances of mixed or hybrid forms of genres in political documents, brochures, leaflets and, occasionally, research articles introductions. We put forward elsewhere that research articles published in the web personal homepages have also been manipulated in their linguistic structures by the technoscientists so as to catch the attention of different audiences and to conform to the Internet standards (González and Redrado 2003a); as a result, they present some form of hybridity, i.e. while they are built according to the schematic structural framework of purely scientific texts, they are characterised by what Hatim (1990: 51) regards as fuzziness of registers. As these modifications can be best embodied in the titles, which display significant pragmalinguistic and generic information, this paper will focus on analysing some of the titles encountered at a random choice in the personal homepages to observe, first, how the blurring of alien genres begins at this outstanding discursive space.

70

The papers have been chosen at random from different scientific and technical domains; they, therefore, vary in their purposes and audiences and present different degrees of technicality. It is not the purpose of this paper, however, to establish comparison among domains or to draw conclusions for specific groups of knowledge. We are concerned here with how writers and web creators alike approach textual and linguistic matters in this new medium, and the set of assumptions they implicitly take to choose certain patterns. We assume that titles shall provide the analyst with significant insights into the angle of telling, and hence the traits technoscientists are eager to reveal about themselves.

The methodology and discussion of this paper follows the present interdisciplinary—mainly pragmacognitive—approach of genre theory (Berkentotter and Huckin 1988; Bhatia 1997, 2002; Carrell 1983, 1988; Zappen 1983; Martin 1992; Swales 1990; Yus 2001), encompassing it with some approaches of text typology and standards of textuality (Beaugrande and Dressler 1981; Hatim 1990) and of systemic functional analysis, a variety of structural analysis particularly suited to interpreting meanings that are socially construed (Halliday 1976, 1985; Halliday and Martin 1993). Rather than discarding any of these analytical focuses, they can all ally, in our view, to reveal salient features, and, more particularly, the rhetorical

intention of the writer. In fact, current research on genre theory lies upon an interdisciplinary pragmacognitive approach which also welcomes common tenets of critical discourse (Bathia 2002).

Both tenets ought to embrace each other as they are inextricably linked. This means that the aim of text analysis is to discuss how given meanings and interpretations arise in a text by means of the observation of linguistic choices and their recursion in a piece of discourse, which enhance an ideologically motivated dominant reading. In its turn, this also entails recovering the roots of systemic-functional linguistics, politeness theories and basic pragmatic principles, and cognitive stylistics (as in the case of metaphor) and pursuing interdisciplinary dialogue in the analysis of textual and contextual materials. To understand the social meaning of a text one should explore the stratified threefold layer of language, i.e. view the interplay of genre, register and language choices which directly point out to the general framework of culture and ideology.

Our hypothesis is that Web designers imaginatively realise an audience that just consumes the sort of genres normally fitting the conventions of the most popular mass-media. This bias has arisen despite the explicit intentions to the contrary of the internet and computers in general which are often advertised as instruments of knowledge and icons of professional mastery. It is argued that this is the result of marketing criteria, which attempting to enhance the writer's self-advertisement and the digital medium, often give undue representation to the needs and interests of web users. In this way, the internet not only reflects bias but also helps to perpetuate it.

2. The technoscient and the Internet discourse

This chapter approaches the technoscientist character as inscribed within the ever increasingly standardized internet discourse. Scientific and Technological discourse (ST discourse henceforth) loosens its generic and register constraints when submitted to the layout, format and probably ready conventions of the less audience-selective digital medium; and so does the technoscientist, who undergoes a metamorphic process to fit the assumed demands and expectations of the general lay audience.

Our continuing research on the malleability of ST genres in the internet presents some evidence to support the view that writers, re-drafters and web creators alike colonize the patterns of the mass media discourse to appeal to the pre-supposed cognitive processes of the general audience. In doing so, they uncover a systematic bias to internet users, who are conceived of as customary consumers of specific genres. It is often the case that the strategic choice of linguistic variables underlines

the attractive personal image of the technoscientist which comes foregrounded on the textual surface, whereas professional research which is depicted either at the central core of papers or reproduced at a separate clickable page —nearly always obscured under the formal conventions of ST discourse— is left at the background. This all promotes two sorts of reading and assumes two sorts of audiences who should filter the materials in a differing way.

The structural distribution of textual samples may entail that lay audiences are supposed to trim ST research in a manner similar to the reading of newspapers since formal nomenclature and procedures are left unexplained. Trained audiences, however, may still benefit from the reported content as they can supplement their own knowledge to establish coherence.

Accordingly, the technoscientist is stripped of the clothing that mediates self-expression in formal research papers in order to magnet the vast majority of untrained readers. These readers, or better scanners, as web theorists would rather call them, are positioned before a gallery of recognizable, popular characters, all being subtly conducted within the imagery of Hollywood revisions of myth, legend, romantic traits as well as science fiction models. These intertextual references often overlap with tenets of up-to-date modernity such as the present conception of professional prestige and success as embodied by the young tycoon and the TV superstar. Among the tools resorted to in the camouflaging process outstand the force of striking metaphors, the choice of informal tenor and conversational style to approach the reader on an equal social footing to the writer's, and self-disclosure mechanisms (e.g. personal information, feelings and family background or tragedy) which tend to enhance intimacy and inject emotional nuance into the audience's consciousness. Interestingly enough, many of these conventions begin to be ubiquitous in other forms of computer-mediated communication (Aycock 1995; Murphy and Collins 1998), so that they could be contributing to create the ontological basis of internet discourse.

It is argued that there are three converging parameters that are dictating the negotiation of self-expression in online ST genres, namely, the present popular conception of technoscience, the mythology surrounding the internet, and the assumed cultural values of the web users. On the one hand, ST discourse must enforce the serious, reliable, and fact-oriented character of both the disciplines and their practitioners. On the other hand, ST discourse must address the lay audience enthusiastically in order not to lose its present status as modern myth. This is often the tension analysts can encounter in more popular-oriented publications as well as the one we have detected on homepage research papers (González and Redrado. 2003a and 2003b), a tension stemming from the need to simultaneously reflect the pragmatic usefulness and near-magical nature of ST breakthroughs. Inevitably,

these conflicting purposes reach the ways in which technoscientists negotiate self-expression when addressing outsiders, so that they can render an image of themselves that fits the demands of the vast majority of addressees.

3. Assumptions upon lay audiences

Apart from assessing the manoeuvres ST discourse must undertake to favour the desired effect, practitioners must forcefully consider the medium which serves as a vehicle of encounter between themselves, their research, and the target audience. This entails realizing the standpoint and standards of the audiences which access internet, or what is the same, the guidelines imposed to digital publishers to satisfy the market demands. In other words, online publications must fulfil a number of requirements that may not only affect format, but also the sort of linguistic choices, structural or otherwise, which communes with the expectations addressees shelter concerning the medium. One of the most fruitful approaches to the internet focuses upon the increasing strive to make the digital genres more communitarian, i.e. to face the challenge of reaching the largest segments of web users (see Agre 1998a; Wynn 2000). This challenging process leads us again to our main questions, namely, how to turn ST genres into more communitarian archetypes in accord with the medium wherein they will be eventually consumed. That is to say, how existing ST genres can be accommodated (Swales 1990: 58) in response to the new rhetorical dimension and the new audience, the one who is outside the community where these genres originally evolved. It is obvious that some shifts in the existing patterns must be introduced in ST discourse to attract outsiders, while still maintaining features that can magnet professional audiences.

The personal homepage faces the challenge of an unpredictable audience (see Wynn 2000) far more strongly than other digital genres such as electronic mail, journals, chats, or even commercial homepages. Encountering certain personal homepages is often a matter of random clicking, whereas approaching those other genres nearly always comes as a result of a more deliberate choice or clear purpose; therefore, we can deduce that many curious viewers will have a good chance of being outside the community in which the genre originated and evolved.

These two main groups that ST homepages must face —professional and outsiders— belong to fairly different sociocultural backgrounds. It stands to reason that text producers and homepage creators alike strive to appeal to, and keep these two audiences simultaneously, which may turn these documents into a new genre with “conflicting purposes” (Bhatia 1997, 1998; Swales 1990). On the one hand, authors wish to advertise themselves amid the scientific community, gain or fortify prestige by reporting on newsworthy scientific materials or research. On the other

hand, out of the marketing pressures to reap benefits, these pages must also seek the consumption and approval of lay audiences.

Consequently, though ST text producers, as members of the former group perfectly know and manage the genre conventions of their own community, they must also assess the set of cultural, social and ideological standards which could appeal to less selective circles, those which are in principle unfamiliar with the conventions of the former group. In other words, these sort of texts will convey a series of “implicit assumptions” (Fairclough 1989: 20), namely, assumptions about the general cultural standards of common people, the routine genres they consume, and the usefulness the Internet may report to them. However, at least as far as Science and Technology are concerned, homepages creators and their text producers, tacitly shelter the belief that general audiences conform to a pattern of what Glynn (2000) calls “tabloid culture”, that just consumes the persuasive, manipulative, amusement-oriented genres of TV news stories, tabloids and screaming commercials.

The meeting of these two groups in the homepage creates the conditions for the emergence of a new genre, one which must support the collective cognitive processes of these two audiences at a time to succeed in actual practice.

74

In order to come to terms with how internet discourse strengthens these tacit social assumptions, we propose a return to the very roots of systemic functional linguistics as still a valid model of critical discourse analysis, as it enables us to integrate more recent adjacent tenets. Since this paper is concerned with how scientific writers manipulate the structure of written language to create socially-constructed systems of meaning, we will give in what follows a brief review of Halliday’s interpretation of meaning.

4. Systemics Interpretation of Meaning

Halliday assumes that all languages express the potential for three kinds of meaning: ideational, or experiential meaning, interpersonal meaning and textual meaning. *Ideational meaning*, which is related to the field in the context of situation, refers to the way language represents our experience of the world —people, places, things and activities that make up our physical and psychological environment (*what is going on*. Halliday 1985: 26). Halliday asserts that certain components of the sentence “can be thought of as representing the real world as it is apprehended in our experience” (1985: 19). This is realised in language through the grammar of transitivity system, being the key elements Processes (events or goings on in the world), Participants (people, places and things involved in processes) and Circumstances (places, time, manner, causes associated with processes). For

example, words or grammatical markers can be classified as expressing actions that are performed or received or that represent mental or physical processes. Likewise, linguistic features naming persons can be said to identify doers, sayers, recipients of action, or some other participant roles in human experience, as well as attributes associated with these participants. In addition, logical relationships between experiences so expressed can be identified through linguistic features expressing co-ordination, subordination, equivalence and other kind of connectors.

Interpersonal meaning refers to the tenor of discourse (*who is taking part*). Language is described in terms of interactional properties. Through the interpersonal function “social groups are delimited, and the individual is identified and reinforced” (Halliday 1985: 143). Each choice for interpersonal meaning is realised through a choice in the mood system in English, modality (yes or not, positive or negative) and modulation (probability, usuality). These grammatical features express potential for meaning about the tenor of discourse in a particular situation. Tenor, which has been roughly compared to attitudinal meaning, also admits pragmatic considerations such as the degrees of content-proximity and audience-response (Martin 1992). Into the common heading other questions can also be inserted such as discourses of power and solidarity, and the concept of “face” (Brown and Levinson 1978). These matters have been dealt with in the literature on internet discourse as “self-presentation” (Wynn 2000), or “self-advertisement” (Aycock 1995).

Finally, *textual meaning* is expressed through those features of language by which it makes “links with itself and with features of the situation in which it is used” (Halliday 1985:143). Textual theme, and cohesion are among the grammatical features that express potential for meaning about the mode of discourse or the role assigned to language in a particular communication event (Halliday 1985: 26). In other words, cohesive texts should constitute an internal linguistic whole while fitting the context of occurrence semantically (coherence) (Halliday and Hasan 1976).

Cohesion concerns the ways in which the elements of the surface text are mutually connected within a sequence. Halliday stated that cohesion partially depended on grammatical dependencies such as reference, ellipsis and substitution, conjunction and lexical organisation. Other scholars would rather include here further variables like the schematic strategies followed by genres and text types (Bhatia 1997; Hatim and Mason 1990; Swales 1990; Van Dijk and Kintsch 1983), or paragraph cohesion achieved mainly by rhetorical techniques like parallelism, time order, contrast and comparison, etc (Trimble 1985).

5. **Headline titles: Attention-catching mechanisms.**

Apparently following the guidelines defended by web theorists, i.e. inserting an informal, conversational style to make homepages more likeable and communitarian, the process to convert research papers into the patterns of the internet starts out with the titles. In this chapter we shall analyse some of their recurrent features that signal the set of motivations of authors. As defended below, titles accommodate criteria that can well suit news headlines to seek the attention and applause of lay audiences. On their way to reach outsiders, titles tend to commune with popular conceptions of technoscience, its practitioners, and the medium where they are advertised.

The sort of titles heading ST homepages work as attention-catching devices that seek the interest and applause of the common audience in a manner similar to news-breaking headlines or adverts. Following the threefold model of discourse (textual form, discursive practice and social practice) proposed by Fairclough (1992), we can put forward that titles construct that ideal receiver in advance, take into account his/her presumed knowledge, attitudes, values and beliefs and attempt to confirm them as valid. In accord with these parameters, writers loosen the conventions of their referential ST discourse to construct an image of themselves that communes with receivers for purposes of self-advertisement, using advertising techniques like that of presenting the common audience as “a potential friend in distress” (Vestergaard, and SchrØder, 1985). As for the linguistic variables, titles democratise discourse by undoing noun phrase stacks, avoiding highly specialized register choices, and stating intention clearly often in an attempt to present themselves on an equal footing to less trained readers.

The articles we encountered seek the audience’s complicity by exploiting the conventions of simple, informal, and conversational speech. With these tools, writers or re-drafters attempt to attach a feeling of dynamism that escapes traditional research papers. In its turn, such dynamism would reward technoscience and its practitioners as much as it feeds and confirms the expectations users shelter concerning the internet. As the next sections underline, these conventions apply to the use of questions, dynamic grammatical choices, suggestions and the strategic deployment of modality.

5.1. Questions

Dynamism, nearness to the audience, directness, and the rhythm of face-to-face encounters are often enhanced by questions: *Can Eyedrops Replace Glasses?*; *Can Microbes Sequester Carbon?*; *How Now Mad Cow?*; *How Should We Farm?*; *How Do You Feel Today? Asking a Fish*. At the same time, basic questions, especially those

articulated into clear-cut yes/no patterns perfectly serve the purposes of readers who seek straightforward information. In fact, it is the audience that detests the waste of time and money in mystifying complications the one that web designers bear in mind when designing web sites and re-drafting articles.

In these terms, the first two titles —*Can Eyedrops Replace Glasses?*; *Can Microbes Sequester Carbon?*— promise an immediate yes/no response, and then a clarifying answer brought immediately to the reader. Notice that the first one perfectly suits either a curious reader or the potential customer to whom the article can also benefit economically. As a matter of fact, the article addresses the ideal receiver as the parent who spends a large amount of the family salary in the children's eyesight care and treatment.

Together with the promise of an immediate response, the second heading approaches scientific research by personifying the work of what the author names as "amazing microbes". The technological use of the term *sequester* conveys the metaphorical image of a judge who officially takes some property. This turns the somehow boring or harmful idea we may originally have on microbes to that of playful, optimistic guardians of the environment. To add in the effect, the article devises similar analogies that simultaneously bridge the gap with the audience and portray the scientist as good-humoured genius. This is the case of "These bacteria respire iron" or "just as humans get rid of electrons, these bacteria dump electrons on iron".

The third in the afore-mentioned list —*How Now Mad Cow?*— directly points to the general interest of the reader by electing the popular coinage of the CJB-disease. Then, the everyday register and the question tone come implemented with the echo provided by the rhyme link (i.e. *how-now-cow*), a technique highly exploited in adverts and commercials.

In *How Should We Farm?* the writer plays with deontic modality (or of duty) in an attempt to encourage serious reflection upon the unconscious, harmful use of chemicals in agriculture. Then, the inclusive pronoun *we* lets the author ally himself with the reader as members of the same group, thus promoting a discourse of partisan solidarity with the target audience which could attenuate or soften the impact of a near imposition —use of modal *should* instead of *must*— upon the receivers.

Finally, the last title —*How Do You Feel Today? Asking a Fish*— devises a simulated conversation with a fish, and hence personifies the object of the research. This can captivate the reader who is immediately introduced into the universe and conventions of fabliaux or children's stories. Thus, the reader can feel from the beginning that s/he will not only benefit from the scientific information, but also from a sort of moral, ethical lesson. As far as the author is concerned, the title

promotes for him an image of warmth, tenderness, and cheerfulness that can enhance the pleasure and subjective satisfaction of the assumed standard reader.

5.2. Avoidance of nominalisations or grammatical metaphors

Also to favour the eagerness to show themselves as dynamic lab professionals, writers avoid presenting too theoretical papers by resorting to the gerund and participle forms of verbal processes, as was the case with the second half of the latter article *Asking a Fish*. Even though gerunds and participles are non-personal verbal forms, they still maintain the dynamic character of their verbal counterparts as in their capacity to receive objects and adverb modifications. In the decoding process, receivers can easily imagine the action as linked to some sort of personal agency, which escapes the grammatical possibilities of a purely nominal counterpart. Thus, their semi-verbal status allows writers to introduce themselves dynamically, as if still at work, or still devoted to their eager research. This is at least the first impression one can get after encountering these titles: *Painting Clearer Seismic Portraits of the Foothills*; *Repairing Damaged Spinal Cords: Hopes for the Future*; *Measuring the Usability of Reading on the Web*; *Giving Computers Eyes*; and *Growing New Organs*. Notice that apart from bringing scientific contents to the familiar angle of lay audiences, the referential register of most linguistic choices turns the authors' research drastically into fields of action that escape the scientific constraints, so that they can be conceived in metaphorical terms.

78

The first title —*Painting Clearer Seismic Portraits of the Foothills*— raises the status of Computer Technology to the paradigms of a fine art. While computers turn into brushes, the technoscientist becomes the genial artist-painter who is able to reflect nature in all its clear brightness. It is worth noticing that the true object of the research has been encapsulated at an unmarked syntactic location, shunted to a simple adjective —*seismic*, whereas the terms suggesting artistry occupy both thematic location (i.e. *Painting*) and rhematic focus (i.e. *portraits of the foothills*). This initial effect clashes with the rest of the article which is articulated in terms of the economical interests of target-drilling for energy companies. Then, this suggests that the article plays with the attractive ambivalence of ST discourse mentioned above, between the need to simultaneously reflect pragmatic usefulness and enthusiastic, incredible deeds.

The second article —*Repairing Damaged Spinal Cords: Hopes for the Future*— also abandons medical nomenclature to bring traces of metaphorical meaning. The title suggests that in short damaged spinal cords will be treated as easily as everyday household appliances or cars. Throughout the article, the writer will develop the same metaphorical register with unremitting insistence as in “In a damaged spinal cord there is a telephone exchange of wires”. Then, metaphorising the medical

science in terms of registers lay users are familiar with, brings the latter as potential readers while promoting the success of the discipline. Also in an attempt to magnet non-professionals, the article reminds the case of Christopher Reeve (Superman) at the introduction in the same manner as news readers would do on TV, for which it also offers a link that reads as follows “For more information visit The Christopher Reeve Foundation”. Finally, the remainder of the title (*Hopes for the Future*) puts forward the actual result of the research always measured and reworded in terms of the audience’s interests and plain language. This seems to point out cataphorically to the conclusion that ends as follows: “If research continues with the success it has enjoyed in recent years, both scientists and sufferers have reasons to be optimistic”.

Interestingly enough, the next title *Measuring the Usability of Reading on the Web* heads a shorter summarised version of a long paper that originally read as follows, *Report from a 1994 Web Usability Study*. The procedures to turn a formal report into what is considered to be a more suitable text for the medium are those listed above by the author Jakob Nielsen, including bold text and headings that scan results. As can likewise be seen, the changes start out in the title, which initiates theme by introducing a far more dynamic and suggestive term via nominalisation and grammatical metaphor. And the same as in his other paper cited above, a sort of apology is added to the long, full version three years later in the introduction which reads in these terms: “The report was originally written for the distribution to the rest of the Web team on paper since we were not heavy intranet users in 1994”.

Giving Computers Eyes goes to extremes to depict the work of programmers in Computer Vision. More than anything in the text, it is the title that deserves some comment in terms of the string of associations it seeks to awaken in the reader’s mind. The insistent analogy between humans and computers brings the echoes of science fiction intertextual references that common readers may extract from popular novels and films. The comparison is later clearly and explicitly stated when reporting on the newsworthy details in these terms “as good as the human eye”. But associations do not end here since they may lead us to conceive the figure of the technoscientist in a particular manner. The title appears to categorise programmers into the rank of semi-gods, those who can manipulate inert matter to make it alive. Again this is the sort of utopian, futuristic imagery that some professionals are fond of spreading and perpetuating in the lay target audience. And once more, this type of stylistic features are balanced with the practical, serious benefits that the field is achieving in actual applications such as biological research, car technology or text archaeology.

Finally, *Growing New Organs* is particularly interesting, judging from the way the article develops afterwards. It is apparent that such a complex field like transplants, or tissue engineering is angled from a familiar, informal tenor. While the title *prima facie* points to the actual activity of the writer, namely the creation of transplantable organs in laboratories, other analogies later devised in the text come to our minds. The title appears to equate the labour of scientists to those of farmers, who cultivate, or *grow* crops, and in order to support what seems to be the writer's argument, the same analogy repeats in the conclusion: "Ten millennia ago the development of agriculture freed humanity [...] The development of tissue engineering should provide an analogous freedom to the limitations of the human body". Thus, the mixture of registers or even genres that takes place later in the article is advanced by the title in an attempt to impress, amaze or leave the reader agape from the start. It suggests that the writer is here advertising the astonishing advance of science in general and more particularly, the one achieved in his own laboratory.

As the two later articles reveal, the personal homepage can be linked to the commercial one, since both can work as a subtype of the business genre. Wynn (2000) reports that there is an interesting discussion of how commercial web sites need to become more communitarian in nature in order to reap a benefit. As she argues, commercial homepages form a business genre with their own impact, with perhaps more scrutiny and accountability than some printed business publicity. In our case, the articles draw upon images borrowed from science fiction, which in its turn perfectly suits the popular mythology of the internet, to fit the presupposed demands of the lay audience and in an attempt to sell the product to the audience better. And this is also a case of "genre colonization" (Leitch and Roper 1998), as the register of one field is used to rationalize and legitimate the changes in another.

5.3. Suggestions

Next in our analysis we could observe that amid the set of resources that proliferate in the titles to present the papers as personal encounters with the target reader, are those of imperative structures which exploit the directive, appellative function to work as face-to-face suggestions. This is the case of *Don't Forget to Write* and *Let the Sunshine In*.

The former article —*Don't Forget to Write*— complains against the excessive fondness of graphics and images displayed by web sites to later praise the benefits that "good writers" can reap for them. However, even though such complaint appeals to the current conventions of webpages, the writer himself takes advantage of them to fit the assumed demands of the user. In other words, rather than

employing stylistic features proper to written research, the author seeks the attention of the audience through what seems to be an informal, epistolary set expression.

The latter title —*Let the Sunshine in*— focuses upon the benefits of environmentally-friendly architectural design and new glass technology. As is ubiquitous in technological internet texts, especially when some company is involved, benefits are assessed in terms of “saving money” and “environmental care”. The article, however, also introduces more intimate human-oriented factors and this ingredient is first mirrored in the title, which could perfectly suit the title of a song, brings reminiscences of the metaphorical projection of inward feelings as displayed by a songwriter or a poet.

5.4. Strategic use of modality

Finally, we detected that writers often deploy modalised statements under different guises. As in the case of the title *How Should We Farm?* analysed above, modal verbs accompany degrees of modalisation (probability) and modulation (obligation) in the following titles: *Mobile Phones Must Die*; *Materials Advance May Help the Semiconductor Industry*; *Graphics May Get Attention but Good Writing Rewards it*; and *Spam May Be Meaty to Others: Its Cost Gives a Sour Taste to Many*

81

Modalisation (*may*) offers the writers here the chance to sound less imposing, thus conveying an objective discourse of neutral, democratic tone which can gain the approval of a large majority of web users as the afore-mentioned studies reported. This is especially true of the second article on materials advance where the avoidance of a categorical assertion may imply some signs of polite distance to the respected alters or target readers.

The other two titles, though, make use of modalisation (*may*) in a far more productive manner. They both combine the modalised statement with straightforward categorical assertions which succeed the former in contrastive rhetorical sequences. The contrasting game, accentuated in the first of these titles —*Graphics May Get Attention but Good Writing Rewards it*— by the textual adversative adjunct (*but*) also allows presenting the rhetorical technique that later will articulate the whole texts, namely that of contrast and comparison (Trimble 1985). Conclusion and results of the research are also highlighted by placing them at rhematic location, i.e. *Good Writing Rewards Webpages* and *Spam is unpleasant and costly to e-mail users*.

It is also worth commenting how the latter writer translates us to the domain of food properties —*Spam May Be Meaty to Others: Its Cost Gives a Sour Taste to Many*— so that we can appreciate the effect in direct, sensing terms. Again, this is

another case in which metaphorical meanings enable writers to narrow distances and intimate with the reader.

Finally, modulation (of obligation modality) strengthens the force that the title *Mobile Phones Must Die* exerts upon the reader, who is left somehow astonished from the beginning. Judging from the social impact of mobile phones, and the present suspicion on the genotoxic effect they may have on health, any reader would immediately click the present paper. It is only later that one realises the actual content of the article which exclusively concentrates upon the inadequacy of mobile phones to the internet.

6. Conclusion

These titles, as the ones we usually encounter in the internet homepages, already show some significant differences when contrasted with those belonging to more typical scientific genres such as reports, procedural recounts, or explanations. Notice, for instance, the stylistic differences of these titles published by the magazine *Mathematica* which is also available online: “*Dispersive and Nonlinear Propagation of Dual-Frequency Pulses in Optical Fiber*”, “*Study on Lie Algebraic Deflection Aberration Theory for Combined Magnetic Focusing-Deflection Systems*”.

Comparing these later titles with the ones examined in this paper, we can establish important distinctions, being the first one related to the registers involved, always in relation to the audience they address, in terms of the context of culture (*genre*) and the context of situation (*register* itself in more specific terms). As can be noticed at a glance, the titles mentioned above consist of nominalisations or noun phrase stacks and complex technical terms without verbs, whereas in the internet articles writers avoid highly specialised nomenclature, thus making them available and accessible to non-professionals. From this angle, they can be inscribed within what we usually regard as popular science. They all lack abundant nominalisation and the compressed style of more ST counterparts. But apart from the lexical choices selected to reflect the field, there are significant efforts to undo the mode and tenor variables that feature formal research papers.

As has been shown above, language is no longer used to monitor or construct a highly specialized topic, instead, it is used to act upon the lay reader, seek attention and consequent consumption, and approval. Efforts to raise the level of addressee-proximity range from dynamic forms that avoid static nominal terms, suggestions, metaphors, playful personifications and near set expressions. In-group appeals and modality have also been exploited to reflect interpersonal meaning rather than experiential or referential usage. In short, authors seek to democratise discourse and encourage the audience to take part in the encounter. This means

that they negotiate self-expression to present themselves on an equal status to readers, or else to confirm the common expectations they are supposed to have about the technoscientist figure. All this goes, despite the fact that articles often admit a far more formal focus and reading approach. Thus, two conflicting discourses are often sustained which reflect the tension between the useful, pragmatic values and more popular-oriented myths of ST discourse.

In sum, the kind of titles characterising internet genres ooze interpersonal and, to a less degree, textual meanings far more openly than those devoted to more restricted professional circles. They embody the writer's stance in a didactic manner and often facilitates the task of non-experts by putting forward the structural, rhetorical scaffolding of the texts. In the professional realm, writers have their audiences granted in advance and show no apparent concern to trap other readers, whereas internet writers have to gain the attention of the common public to maintain them in the page as long as possible.

Since the titles incorporate borrowings from alien genres, they can be conceived as cases of genre colonization which are supposed to legitimate the changes required for the new medium. When introducing conventions proper to journalistic genres, even the extremes of screaming tabloids, writers seem to conceive of the reader as a customary user of these genres.

Therefore, more formal ST conventions have been somehow subverted in response to the assumed audience, which now consumes science through the channels of a new medium. According to Toms (2001), creating web documents is a cookie-cutter affair as documents of differing types are formatted with essentially the same structure, eliminating or disguising those visual cues that help people to make sense of the content and requiring additional effort to interpret the document. In our view, the same could apply to the titles that head ST articles published in this new medium.

Notes

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². All the internet addresses mentioned here were available at the moment the article was written. We apologise if some of them have already changed or disappeared.

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A pragmacognitive approach to the study of some internet scientific...

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2. Eastman products
<http://www.plantfloor.com/ar/eastman-boothinc.htm>

3. Giving computers eyes
<http://www.ucalgary.ca/unicomm/Research/Parker.html>

4. Growing new organs
<http://www.sciam.com/1999/o499issue/o499mooney.htm>

5. Awareness of sudden death syndrome
<http://etoh.homepage.com/awarenessofsds/bao.html>

6. Livingwater
<http://www.vibrationalbeing.com/Sacredwater.htm>

7. It's a musical universe.
<http://www.svpril.com>

8. Mobile phones are not the future
<http://www.useit.com/alertbox/2001107.html>">
<http://www.useit.com/alertbox/>

9. Cloning pioneer
<http://www.nytimes.com/learning/general/specials/cloning/cloner.html>

10. The benefits of growing grapes organically
<http://www.isgnet.com/ogwa>

11. Western medicine
<http://www.meditopia.com/ewms.htm>