WHAT SOCIAL ACTORS SAY AND HOW THEY DO IT IN
THE SCIENCE POPULARIZATION NEWS GENRE

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WHAT SOCIAL ACTORS SAY AND HOW THEY DO IT IN THE SCIENCE POPULARIZATION NEWS GENRE

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ABSTRACT

The process of science popularization concerns the democratization of the access of society to material and symbolic goods (MOTTA-ROTH & MARCUZZO, 2010). The contemporary model of science popularization presupposes the mobilization of different discourses and enunciative standpoints about science and its validity to society (MOIRAND, 2003; BEACCO et al, 2002). There is an alternation of voices which makes some social segments evident while suppressing others (MOTTA-ROTH et al, 2008). Thus, the objective of this paper, part from the PQ/CNPq project Análise crítica de gêneros com foco em artigos de popularização da ciência (MOTTA-ROTH, 2007), is to identify the way enunciative standpoints are signaled in the science popularization news genre (SPN) by analyzing the frequency of occurrence of the unmarked verbal process SAY in 60 SPNs collected from the online publications BBC News International, Scientific American, ABC Science and NATURE. The results show that the association of SAY to the enunciative standpoints is realized by the simple present forms SAY and SAYS and the simple past form SAID, in which SAYS is the most recurrent and often combined with the enunciative standpoints of the researcher and colleague. The quantitative analysis of the occurrences of SAY in the corpus indicates a science reporting practice that prefers "official sources", which features the researcher and colleague, over the government and the public, which are excluded or mitigated in the news.

Keywords: science popularization news; verbal process SAY; enunciative standpoints

RESUMO

O processo de popularização da ciência diz respeito à democratização do acesso da sociedade aos bens simbólicos e materiais (MOTTA-ROTH & MARCUZZO, 2010). O modelo atual de popularização da ciência pressupõe uma mobilização de diferentes discursos e posições enunciativas sobre ciência e sua validade para a sociedade (MOIRAND, 2003; BEACCO et al, 2002). Há uma alternância de vozes que põem em evidência alguns segmentos sociais enquanto suprimem outros (MOTTA-ROTH et al, 2008). Assim, o objetivo deste artigo, parte do projeto PQ/CNPq Análise crítica de gêneros com foco em artigos de popularização da ciência (MOTTA-ROTH, 2007), é identificar o modo como as diferentes posições enunciativas são sinalizadas no gênero notícia de popularização da ciência (PC) por meio da análise da frequência de ocorrência do processo verbal não-marçado SAY em 60 notícias de PC coletadas das publicações online BBC News International, Scientific American, ABC Science e NATURE. Os resultados mostram que a associação do SAY às posições enunciativas é realizada pelas formas verbais do presente simples SAY e SAYS e do passado simples SAID, sendo a forma SAYS a mais recorrente e frequentemente combinada às posições enunciativas do pesquisador e do colega. A análise quantitativa das ocorrências do SAY no corpus indica um modelo de noticiar ciência que prefere “fontes oficiais”, onde se destacam o pesquisador e o colega, em detrimento ao governo e o público, os quais são mitigados ou excluídos da notícia.

Palavras-chave: notícia de popularização da ciência; processo verbal SAY; posições enunciativas.

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3 Advisor. Associate professor. CNPQ Reseracher (process n. 301962/2007-3)
INTRODUCTION

This paper is part of an umbrella project entitled *Análise crítica de gêneros com foco em artigos de popularização da ciência* (MOTTA-ROTH, 2007). This umbrella project aims at analyzing the science popularization news genre (SPN) in terms of its rhetorical structure and lexicogrammatical elements, such as “textual organization in moves and steps (cf. SWALES, 1990), use of metaphorical expressions to represent ideational content (cf. HALLIDAY; MATHIESSEN, 2004) and degrees of modality to indicate levels of authority and involvement of writers (cf. MYERS, 1990)” (MOTTA-ROTH, 2007: 15). In this paper, SPN is defined according to Moreira & Motta-Roth (2008: 4) as

 [...] um conjunto de manchete, lide, o evento principal, nesse caso, a realização de uma nova pesquisa, contexto, eventos prévios, expectativas e avaliação do significado e relevância da pesquisa para a vida do leitor leigo.

Under the umbrella project mentioned above there is a subproject entitled “*O debate sobre descobertas científicas em notícias de popularização da ciência*” (Marcuzzo, 2010), to which the present paper relates to. This subproject’s features analyze the extent to which enunciative standpoints identified in the corpus mobilize debates about scientific findings in the SPN genre. The concept of enunciative standpoints comes from the French *place énonciatives* (MOIRAND, 2003, p. 177), “the place where someone speaks based on his/her worldviews and values” (MARTINS et al., 2007). Beacco et al. (2002, p. 279-281) define enunciative standpoints as “interlocutive figures” (voices) placed on the stage to participate in the scientific discussions, like the expert, but whose discourses are different from the scientific addressee, such as the witness, the politician and the citizen.

From this perspective, the objective of this paper is to verify the way different enunciative standpoints are signaled in the SPN genre by the verbal process *SAY*, according to the Systemic Functional Grammar (SFG) classification. Marcuzzo (2010) also presents two specific objectives which are also adopted in the present paper: 1) to quantify the occurrences of the neutral verbal process *SAY* in the corpus; and 2) to analyze the content of verbiage, “[…] that correspond to what is said” (HALLIDAY, 1994, p. 141), in order to elucidate the kind of verbal reactions of the participants involved in science popularization process.

This paper opens with a presentation of the relevant theoretical background about the science popularization process, the enunciative standpoints in the SPN genre and verbal and mental processes as introductory linguistic elements of the enunciatee standpoints in the genre. Then the methodological procedure adopted in the present paper is introduced. Next, in the section Results and Discussion, the data obtained in the analysis is discussed into three
sections: in the first the frequency of occurrence of SAY in the corpus is examined; in the second the analysis concentrate on the variation of SAY in tense and, in the third, the enunciative standpoints associated with SAY are investigate, in terms of the kind of participant (human, non-human, individual or group) and visibility in the text. The paper ends with some considerations about the role played by the enunciative standpoints in the SPN genre and to what extent their participation in the text allow the mobilization of debates about science in the media.

1 LITERATURE REVIEW

In this section, some of the key concepts to the development of this paper are discussed. The science popularization process and different views of the process are examined in section 1.1. Then the functions of the enunciative standpoints in the SPN genre are discussed in section 1.2. Finally some lexicogrammatical aspects explored by Systemic Functional Grammar are explained, with special attention to mental and verbal processes in section 1.3.

1.1 The science popularization process

According to Calsamiglia and van Dijk (2004, p. 371), popularization can be defined as “a social process consisting of a large class of discursive-semiotic practices, involving many types of mass media, books, the internet […] and other genres of communicative events, aiming to communicate lay versions of scientific knowledge, as well as opinions and ideologies of scholars, among the public at large”. The authors state that the process of science popularization “involves the transformation of specialized knowledge into ‘everyday’ knowledge, as well as a recontextualization of scientific discourse” (Ibid, p. 370). Recontextualization is explained by Motta-Roth (2009a) based on Bernstein (1996, p. 90-91) as “the process of transferring texts from one [primary] context to another [secondary context] that involve the relocation of the discourse”. The information of a research paper, for instance, 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” (CALSAMIGLIA; VAN DIJK, 2004, p. 370). In this sense, the process of science popularization is related to “democratization of society access to material and symbolic goods” (GERMANO, 2005, p. 5).
The access of non-specialized audiences to scientific knowledge is made by “texts about science that are not addressed to other specialists” (MYERS, 2003, p. 265). For example:

An article in Cell does not belong to that field, but when the same author writes it up in Scientific American, or a science journalist reports it in The Times, or when a television documentary shows the scientist walking across a leafy campus, the same material becomes popularization. (Ibid)

Early definitions of the process of science popularization identified with the notion that “scientists develop genuine scientific knowledge [and] popularizers disseminate simplified accounts to the public” (HILGARTNER, 1990, p. 519). Thus, popularization was interpreted “as an ‘appropriate simplification’, necessary educational activity for simplifying science for non-specialists or as a ‘distortion’ [...] of science by outsiders as journalists” (Ibid). In other words, scientists are seen as being responsible for deciding the kind of knowledge considered as scientific (pure) while journalists merely "translated" this knowledge into a more "simplified" text. This ‘dominant view’ of popularization serves for reinforcing the authority of scientists and institutions that constitute science (MOTTA-ROTH; MARCUZZO, 2010, p. 516). Myers (2003, p. 266) states that this dominant discourse specifies that:

scientists and scientific institutions are the authority on what constitutes science;  
the public sphere is, on scientific topics, a blank slate of ignorance on which scientists write knowledge;  
this [knowledge] travels only one way, from science to society;  
the content of science is information contained in a series of written statements;  
in the course of translation from one discourse to the other, this information not only changes textual form, but [becomes] simplified, distorted, hyped up, and dumbed down

Hilgartner (1990, p. 533-534) points out that “the dominant view shores up the epistemic hierarchy which ranks scientists above such actors such as policy-makers, journalists, technical practitioners, historians and sociologists of science, and the public”. Moirand (2003, p. 175) argues that the traditional view of science popularization "can be represented by means of a specific triangular communication model", in which the scientist occupies the high position (top of the pyramid), the public occupies the low position (base of the pyramid) and the journalist is presented as the "third actor" (MORTUREUX, 1987, p. 827
apud MOIRAND, 2003, p. 176) of the process, as a mediator. Figure 1 shows the schematic representation of the triangular model of science popularization:

![Figure 1](image1)

Figure 1 - Three actors in the traditional view of science popularization, adapted from Moirand (2003, p. 176)

The contemporary model of science popularization adopts the concept of enunciative standpoints (BEACCO et al, 2002, p. 277; MOIRAND, 2003, p. 177) in the discussion of the validity of scientific findings to society. In this sense, the contemporary view of popularization offers an opportunity to "see science not as a discourse, a single set of social practices around one thing, but as an order of discourse, a terrain of competing discourses and practices" (MYERS, 2003, p. 267 citing FAIRCLOUGH, 1992). It is also a way to perceive popularization "not just as a category of texts, but as a process that opens up questions about actors, institutions, and forms of authority involved" (Ibid). This current model conceives science popularization as a “circular process” (MOIRAND, 2003, p. 197), not linear. In contrast to the model pointed out by Hilgartner, contemporary representations place policy-makers, technical practitioners, historians, sociologists and public not behind the scientist, but they are depicted as participants in the process of popularization mediated by the journalist.

![Figure 2](image2)

Figure 2 - Heterogeneity of enunciative standpoints in current science popularization model (based on BEACCO et al, 2002; MOIRAND, 2003)
Figure 2 tries to represent the dynamic communication circuit of the contemporary model of science popularization (Ibid). In this communicative scheme, the journalist still occupies the position of mediator, as in the traditional model, but “his role slips towards that of “mobiliser” (MOIRAND, 2003, p. 197 citing SICARD, 1998), “more in keeping with the demands of the citizens of the world’s modern democracies”, (MOIRAND, 2003, p. 197). In that way, the journalist is responsible for mobilizing different enunciative standpoints to participate in the discussions about science, as explored in the next section.

1.2 Enunciative standpoints in SPN genre

Two articles published in Discourse Studies have identified the emergence of different enunciative standpoints that are called to explain or comment aspects the scientific findings in science popularization texts. In the first one, Calsamiglia and Ferrero (2003, p. 170), in their study about the diffusion of the case of “mad cows” in a corpus of 75 news reports of six different Spanish newspapers, point out “that multiple voices are called upon to clarify a situation where decisions have to be taken at different levels”. Additionally Beacco et al. (2002, p. 280), analyzing new channels of communication in science popularization texts, indicate that “in these texts, the scientist is still present, but is now flanked by other enunciative roles such as the witness, the expert, the politician and the citizen”. These studies can contribute to emphasize the role these social actors play in the process of popularizing science as elements to legitimate scientific knowledge and expose different points of view on the issue reported.

Similar results of the presence of different enunciative standpoints were identified in the analysis of 30 SPNs from the corpus of the umbrella project to which the present paper relates to. These results concern the rhetorical organization of the SPN genre (Motta-Roth; Lovato, 2009) which consists in six rhetorical moves (Move 1 – LEAD/Popularized Reserach Conclusions, Move 2 – Presenting the New Research, Move 3 – Refering to Backgroung knowledge (contextualization), Move 4 – Describing the Methodology, Move 5 – Explaining the Popularized Reserach Results e Move 6 – Indicating the Popularized Research Conclusions) and two recursive elements (A – Elaborating Comments and Narratives and B – Explaining Principles and Concepts) (Ibid, p. 245-246). The enunciative standpoints are associated to the recursive element “A”. This aspect is explored in former qualitative analyses (MARCUZZO & MOTTA-ROTH, 2008; MOTTA-ROTH; MARCUZZO; NASCIMENTO; SCHERER, 2008) that have identified a popularization practice characterized by five enunciative standpoints: (A1) the researcher,
responsible for the popularized study; (A2) the colleague, responsible for evaluating the scientific activity developed by his/her researcher-colleague and institution associated to scientific activity; (A3) the government, responsible to implement public polices for science and technology; (A4) the public, responsible for supporting (or not) the public polices and the scientific activities and “consume” science popularized by the journalist; and (A5) the journalist, responsible for recontextualizing the scientific knowledge developed in the academy. The voice of the researcher is present in all texts analyzed. Other outcomes are related to more occurrences of verbal processes (244) than mental processes (64) associated to each of the five enunciative standpoints identified in the corpus. Additionally the verbal process SAY is the most recurrent process in the corpus, associated to all enunciative standpoints (MOTTA-ROTH et al., 2008; MARCUZZO; MOTTA-ROTH, 2008). Such recurrence of SAY concerns the unmarked condition of the process (HALLIDAY; MATHIESSEN 2004, p. 252). Caldas-Coulthard (1994, p. 305), explains that SAY, as well other verbal processes, are neutral because it “introduces a ‘saying’ without explicitly evaluating it”, by giving to the reader “the literal meaning of the speech”.

Next section explores some lexicogrammatical aspects of the processes that introduce the enunciative standpoint’s voices, mental and verbal processes, giving more attention to the verbal ones.

1.3 Mental and verbal clauses

Halliday (1994, p. 106) explains that the “experiential (ideational) function is a way of representing patterns of experience [in which] the transitivity system construes the world of experience into a manageable set of process types” (Ibid). The transitivity system is composed by three main types of processes: material, mental and relational; and other three types of processes that are on the borderlines of these main processes and share some features with them (Ibid, p. 107): behavioral, verbal and experiential processes. Figure 3 represents the six types of processes in the grammar of experience.
According to Halliday (1985, 1994) and Halliday and Mathiessen (2004), mental and verbal processes represent thinking and speaking actions, respectively. Mental processes are processes of feeling, thinking and seeing (HALLIDAY, 1994, p. 117) and, as they perform cognitive actions, these processes require a participant who is human [and therefore rational] (Ibid, p. 114), the Senser, the one that feels, thinks, wants or perceives (HALLIDAY; MATHIESSEN, 2004, p. 201). The Senser is the participant that is linguistically represented as he or she, and not it (Ibid), because “the significant feature of such participant is that of being ‘endowed with consciousnesses’” (HALLIDAY, 1994, p. 114). The other participant of this kind of process is called Phenomenon, that is, what is felt, thought, wanted and perceived by the Senser (HALLIDAY, 1994, p. 115). This second participant can be a person, a creature, an institution, an object, a substance or an abstraction (HALLIDAY; MATHIESSEN, 2004, p. 203) (Example 1).

<table>
<thead>
<tr>
<th>They [scientists]</th>
<th>believe</th>
<th>HIV may be harboured by CD4+ cells [...]</th>
</tr>
</thead>
<tbody>
<tr>
<td>Senser</td>
<td>Mental Process</td>
<td>Phenomenon</td>
</tr>
</tbody>
</table>

Example 1 - Mental processes (example retrieved from BBC#2).

The other kind of process is verbal - processes of saying, the focus of analysis in this paper. According to Halliday (1994, p. 140), “the idea of saying has to be interpreted as any kind of symbolic exchange of meaning. The author points out that “verbal processes do not require a conscious participant [because] the Sayer can be anything that puts out a signal”
(Ibid), such as people or institutions. In addition, there are two other participants that are obligatory in verbal clauses: the receiver - the one to whom the saying is addressed and the verbiage - the function that corresponds to what is said (Ibid, p. 141). In addition, verbal processes can project clauses (Halliday; Mathiessen, 2004, p. 253), that is, quotes and reports grammatically represented by parataxis (quoting) (Example 2) and hypotaxis (reporting) (Example 3).

<table>
<thead>
<tr>
<th>Dr Gillian Braunold, clinical director of the Summary Care Record and HealthSpace Programmm, added:</th>
<th>“The report offers the programme the foundations on which to base the necessary planning for improvement in design and implementation”</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sayer</td>
<td>Verbal process</td>
</tr>
<tr>
<td>Example 2 – Parataxis in verbal clause (example retrieved from BBC#15).</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Neurology says</th>
<th>that post-mortem tests on 24 patients found a 70% fall of a protein linked to dementia in those who had taken cholinesterase inhibitors.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sayer</td>
<td>Verbal process</td>
</tr>
<tr>
<td>Example 3 – Hypotaxis in verbal clause (example retrieved from BBC#9).</td>
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</tbody>
</table>

2 METHODOLOGY

The present paper reports on a research developed from November 2009 to November 2010, under the umbrella project Análise crítica de gênero com foco em artigos de popularização da ciência (MOTTA-ROTH, 2007). In this section, the research methodology is presented in relation to the corpus (section 2.1), the electronic tool applied in the analysis (section 2.2), the procedures for the digitalization of the corpus (section 2.3) and the criterion for the qualitative/quantitative analysis of the corpus (section 2.4).

2.1 The corpus

The corpus of this work is composed by 60 science popularization news report collected from four on-line publications BBC International News⁴, Scientific American⁵, ABC Science⁶ and Nature⁷. The texts were collected based on the following criteria (MOTTA-ROTH, 2007):

⁴ Available at http://news.bbc.co.uk
⁵ Available at http://www.sciam.com
⁶ Available at http://www.abc.net.au
⁷ Available at http://www.nature.com
a) autoidentificação da mídia como de PC (público-alvo de não especialistas, por exemplo);  
b) disponíveis na mídia eletrônica, gratuitos e acessíveis on-line;  
c) escritos em língua inglesa;  
d) publicados entre 2004 e 2008; e  
e) relacionados à saúde, meio ambiente e tecnologia (devido à falta de textos sobre letramento),  
conforme temas transversais dos Parâmetros Curriculares Nacionais (Brasil, 1997).

2.2 WordSmith Tools

In order to quantify the frequency of occurrence of SAY in the corpus, the texts were verified by WordSmith Tools 5. This program, projected by Mike Scott [http://www.lexically.net/wordsmith/], “is an electronic suite for text processing that quantifies the frequency of words (Sardinha, 1999). The program includes three tools for
corpus analysis, but for the analysis reported in this paper was applied only the Concord tool, which generates concordances, that is, lists of the occurrences of words in a context (Ibid).

2.3 Procedures for the digitalization of the corpus

The 60 texts, collected from the internet, were digitalized (converted) into: 1) files with .txt extension (text files), in order to get them ready for the application of the WordSmith program and 2) files of .doc extension, in order to organize the texts in a more available electronic format for its manipulation along the analysis. This digitalization involved three stages:

1) The texts collected from internet were saved at a folder identified as ‘www’;
2) Then, these texts from the folder ‘www’ were “cleaned” (excluding images, hyperlinks and other non-textual elements) and were saved in a folder identified as ‘DOC’;
3) Finally, the texts from the folder ‘DOC’ were converted in .txt files and were saved in a folder identified as ‘TXT’.

2.4 Procedures of quantitative/qualitative analysis

The analysis reported in this paper consisted of quantitative and qualitative procedures. Quantitative analysis was developed in two analytical moments: one that preceded the analysis properly said and another one that corresponded to the analysis reported in this paper.

The first analytical moment was divided into three steps: 1) eliminate mental processes from the analysis, due to its lower occurrence in the corpus; 2) verify the frequency of occurrence of verbal processes in the corpus based on previous results obtained by Marcuzzo (2009) and Motta-Roth and Marcuzzo (2010); and 3) analyze the frequency of the verbal process SAY due to its association to all enunciative standpoints identified in the corpus.

The second moment consisted of three analytical steps: Firstly, the simple present and simple past tenses of SAY, realized as say, says and said, were submitted to the Concord tool in order to generate frequency profiles (Concordances). These concordances were then analyzed for frequencies of occurrence of each one of the three forms. Finally, the qualitative analysis were referred to interpretation of the data obtained in two previous quantitative steps in order to identify how these three forms signal verbal actions and reactions in each one of the enunciative standpoints. Each form was analyzed within each sentence and each sentence was analyzed for its transitivity system categories of experiential meanings: participants
(Sayer and Verbiage) and process (verbal). Then, these sentences were analyzed for the neutral verbal process SAY variation in terms of:

1. Human and non-human participants, as Sayers;
2. What is said, as Verbiage.

The qualitative analysis based in these two categories intended to answer the following questions:

a) What kind of participant is frequently associated with the present tense? And what kind with the past tense? Why?

b) What is the content of the verbiage of each enunciative standpoint as introduced by the verbal process SAY? Is it an opinion about the study? Is it an explanation about the research results? Is it an evaluation about the implications of the study?

The analysis aimed at verifying to what extent we could find a pattern in terms of verb tenses, content of verbiage and enunciative standpoints, as well as to what extent any pattern that we were able to find can signaled more or less assertivity towards the research that was being reported in the texts.

3 RESULTS AND DISCUSSION

In general, the data analysis showed that SAY is associated to all enunciative standpoints identified in the corpus and it is realized by its three variations SAY, SAYS and SAID. Each of these variations appears more or less combined to each of the enunciative standpoints, but most expressively associated to the enunciative standpoint of the researcher, which also has more participation in the texts and is the one responsible for explaining scientific principles and concepts related to the study reported. In order to expose in more details these results, they are divided into three sections: how often SAY occurs in the corpus (section 3.1); how SAY varies in Tense (section 3.2) and in terms of who SAYS what (section 3.3). In section 3.1, the frequency of occurrence of SAY in each enunciative standpoint is identified. In section 3.2, the way each variation of SAY occurs and their functions in the text are discussed. Finally section 3.3 brings a discussion about the types of participants associated to SAY (in terms of human, non-human, participants represented as individuals or groups) and the enunciative standpoints most frequently identified along with what they SAY, in terms of the content of verbiage.

3.1 How often SAY occurs in the corpus
Chart 2 presents the occurrence of the neutral verbal process SAY (and its tense variations says and said) in combination with the enunciative standpoints identified in the corpus. According to the rhetorical organization model of SPN identified by Motta-Roth e Lovato (2009, p. 246) (see section 1.2 above), the enunciative standpoints are represented by A1 (researcher), A2 (colleague/technician/institution), A3 (government), A4 (public) e A5 (journalist).

Chart 2 - Frequency of SAY in the enunciative standpoints

<table>
<thead>
<tr>
<th>Text</th>
<th>Scientific American</th>
<th>BBC News International</th>
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<tbody>
<tr>
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<td>A1</td>
<td>A2</td>
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<tr>
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<td>#15</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>TOTAL</td>
<td>89</td>
<td>12</td>
</tr>
</tbody>
</table>
In confirmation to previous outcomes (MOTTA-ROTH et al., in press; MOTTA-ROTH; MARCUZZO, 2008; MOTTA-ROTH, 2009; MOTTA-ROTH; MARCUZZO, 2010) the analysis demonstrated that SAY is associated with different frequencies to all enunciative standpoints. The concordance lists 343 occurrences of SAY in the corpus, especially in association with the enunciative standpoint of the researcher (A1) (231 occurrences). SAY is also associated with the enunciative standpoint of the colleague (A2) in 93 occasions, especially in the BBC News International subcorpus (36 occurrences). The enunciative standpoint of the government (A3) appears associated to SAY only in the BBC News International subcorpus (12 occurrences), while the enunciative standpoint of the public (A4) occurs only in five occasions in the BBC News International and ABC Science corpora. SAY occurs in association with the enunciative standpoint of the journalist (A5) in only one SPN from the NATURE corpus.

This high frequency of SAY combined with all enunciative standpoints, if compared to other processes such as suggest (13 occurrences) and explain (9 occurrences), is attributed to the “unmarked” condition of this verbal process (HALLIDAY; MATHIESSEN, 2004, p. 252). In this sense, SAY is useful for journalist’s purposes because, by introducing the speech using $X \text{ say/says/said } Y$ in combination to the identification of the sayer (credentials), they are transferring the responsibility of what is said to the author of the proposition. In other words, the writer assumes a neutral condition towards the proposition reported. In examples 4 and 5, the simple present tenses SAY and SAYS are introducing the explanation of the results of two different studies reported by ABC Science and Scientific American. In both examples the verbiage is thematically positioned, indicating the kind of information is emphasized by the journalist. This type of thematic structure was identified in most of texts from the corpus, suggesting the journalistic inclination to guide readers’ attention firstly to the commentaries and opinions and then to the Sayer, in order to project an idea that they are more compromised to present the facts than to highlight the fact that these are in fact opinions and not facts. The examples also show other pattern of positioning credentials after the process. In both examples there are the identification of the author of the proposition (scientists and Robert Behringer, respectively) by presenting the scientific journal in which the data was published (in today’s issue of the journal Science) and credentials of the author (granular materials researcher... of Duke University). The combination of that information with SAY generates an effect of writer’s neutrality, that is, “Whoever is explaining these outcomes are these people that are being identified and I, journalist, am just literally reporting what they are saying.”
Example 4:

ABC#6 – The discovery of microbes in searing hot sediments under the Atlantic seabed off Newfoundland, Canada, doubles the previous depth record of 842 metres, say scientists in today's issue of the journal Science. (voice of the researcher)

Example 5:

SCIAM#2 – Given the asteroid’s weak gravity, the apparent movement of its rocks is “pretty striking,” says granular materials researcher Robert Behringer of Duke University. (voice of the colleague)

Chart 2 above allows for speculation of other aspects related to differences that each electronic publication presents in terms of target audience. Comparisons between Scientific American and NATURE to BBC News International and ABC Science suggest that the target audiences of the first two publications are more specialized than the target audiences of the last two. The first two electronic publications bring only the enunciative standpoints of the researcher and the colleague; while the last two offer space, although limited, to the enunciative standpoints of the government, in the case of BBC News International, and to the enunciative standpoint of the public, in BBC News International and ABC Science. Following this idea, we can hypothesize that electronic publications such as BBC News International and ABC Science seems to be more compromised to science popularization purposes because they give voice to different actors from different fields of action (science, government and public) and make circulate different points of view about the issue reported. On the other hand, publications such as Scientific American and NATURE, by considering commentaries and opinions of the representatives of the scientific field, researchers and colleagues, maintain the debate about science only in the mouths of specialists, reinforcing the authority of scientists, in accordance to the traditional model of science popularization. This hypothesis will be recovered in section 3.3, when the participants that most frequently appear in association with SAY in the SPNs are analyzed. In the next section, tense variation of SAY is analyzed in order to verify which enunciative standpoints are most frequently associated to each process form in the corpus.

3.2 How SAY varies in tense

SAY appears in two verbal tenses in the corpus: simple present (say and says) and simple past (said). There is another verbal tense form, simple present perfect have said, but as it
occurs only two times in BBC News International corpus, associated to the enunciative standpoint of the researcher, this analysis focuses on the most recurrent two ones.

The simple present tense form *SAYS* is the most frequent, with 232 occurrences, due to its flexibility: it can be associated to human and non-human participants. In the *corpus*, this simple present tense form occurs with all enunciative standpoints, but it is frequently associated to the enunciative standpoints of the researcher (A1) and the colleague (A2), because these enunciative standpoints are the ones that are able to promote debate about the topic discussed due to their authority and credibility, as later explained in section 3.3. In addition, *SAYS* is highly concentrated in the second half of the text, when different enunciative standpoints are mobilized to explain results and indicate conclusions of the new findings (MOTTA-ROTH, 2009; SILVA, in preparation).

A similar pattern occurs with the simple past tense form *SAID*, but in comparison to *SAYS*, is less recurrent in the corpus, with 73 occurrences. *SAID* was identified only in the *BBC News International* and the *Scientific American* corpora, associated to three enunciative standpoints: the researcher, the colleague and the government.

The simple present tense form *SAY* occurs only 36 times strongly associated to the enunciative standpoint of the researcher (A1). This low occurrence can be attributed to the portion of the SPN in which it occurs, in the first half of the text, in the section where the study is introduced and previous knowledge established in the field are referred to. The highly combination of this process form to the enunciative standpoint of the researcher concern the rhetorical move in which *SAY* is located (Moves 1, 2 and 3) (see section 1.2 above), when researcher’s voice is mobilized in order to presents the study and contextualizes previous outcomes (SILVA; MOTTA-ROTH, 2010).

The occurrence of each verb tense in each enunciative standpoint identified in the corpus is presented in Tables 1 through 4.

---

**Table 1 – Frequency of SAYS, SAID and SAY in combination with the enunciative standpoints in SCIAM**

<table>
<thead>
<tr>
<th>Verbal tense form</th>
<th>Enunciative standpoint</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>A1</td>
<td>A2</td>
</tr>
<tr>
<td>says</td>
<td>51</td>
<td>16</td>
</tr>
<tr>
<td>said</td>
<td>2</td>
<td>-</td>
</tr>
<tr>
<td>say</td>
<td>5</td>
<td>-</td>
</tr>
</tbody>
</table>
Table 2 – Frequency of SAYS, SAID and SAY in combination with the enunciative standpoints in BBC

<table>
<thead>
<tr>
<th>Verbal tense form</th>
<th>A1</th>
<th>A2</th>
<th>A3</th>
<th>A4</th>
<th>A5</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>says</td>
<td>3</td>
<td>3</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>6</td>
</tr>
<tr>
<td>said</td>
<td>27</td>
<td>31</td>
<td>13</td>
<td>-</td>
<td>-</td>
<td>71</td>
</tr>
<tr>
<td>say</td>
<td>3</td>
<td>2</td>
<td>-</td>
<td>2</td>
<td>-</td>
<td>7</td>
</tr>
</tbody>
</table>

Table 3 – Frequency of SAYS, SAID and SAY in combination with the enunciative standpoints in ABC

<table>
<thead>
<tr>
<th>Verbal tense form</th>
<th>A1</th>
<th>A2</th>
<th>A3</th>
<th>A4</th>
<th>A5</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>says</td>
<td>68</td>
<td>12</td>
<td>-</td>
<td>4</td>
<td>-</td>
<td>84</td>
</tr>
<tr>
<td>said</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>say</td>
<td>17</td>
<td>3</td>
<td>-</td>
<td>1</td>
<td>-</td>
<td>21</td>
</tr>
</tbody>
</table>

Table 4 – Frequency of SAYS, SAID and SAY in combination with the enunciative standpoints in NATURE

<table>
<thead>
<tr>
<th>Verbal tense form</th>
<th>A1</th>
<th>A2</th>
<th>A3</th>
<th>A4</th>
<th>A5</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>says</td>
<td>43</td>
<td>30</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>75</td>
</tr>
<tr>
<td>said</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>say</td>
<td>3</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>3</td>
</tr>
</tbody>
</table>

Looking at tables above there are, at least, two aspects to consider that differentiate these electronic publications: 1) SAYS is more frequently found in Scientific American, ABC Science and NATURE, while SAID is the most frequent form in BBC News International and; 2) NATURE, in comparison to the other three electronic publications, presents less occurrences of SAY.

First of all, it is possible to interpret these differences of occurrence between simple present and simple past tense considering the meanings that each tense conveys: simple present conveys immediate factuality (CELERE-MURCIA, 1999, p. 112) which is the main goal in journalistic discourse (saying something in the present means saying that it is actual). On the other hand, simple past tense conveys remoteness and completeness, a fact that
happened in the past, but this notion of completeness (CELSE-MURCIA, 1999, p. 114) serves to journalism as a strategy to state something that cannot be changed (it was said, it is a fact). This search for immediate factuality (and completeness), in the journalistic sphere, according to Traquina (2005, p. 202) is related to the news values: actuality, public interest, veracity and intelligibility (MEDINA, 1988, p. 20), which undermine the journalistic production. Following examples expose how notions of immediate factuality and completeness are materialized in the SPNs and the kind of linguistic elements used to reinforce these ideas:

Example 6:

ABC#6 – The discovery of microbes in searing hot sediments under the Atlantic seabed off Newfoundland, Canada, doubles the previous depth record of 842 meters, say scientists in today’s issue of the journal Science.

Example 7:

NAT#9 - The current results are promising, says Robert Swift, a researcher at the Center for Alcohol and Addiction Studies at Brown University in Rhode Island. “This paper really suggests that gabapentin may be efficacious in reducing drinking [in alcoholics],” he says.

Example 8:

SCIAM#10 - "For over 60 years the global travel patterns of the influenza virus have been a mystery," study co-author Colin Russell, an epidemiologist specializing in pathogen evolution at the University of Cambridge in England said during a teleconference today.

In Examples 6, 7 and 8, the linguistic elements highlighted in bold represent textual strategies used by journalists in order to produce effects of immediate factuality and remoteness in the news reported using verbal tenses of SAY. The characteristic of these linguistic elements is related to what Charaudeau (2009, p. 102), calls “space-temporal conjunction”, that is, the quality of news to be near of the public in time and space. The combination between verbal tense forms and the elements highlighted (say + today’s issue of the journal Science; The current results + says; said + during a teleconference today.), projects a notion of proximity of reality, in which the facts that are being reported are being transmitted with a value of actuality, simultaneously to the moment in which they happen in
the real world. In other words, as already mentioned, *SAY* demarcates something actual, current which is happening now, today. In this sense, *SAID*, in Example 8, indicates not only a completed event but also, combined to the temporal adverbial group, implies the idea of recent past: it happened **during a teleconference today**.

Based on these textual strategies exemplified we can speculate the preferences of the electronic publications by using verbal tenses of present or past, recovering those two aspects concern differences among the electronic publications: 1) the frequency of *SAYS* in *Scientific American, ABC Science* and *NATURE* in contrast to *SAID* in *BBC News International*, and 2) the lower frequency of *SAY* in *NATURE*.

Considering Charaudeau’s and Traquina’s discussion about the influence of news criteria in journalistic production and grammatical aspects conveyed by tenses, we can formulate the hypothesis that *SCIAM, ABC* and *NATURE* adopt the simple present tense form *SAYS* due to their aim to attain proximity to reality, actuality, attending to journalism purpose, while *BBC* prefers the simple past tense form *SAID* because it conveys factual completeness, emphasizing the unchanged condition of the proposition reported. In face of that, the preference of *SAYS* or *SAID* can be associated to the profile of each electronic publication, more or less scientific. In the case of *SCIAM, ABC* and *NATURE*, due to the high participation of the representatives of the scientific sphere, their preference for *SAYS* is related to the dynamicity of the tense form that allows to represent science as a flexible process as something that happens in the present but can be change in the future. In its turn, *BBC* prefers *SAID* because, even it gives voice to different social sectors, it is more productive to report facts in the past, as static declarations, in order to imply an effect of “permanent truth” (Assis Brasil et al., 2008, Motta-Roth; Lovato, 2009:249), corroborating to the idea that “if it was said, it is a fact”.

The second hypothesis is related to the lower frequency of the simple present tense form *SAY* in *NATURE*. In comparison to the other three subcorpora, *NATURE* presents fewer occurrences of participants represented as groups. This allows the speculation that *NATURE* prefers to give voice to enunciative standpoints individually than collectively. The confirmation for this speculation can be linked to the scientific profile of the electronic publication, in the sense that, by individualizing participants who get a saying in the text, the publication lends authority to the declarations reported and credibility to what is published. More details about how journalists lends authority and credibility in news reported are presented in the following section, which discusses the participants who are more or less heard in the text and what information these participants declare.
3.3 Who SAYS What

In order to verify the way different enunciative standpoints are signaled in the SPN genre by the verbal process SAY a second criteria was adopted: the participants associated to the process. The discussion intended to answer the question “Who are the sayers?”, and to indicate whose voices are heard in the text and whose voices are silenced.

First of all, it is important to consider that the process of science popularization in the mass media is based on principles that come from journalism. In other words, the author of the SPNs obeys patterns of journalistic production (PACHECO, 2008 citing COSTA BUENO, 2003). For that reason, in this section the participants of the process (the enunciative standpoints) will be nominated as sources, in reference to journalistic notation. According to Charaudeau (2009, p. 147-150), the first step of media production is the identification of the sources, and there are two different kinds of sources: internal and external. The internal sources are those that belong to the media organization, such as correspondents, service agencies and other media. The external sources are those that belong to institutional organizations, such as representatives of the government, politicians, or non-institutional, such as specialists, witnesses and citizens (when they are relevant). After being identified, these sources are verified and presented. Charaudeau explains that the sources can be presented by naming a person or an institution, giving credentials, function or professional status and, if is not relevant to clearly identify the source, by using vague identification or, in order to maintain the anonymity of the source or preserve its identity, the source can be referred as a group.

Previous analyses (MOTTA-ROTH et al., 2008; MOTTA-ROTH, 2009), identified a preference for external sources, such as scientists involved in the study, other scientists that are not involved in the study but belong to the same scientific field, representatives of the government, such as politicians and spokespeople. These sources are identified by their credentials, functions and institutions. Furthermore, the enunciative standpoints are represented as groups or as personified institutions or governmental organs that offer explicit opinions about the issue under discussion. The public is normally represented as a group, without any credentials.

In order to verify the way enunciative standpoints are signaled, this section will present two subsections. The first one offers a brief analysis about the kind of participants associated to each verbal tense form, in terms of human, non-human participants and
participants represented as groups. The second section indicates what enunciative standpoints have more visibility in the text.

3.2.1 Human, non-human and group

In general the enunciative standpoints are represented by human participants introduced by *SAYS* and *SAID*. The simple present tense form *says* presents more non-human participants (metaphorical participants) than the simple past tense form *SAID*; and the simple present tense form *SAY* presents more participants represented as a group, as indicated in Table 1.

<table>
<thead>
<tr>
<th>Verbal tense</th>
<th>Participants</th>
<th>Enunciative standpoints</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Human</td>
<td>A1</td>
<td>A2</td>
</tr>
<tr>
<td>says</td>
<td>159</td>
<td>61</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>10</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>said</td>
<td>21</td>
<td>27</td>
<td>10</td>
</tr>
<tr>
<td></td>
<td>-</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>7</td>
<td>1</td>
<td>-</td>
</tr>
<tr>
<td>say</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>30</td>
<td>4</td>
<td>-</td>
</tr>
<tr>
<td>TOTAL</td>
<td>227</td>
<td>95</td>
<td>12</td>
</tr>
</tbody>
</table>

These aspects can be justified by two reasons: 1) the grammatical function of these forms (*SAYS* is linked to individual participants, as he, she and it; *SAY* is linked to collective participants and *said* can be linked to both) and 2) *SAYS* and *SAID*, which mark notions of immediate factuality and completeness, are associated to human and non-human participants that represent the enunciative standpoints of the researcher, colleague and government, due to their position of authority; and *SAY*, that correlate the same notion of actuality, is frequently associated to the enunciative standpoint of the researcher, but represented as a group in order to state the main results, in the first stages of the text, as it was mentioned in section 3.1.

In Example 9, the researcher’s enunciative standpoint is identified through the allusion to their work, as a personification of the research, a metonymy of the researcher (ASSIS
Examples 10 and 11 also present metonymy in the form of personification of institutions that represent the colleague and government. In Example 9 the non-human entity *new study* is humanized in order to “tell” the main results of the research reported:

Example 9:

**SCIAM**#9 - And now a *new study says* it may also improve language-processing abilities—a finding that lends support to the effectiveness of teaching letters and words to kids through songs, as TV programs like *Sesame Street* have done for years. (voice of the researcher)

In Example 10 the enunciative standpoint of the colleague is mobilized to explain the social implications of the study. There is a personification of the organization *The Intergovernmental Panel on Climate Change*:

Example 10:

**ABC**#1 - *The Intergovernmental Panel on Climate Change says* that burial of carbon dioxide may be one of the main tools this century to slow global warming that could bring more floods, droughts and rising seas. (voice of the colleague)

In Example 11, the metonymy of the government represented by the governmental organ *English Nature* evaluates negatively the results of the study:

Example 11:

**BBC**#4 – *English Nature, the UK government's independent wildlife advisor, said* it found nothing to cheer in the Bright results. (voice of the government)

The government is always introduced by *SAID*. This specificity can suggest the journalist’s inclination to report the governmental declarations as unchanged facts. In other words, due to the powerful political position of the government official their discourse has an assertive tone (what is said is a fact), different from the discourse of the representatives of science, whose voice has a more flexible tone, oscillating among *SAY*, *SAYS* and *SAID*.

Another uniform tone is that of participants represented as groups whose voice is usually associated to the simple present tense form *SAY*. In terms of journalism purpose, we can hypothesize that this criteria of grouping certain particular people as a strategy “to promote particular attitudes or conform to an existing stereotype” (REAH, 1998, p. 54). In this sense, Table 1 illustrates the concentration of groups in the researcher’s enunciative
standpoint marked by collectivization and genericization (MARCUZZO, 2010), as a strategy to express the credibility and reinforce authority of scientists, as shown in the Examples 12 and 13.

Example 12:
NAT#1 – Astronomers say Universe is small and finite.

Example 13:
SCIAM#5 – Researchers say the new math may help improve a wide range of industrial processes, from treating metals with heat to controlling the amount of foam in poured beer.

On the other hand, the enunciative standpoint of the public is also represented as group (normally genericization), but in this case it expresses what Charaudeau (2009, p. 144-145) explains about principles of credibility, in which the sources need to be notorious, an expressive representation of the population in relation to the issue reported in order to get their voice heard in the media. So, as the public belongs to an “ordinary social sphere”, without authority or specialized knowledge, they are not represented individually, but as collective ones, as shown in Examples 14 and 15.

Example 14:
BBC#3 - No GM crop has been found to endure so long; and critics say it shows that genetically modified organisms cannot be contained once released.

Example 15:
ABC#12 - Although both trials were only testing for safety, patients say they could see a little better afterwards, the researchers told a meeting of eye specialists in Florida and report online in the New England Journal of Medicine.

Examples 12 and 13 illustrate the representation of the researcher’s enunciative standpoint realized by the categorization of Astronomers and Researchers, two groups of social actors that identify the scientific sphere. By grouping these participants, the journalist presents the information as a factual truth accepted by all scientific community: the fact that Universe is small and finite and the journalist’s general explanation of the significance of the results by pointing out that new math may help improve a wide range of industrial processes, from treating metals with heat to controlling the amount of foam in poured beer. Whereas, in
Examples 14 and 15 critics and patients are generic categories to represent the enunciative standpoint of the public. They are generecisized because their declaration functions as an illustration of what was said by other enunciative standpoints, reinforcing the idea that No GM crop has been found to endure so long and confirming the expectations that research results could [be seen as] a little better afterwards, as the researchers reported in a scientific journal. In other words, the declaration of participants represented as a group such as the public have no impact in the media because they are not affiliate to any institution and are not able to transform the social reality treated by the text (MAGALHÃES, 2008), in contrast to researcher’s and government’s enunciative standpoints for instance, whose, due to their institutional and political power, can affect and promote actions in the social reality shared with the public. By grouping and providing anonymity to people from the public, the journalist produces an effect to drive this social actors apart the readers interest (VAN LEEUWEN, 2008, p.54), even they do not represent credible sources, and also uses the participation of these minorities as an alibi, in order to suggest a democratic space in the media (CHARAUDEAU, 2009, p.195-196). In that respect, next section brings a discussion about the social actors who have more visibility in the text and more space to SAY.

3.2.2 Visibility and power of talking in the enunciative standpoints

Table 6 shows that the power to “speak” in the SPN genre is concentrated on the researcher’s enunciative standpoint, followed by the enunciative standpoint of the colleague. The voice of science articulates opinions about the reported studies. The enunciative standpoint of the government occupies the third position followed by the rare voice of the public. This is the scale of enunciative power found in SPN. It can be explained in general terms as:

1) Researchers participate effectively in all texts because they are the ones responsible for the study and those who have the authority about procedures and scientific principles that underlie the research reported by the SPN;

2) Colleagues appear in the second position in terms of enunciative power because they belong to the same scientific sphere of the researcher and they are the ones who can effectively present credible evaluation from different angles about the issue discussed. The enunciative standpoint of the colleague also occurs in all texts, which suggests that science popularization journalists search for different discourses, from the
scientific sphere, in order to promote debate about science and its contributions to society.

3) The government’s voice can be heard only in the BBC News International corpus. That characteristic coincides to the mission statement of the Organization responsible for the electronic publication of “enrich[ing] people's lives with programmes that inform, educate and entertain.” In this sense, by giving voice to the government the electronic publication performs its role to inform society about how this social sector is affected by and relates to the process of scientific production.

4) The public voice appears only six times in the BBC and the ABC corpora. This rare participation of the public voice in the discussions about science can be justified by two reasons: 1) the media preference for sources that occupy institutional positions of authority (TRAQUINA, 2005, p. 191) and 2) the participation of citizens (public) only in situations where they are victims or witnesses (CHARAUDEAU, 2009, p. 194).

The scale of enunciative power evidences the role realized by each enunciative standpoint in the science popularization process. According to Motta-Roth (2009), the process of science popularization is justified by three main axes:

1. o dever dos meios de comunicação (mais e menos acadêmicos) de informar a sociedade sobre o avanço do conhecimento;
2. a responsabilidade do mediador (seja jornalista ou autor de livros) em explicar princípios e conceitos para que a sociedade avance na transformação conjunta do conhecimento; e
3. a necessidade de a sociedade entender a relevância da pesquisa para que continue financiando a empreitada científica.

In this sense, the analysis of the content of the verbiage of the participants associated to each form of SAY indicates that these three axes are textualized in the discourse of the enunciative standpoints. These axes, in turn, are manifested by three acts of speech: inform, explain and evaluate the significance of the scientific findings to society. Table 7 presents the way the content of the verbiage of each enunciative standpoint textualize these three axes. The analysis indicates that: 1) the researcher explains the scientific activity; 2) the colleague evaluates the results and indicate implications and limitations of the study; 3) the government declares support by indicating validity of the new findings to society and 4) the public, rarely, analyzes the results. The third axe, inform, is realized by the journalist’s enunciative standpoint, who mediates the relationship between science and public and whose voice is
omnipresent in the text, revealed by the explicit interpellation to the reader signaled by using vocative, imperative mood or pronoun in the 2nd person. (MOTTA-ROTH; MARCUZZO, 2010, p. 523-524).

Table 6 – Textualization of science popularization axes in the enunciative standpoints’ verbiage

<table>
<thead>
<tr>
<th>Enunciative standpoint</th>
<th>Example</th>
<th>Speech acts</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Researcher (A1)</strong></td>
<td>(SCIAM#10) <strong>Smith</strong> says the team traced the source of influenza by homing in on hemagglutinin, a protein on the surface of the virus that triggers an immune response in our bodies.</td>
<td>Explain principles and concepts that are related to scientific work.</td>
</tr>
<tr>
<td></td>
<td>(BBC#10) <strong>The researchers</strong> said: &quot;The extracts of boysenberry and blackcurrant containing anthocyanins and phenolic compounds displayed significant inhibition against the oxidative challenge of hydrogen peroxide.&quot;</td>
<td>Explain more detailed main results of the study</td>
</tr>
<tr>
<td></td>
<td>(NAT#9) A drug used to treat epilepsy could also ease cravings in alcoholics, <strong>say researchers who have investigated the effects in rats.</strong></td>
<td>Indicate the conclusions of the research reported</td>
</tr>
<tr>
<td><strong>Colleague (A2)</strong></td>
<td>(ABC#14) &quot;This is a fundamental discovery,&quot; says <strong>Nobel physics laureate Professor James Cronin of the University of Chicago.</strong> &quot;The age of cosmic-ray astronomy has arrived.&quot;</td>
<td>Point out the implications of the study results</td>
</tr>
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<td></td>
<td>(BBC#12) <strong>Belinda Phipps, of the National Childbirth Trust, said:</strong> &quot;This shows for the majority of parents they can have a positive effect on their babies IQ by breastfeeding.&quot;</td>
<td>Point out the implications of the study results</td>
</tr>
<tr>
<td></td>
<td>(ABC#10) Many studies have looked at the medical consequences of using the pill. For example, <strong>experts say cigarette smoking raises the risk of serious side-effects, including heart attacks, blood clots and strokes.</strong></td>
<td>Explain results with emphasizing social perspective</td>
</tr>
<tr>
<td><strong>Government (A3)</strong></td>
<td>(BBC#15) <strong>A spokesman for NHS Connecting for Health,</strong> which commissioned the report, <em>said</em> that roll-out of the scheme across England would not happen until the issues brought up by the report had been resolved. <strong>He said the report provided &quot;a number of important learning points&quot;, including issues surrounding patient consent and</strong></td>
<td>Declare support by indicating the validity of the scientific findings</td>
</tr>
</tbody>
</table>
The need to maintain a "clear focus" on the purpose and scope of the record.

One volunteer in Ali’s trial, Steven Howarth, says he has significant improvement in night vision, allowing him to navigate a simulation of a nighttime street. "Now, my sight when it's getting dark or it's badly lit is definitely better. It's a small change but it makes a big difference to me," Howarth says.

Campaign groups say the proposals are too weak, notably that farmers would not be liable for environmental impacts of the crops they grow.

The examples in Table 6 show that, in comparison to the enunciative standpoints of the government and the public, the enunciative standpoints of the researcher and the colleague have more authority, productivity and credibility (TRAQUINA, 2005, p. 191): they both belong to the same scientific sphere and are both able to complement methodological procedures, explain principles that underly the scientific production, evaluate results and indicate conclusions, implications and limitations of the study. According to Traquina (2005, p. 191-193), authority, productivity and credibility are fundamental criteria that journalists use to determine their sources or the people whose voices will be heard in the media. In relation to those criteria, the author explains that:

A autoridade da fonte é um critério fundamental para os membros da comunidade jornalística. O fator da respeitabilidade refere-se aos procedimentos dos jornalistas que preferem fazer referência a fontes oficiais ou que ocupam posições institucionais de autoridade [...] A produtividade diz respeito às razões pelas quais, normalmente, prevalecem as fontes institucionais: é que elas fornecem os materiais suficientes para fazer a notícia [...] As fontes devem ser tão credíveis que a informação fornecida exija o mínimo possível de controle. O jornalista tem que avaliar a credibilidade da fonte para avaliar a credibilidade da informação fornecida [...]
results project an image of science popularization as a process that silences the government and mitigates public participation, indicating a journalistic production that:

a) is not compromised with popularizing science to non-specialized audiences;
b) reinforces the idea of science focused on the figure of researchers and specialists; and
c) generates an idea of science that is independent from political aid and governmental sponsor for its production.

All these three assumptions intend to shed light on the discussion about the extent the present moment of science popularization materializes the contemporary model of the process presented on section 1.1 of the present paper. According to the contemporary model of science popularization, the process supposes the participation of different voices from different social sectors mobilized in the debate about science. However, based on the results of the present analysis, only the scientific sphere has participation in the process while general society solemnly excluded.

CONCLUSION

Science popularization news is a space to circulate discourses about science and promote debates involving different sectors of society (BEACCO et al., 2002; MOIRAND, 2003). In order to mobilize such debates towards general audiences, journalists make use of different strategies to recontextualize scientific knowledge into news that can be read and accepted as truths by non-specialized audiences. Lexicogrammatical elements such as verbal processes offer conditions for the presentation of opinions and commentaries from different social actors (enunciative standpoints) involved in the science popularization process while provide more or less assertivity, credibility and visibility who those get voice in the media.

This paper focused on the verbal process SAY, realized as SAYS, SAY and SAID, in order to verify the way enunciative standpoints are signaled in the SPN genre. The results of the quantitative analysis of the frequency of SAY in association with the enunciative standpoints identified in the corpus points out a discursive representation of science that prefer to hear “official sources” (TRAQUINA, 2005) in order to guarantee the authority and credibility of what is reported in the news, giving visibility to the enunciative standpoints of the researcher and the colleague. On the other hand, the voice of the government is heard in only 12 texts from the BBC News International and the voice of the public rarely appears in 5 texts from BBC News International and ABC Science. These low frequencies can be problematized in two ways: 1) the timid adherence of the discourses from the government and the public to SPN can suggest an
effort to denaturalize the image of science focused on the specialist; while 2) the suppression and mitigation of these two enunciative standpoints demonstrate the contrary.

The analysis of the content of the verbiage of each enunciative standpoint in association to SAY indicates that they textualize the three axes of the science popularization process: researchers explain, colleagues, government and the public evaluate and the journalist impacts scientific information to general public. Journalists also select whose voices will be heard in the media and, in this way, they are the ones responsible for producing either a more or a less democratic distribution of scientific information in which the contemporary model of science popularization can be recognized. However, as the results of the present study indicate, at this point in time the science popularization still presents traits of the traditional model.

REFERENCES


Appendix 1 – Concordance of SAY occurrence

N Concordance

Concordance

1. heart attack or stroke, the researchers say their findings are no need for alarm.
2. of using the pill. For example, experts say cigarette smoking raises the risk of
3. conspicuous claw-waving displays [that say] 'I'm over here come and see me;'
4. of gene repair technology, scientists say. Two separate teams of doctors
5. were only testing for safety, patients say they could see a little better
6. Medical Institute and colleagues say all three of their volunteers had
7. College London and colleagues say one of their three volunteers got
8. electronics, the researchers say.
9. holes in nearby galaxies, scientists say, in a finding that may solve a
10. as some suspect, the researchers say. "There's this thing that's probably
11. the same as in a mobile phone screen, say the researchers. Hurdles ahead
12. earlier start than previously thought, say experts. Professor Malcolm Walter,
13. of chemical process instead. They say similar structures have been
14. of 1.6 kilometres beneath the seabed, say researchers. The findings could
15. previous depth record of 842 metres, say scientists in today's issue of the
16. of 60 to 100°Celsius, they say. The findings could complicate
17. evolve underground on other planets, say the researchers. "If there is a
18. potential OSA therapy, the researchers say in a recent edition of the American
19. likely to give birth to girls, UK scientists say. Research by the universities of
20. nearly 2 million years ago, scientists say. The flowers, known to researchers
21. icy reach of the glaciers, the authors say. From there, they continued
22. from Antarctica isn't clear, the authors say. It may be that wind carried their
23. above average. Home birth advocates say the study does not consider women
24. improves a child's intelligence, say London researchers. Children with
25. asthma risk remains unproven, say experts. There is some research
26. found to endure so long; and critics say it shows that genetically modified
27. of these had also survived. "I wouldn't say that the transgenic varieties are able
28. of GM foods. Campaign groups say the proposals are too weak, notably
29. when it comes to brain evolution, say experts. Instead, UK research
30. scan shows up 'true' obesity Scientists say they have developed a 3D scanner
31. Universe bites back Astronomers say Universe is small and finite. Zeeya
32. One end of the line corresponded to 1, say, and the other to 10; where on this
33. The implication of their finding, they say, is that "the concept of a linear
34. an ever faster beat. But wait, you might say -- surely 'real' quantities are linear?
35. of human culture: word-use frequency, say, or size-frequency relationships of
36. in these cancers may halt their growth, say researchers. This technique might
37. the waves, it is almost impossible to say for certain. Under the sea But
38. could also ease cravings in alcoholics, say researchers who have investigated
39. of hemagglutinin. "You cannot say that the virus is hemagglutinin; that
40. than sedentary individuals," they say. "This conclusion provides a
41. makes motors turn and allows your, say, electric toothbrush to recharge
42. But she warns that "it is still hard to say what this work means for therapy,"
43. von Neumann in 1952. Researchers say the new math may help improve a
44. reach such blistering heat, researchers say, it must suck up nearly all the
45. b must have zero reflectivity, or albedo, say Harrington and colleagues in a
winds are also typical. The researchers say their next goal is to study the
than we previously thought," Kraus says. "What you do with your senses
exquisitely sensitive to timing," Kraus says. "In speech, the sound wave
and motor skills. And now a new study says it may also improve
physiology at Northwestern University, says this means music training may not
auditory processing," she says. "The people that came up with
Company—they were brilliant," Kraus says, about the two children's programs
science behind [the phenomenon]," he says. "This article is helping fill that gap"
do not transcribe sound well. She says her lab is interested in researching
(who was not involved in the study), says most evolutionary biologists and
not denying that it happened," Trinkaus says, "just that it was less important
in the fossil record itself," Trinkaus says, because "they are as close as we
of a pound per acre. But Weeks says that with the new gene producing
and have no visible symptoms at all," says plant molecular biologist Donald
Roundup™ resistance gene," Weeks says, thus allowing farmers to rotate
into the individual cells," Weeks says. But "just why it is so efficacious is
Zero albedo is "blacker than coal," he says, but the infrared light could spill
red where the heat is strongest. He says he pictures a deep-black planet
this is yet another weird thing about it," says planetary scientist Joseph
the energy difference. Harrington says the team has debated what exactly
things around in the atmosphere," she says. The size and mass of HD 189733
average among hot Jupiters, Knutson says, but time will tell if such strong
mysterious total absorption, Harrington says. A separate team trained the SST
perhaps 5,000 to 6,000 miles per hour, says astronomer Heather Knutson, a
found this problem very sexy." He says he does not know where it will be
in Nature. "It's exhilarating," Srolovitz says. "I've always found this problem
its cousins—surface area and volume, says materials scientist David Srolovitz
very complicated type of evolution," he says. "It's going to be much harder to
case adds a new twist, Kinderlehrer says, because the domains have more
touch everything" in materials design, says mathematician David Kinderlehrer
helps regulate growth in the prostate, says Leisa Johnson, a molecular
become a therapeutic target," she says. Preliminary work already indicates
Given that no clear need exists for it, says Arnon Krongrad, founder and
combustion vehicle]," Campbell says. "The batteries currently require
to be shaken under microgravity," says the report's lead author,
even on this little cluster of rock," says space researcher Daniel Scheeres
method of shaking is rather novel," he says, compared with earthly
of its rocks is "pretty striking," says granular materials researcher
not be used for anti-aging purposes," says Hau Liu, a research fellow in
purchase youth in a bottle, a new study says there's zero scientific evidence that
Youth Apparently not. New research says there's no proof of its supposed
by roughly the same amount. But Liu says the body changes did not translate
should not be used for anti-aging," Liu says. "Rather than looking at growth
anti-aging therapy. In fact, he says, researchers reviewing scientific
breaking into too much of a sweat," he says, "and you wouldn't spend $1,000 to
of FOXP2 as 'the speech gene,'" he says. "It is instead just one piece of a
but also in other tissues." Krause says the Planck team will continue to

did not have language as we do," says Planck Institute geneticist

at the University of Oxford in England, says the new work shows a better

the coils will be challenging, he says, because less of the magnetic field

the system worked as expected, says team member Aristeidis Karalis.

them. "The big showstopper for this," says theoretical physicist Douglas Stone

that are more than 100 years old," he says. "We're not all thinking about 11

the radiation do absorb it." Stone says the most striking thing about

a laptop the roughly 30 watts it needs, says team leader Marin Soljacic. As

of the motor program to walk," says Duke neuroscientist Miguel A. L.

as when she was walking," Nicolelis says. "If she was thinking about

thoughts, an experiment that Nicolelis says addressed "fundamental questions

to protect against a full infection. Smith says the vaccination provides good

the vaccine fairly regularly," Smith says. "The more we know about how flu

that it might be in the tropics," he says, "and that's where you should

and then flow out of the region," Smith says. According to WHO statistics, 300

we and know nothing about them," he says, adding that they may affect the

the right strains with annual vaccines, says co-author Derek Smith, a

WHO's annual flu shot regimen. Smith says the team traced the source of

not to allow transfers into [heat]," Engel says. "How that tuning works and how it

than a classical hopping one," Engel says. "Exactly how to implement that is

photosynthetic complexes," Engel says. The results appear in the current

likely to be used by all of them, Engel says. It might also be copied usefully by

The current results are promising, says Robert Swift, a researcher at the

in reducing drinking [in alcoholics]," he says. Faulty transmission Gabapentin is

can't just treat alcoholics with a pill," he says. "You need to treat both the

an important component of treatment, says Swift. "You can't just treat

she says. "Alcohol is a very dirty drug," says Roberto. "It affects so many neural

also be useful for treating alcoholism, says Swift. The drugs could help an

to be able to handle the disease, she says. "Alcohol is a very dirty drug," says

chillies mean more electric current, says Compton, whose work is published

expensive process. "HPLC is overkill," says Compton. He points out that the

blowing a cook's budget. Compton says that his method is cheaper than

about the level of Tobasco," Compton says.

an easy version of Scoville," Compton says. Compton has applied for a patent

strong until the last minute," Soderberg says. In those final minutes, the star's

are accompanied by X-ray bursts, says Roger Chevalier, an astronomer at

new clues about how the star died, she says. It seems to have been behaving

in the Universe a supernova will occur, says Alicia Soderberg, a postdoctoral

it is difficult to catch that signal," she says. Before now, astronomers were

rely on luck to make similar finds, she says. A new generation of X-ray

is really going to change," Soderberg says.

see fits quite well with the model," he says. Chevalier says that the team was

with the model," he says. Chevalier says that the team was lucky to catch

as 5 kilometres below the sea floor," says Steven D'Hondt, an

molecule of ATP from time to time, he says. Meanwhile, for Parkes the next
in such old rock remains a mystery, says Parkes. "They are still making a

that is millions of years old," he says. "Anything that is at all degradable

is clear: "We'd love to go deeper," he says - perhaps as much as 6 kilometres

other than very high-alloy steel," says John Morris, a metallurgist at the

other metals added to the alloy is low, says Morris, "the material would,

sheets or plates loaded in torsion," he says. "But it should work for bars or

it has substantial benefit for people," says Saper, who anticipates that more

are people who strongly disagree," says neuroscientist Masashi

may have some role, Mistleberger says, the mechanism is more likely to
going to have a very short half-life," says Ralph Mistleberger, who studies

but we don't know how to — yet," he says. "Unfortunately even theoreticians

Finland, who led the research, says that this is the smallest known
two carbons in place of oxygen, he says. As for the other noble gases, so
seems to occur. "It's great," she says. Knowing more about xenon
Earth, that method is wrong," Sanloup says. She is now considering returning
know where xenon is in our planet," says Khriachtchev. One explanation is
could be evidence for this hypothesis says Khriachtchev. "I don't claim that
above 70 K (-203 °C). But Khriachtchev says he thinks that, theoretically, the
on to react with more noble gas atoms, says Khriachtchev. And he was

molecule was so stable, he says, although in this case stable still admirable way of measuring the world, says Philip Ball. Philip Ball Do kids
all the fingers, sore thumb and all," she says. Climate researchers can now start
out like a sore thumb in the past," says Susan Solomon, a senior scientist
think about data quality more often, says Jones, so that there is no
If likely of smaller magnitude," he says. Climate researchers know from
slight underestimate of SST warming, says Richard Reynolds of NOAA's
the measurements were taken," he says. "It is pretty clear now that the bias
taken, so the cause was overlooked, says David Thompson, first author on
climate records we have," Thompson says. "During a sabbatical in Britain, I
the observed cooling was real," says Phil Jones, a climate researcher at
all kinds of eruptions from the Sun," says study author Spiros Patsourakos of
calibrate more complicated models, says Patsourakos. "I am really happy to
really happy to see recent progress," says Kazunari Shibata of Kyoto
do not solved the problem completely," says Shibata.
of Kyoto University, Japan. Shibata says that twist is only one mechanism
independent, untwisted structures," says solar physicist Alexander
have been in a virtual world," Schwartz says. Successfully developing these
an experimental basis in two years," he says. Brain interfaces are not
between a larger number of words, says John-Dylan Haynes, who also
at what the neural encoding is for this," says Mitchell.
too distant a prospect for the model, says Mitchell. "Now that we can see
words as it assembles them," he says. This gives researchers the chance
a few calibration measurements," he says. An average English speaker
speaker knows 50,000 words, Mitchell says, so the model could in theory be
that also led to Native Americans, says Eske Willerslev, of the University
away from getting the whole picture," says Willerslev. "This single sample
of Greenland and northern Canada," says fellow author Toomas Kivisild, of Islanders and Siberian Yuit peoples, says Willerslev. "This means there has this shape is tough to visualize, says Steiner. The 3-torus is an universe) is still alive and well," says Luminet. Starkman, however, is be true that the Universe is small," he says, "but this doesn't provide an find out everything about it," Steiner says. "But since physics cannot be in the UK indicates. Neurology says that post-mortem tests on 24 universities of Keele and Edinburgh, says that this may not be the whole to have the choice of a home birth, says the study should have looked at are transferred to hospital, a study says. Researchers writing in the journal "You're not comparing like with like," says Mary Newburn, head of policy at area that you see with hospital births," says Professor Philip Steer, the editor of and probably Australia, Wagstaff says. "This is very definitely a case of and dumped somewhere else," Quinn says. with really big, broad leaves," Wagstaff says. "That's really how they got the Antarctica has been important in this," says co-author Dr Chris Quinn from the onto the sub-Antarctic islands," Quinn says. As the ice age began some 1.8 the proportion of boys born is falling," says Dr Fiona Mathews of the University a daughter is a safer bet," Mathews says. The mechanism for diet affecting of an escape platform. In theory, Gozal says a regular cup of green tea could be OSA treatment. "However," he says, "definitive proof that green tea Panel on Climate Change says that burial of carbon dioxide may of the organisms down there," he says. The London Convention, which that prokaryotic life has been found in," says Parks. The presence of these there is life on Mars or not," he says. It is unclear if the microbes off biospheres on other planets," says Parks, estimating that such communities to have evolved," Walter says. "That would suggest that life without microbes. But Walter says this is a minority view and there is and ancient stromatolites. But he says a team from the ACA used were made mainly by cyanobacteria, says Walter, who has studied both of New South Wales in Sydney says the evidence comes from complex than previously understood," says Walter. "There are at least 100 constructed ancient stromatolites," he says. The modern Shark Bay learning about early life on earth," he says. According to Walter, the recent the most." Ancient connection Walter says scientists are interested in to find applications for graphene," says Pablo Jarillo-Herrero, an assistant nanodevices and nanosensors," says Jarillo-Herrero. "[But] there is still a for use in commercial devices, he says. we got [graphene] was almost trivial," says Novoselov. The proof-of-concept that we have seen from graphene," says Dr Kostya Novoselov, a researcher has someone working with graphene," says Novoselov. Graphene is about as can do, graphene could do as well," says Novoselov. Graphene's structure that corresponds with food availability," says Saper. Of mice and men These schedule, but not daylight. Saper says when food is scarce, this second is enough to engage this new clock," says Saper. "Avoiding any food on the to do it the next time I go to Japan," he says.
feelings of jet lag.' While he says that skipping meals ahead of a
them up they will starve to death," says Saper. But when they restored the
maximal chance of getting the food," says Saper. "This is built into the brain.
there's nothing you can do about it," says author Dr Tom Eichele of Norway's
probably intrinsic where your brain says I do need to take a little break here
more focused or more careful, Eichele says. That could significantly improve

ready for the market in 10-15 years, he says.

that make these easy decisions," he says. "We can measure the signal and
more energetic particles," Kusenko says. "There is an avalanche-like
with a catalogue of possible sources, says Assistant Professor Miguel
as] active galactic nuclei," Mostafa says. "Now that we found the sources,
rays have puzzled people for years," says Alexander Kusenko, a professor of
"This is a fundamental discovery," says Nobel physics laureate Professor
as the punch of a boxer," Kusenko says. Cosmic rays were discovered 95
charge on the graphene sheets, he says, making sure they repel one
cells or new battery technology," he says. "Because of the biological affinity
and mechanical characteristics, says Professor Gordon Wallace from
implications," Professor Wallace says. "It's a matter of understanding that
we will be able to arrest the damage," says Targeted Genetics chief executive
have a better chance of improving, Ali says. "We are pretty convinced that

It doesn't go anywhere else," Parker says. More trials needed Dr Joan Miller,
New England Journal of Medicine, she says that longer-term trials with more
Infirmary at Harvard Medical School, says these preliminary trials are

to reading lines on an eye chart," says Dr Albert Maguire, who worked
volunteer in Ali's trial, Steven Howarth, says he has significant improvement in
for the entire field of gene therapy," says High, a former president of the

a big difference to me," Howarth says. Hope Ali says there's hope for the
the effectiveness of the treatment," he says. In High's trial, three patients aged
to me," Howarth says. Hope Ali says there's hope for the future. "The
used when that person is nearby," he says. During two weeks observing and

members of the opposite sex, says an Australian researcher. Martin

over here come and see me!," How says. "And then when the female
from above and crab-eye level. How says carrying and waving the major claw
his burrow to mate. The PhD student says because the males signal from

and the irresistible "slow claw lift". How says this is the male crab's way of

A wave of heart disease? Rietzschel says the findings may indicate that there
not oral contraception," Tomaselli says. A wave of heart disease?

too simplistic a view now," Rietzschel says.

the wave might be a small ripple," he says. Many studies have looked at the
their risk of cardiovascular disease, he says, like eating a healthier diet, getting

attack] or sudden cardiac death," says Rietzschel. "That's the main risk
your gynaecologist tomorrow morning," says lead researcher Dr Ernst

is not the only possibility," he says. Dr Gordon Tomaselli, a Johns

I think," says Tomaselli. He says the findings need to be factored

"It's a bit eye-opening, I think," says Tomaselli. He says the findings
American Heart Association official, says he is surprised by the findings. "It's malaria and dengue fever, the paper says. "It would be good to have more of the National Academy of Sciences, says. DEET repellents offer times as long as DEET," the paper says. The researchers plan to continue a greater number of insect species," says Dr Ulrich Bernier, a research
Appendix 3 – Concordance of SAID occurrence

N Concordance

1 The Royal College of Midwives said such the research was "welcome home, in a birth centre or in hospital," said Dame Karlene Davis. A
2 for the Department of Health said: “The department welcomes this disease. The New Zealand team said the berries could prevent but not cancer and ageing. The researchers said: "The extracts of boysenberry and James Joseph of Tufts University said the effect was likely to be the same Society Dr Susanne Sorensen said the study results helped to explain effect against a range of diseases. She said: "The results demonstrate that a body's natural clock, researchers have said. The Dutch team used brighter by 5% - which a UK specialist said meant patients living in their own 19%. 'Spectacular' The study authors said that care homes should consider rhythms and Alzheimer's disease, said the study results were melatonin is a very gentle drug.” He said that sleep disturbances were often top third of the class, the researchers said. Some 90% of people carry the Moffitt, a co-author on the paper, said the findings gave a fresh nurture for at least a century,” she said. "However, we have shown that in of the National Childbirth Trust, said: "This shows for the majority of for the British Dietetic Association, said the study highlighted the interaction children in the South West of England, said the results were fascinating and would sort out the reason why," she said.

such as asthma, scientists have said. The French research, published in asthma nurse specialist at Asthma UK, said: 'While some research does immunologist from Glasgow University, said the research did offer a theory as to be beneficial in humans. However, he said comparing the immune reactions of humans, which is a key difference,” he said.

Mark Bellis, co-author of the report, said: “These figures highlight the sheer director of public health in North West, said the research confirmed the “almost drunken behaviour is also a factor,” he said. More than a third of the teenagers vital North West officer Richard Lindley said: "Under-18s continue to obtain A Department of Health spokesperson said: "Tackling the culture of harmful problems. NHS Connecting for Health said the study raised important issues. as well as 170 patients. But the staff said the technology did not link in Greenhalgh, who led the research, said e-records should not be seen in for the British Medical Association said the planned roll-out of the scheme Joyce Robbins, of Patient Concern, said she was unsurprised that patients be a lot more trouble ahead." She said the biggest concern was that errors which commissioned the report, said that roll-out of the scheme across up by the report had been resolved. He said the report provided "a number of virus. Renewed risk The researchers said that even though levels of the virus is small. Researcher Dr Sarah Palmer said: "It is extremely important that new of the HIV information service NAM, said scientists were looking at that could flush out HIV from cells. He said: "This research shows that, for the the HIV charity Terrence Higgins Trust, said: "This study only highlights the varieties are able to survive better,” said Dr D'Hertefeldt. "It's just that with Friends of the Earth (FoE) UK, said the Swedish research strengthened
GM contamination of future crops," she said. "The government must now tear
into account the temporal aspect," she said. Professor Mark Westoby, a plant
GM crops are difficult to confine," he said. "We should assume that GM
wanted to get rid of them, campaigners said. "These experiments show that,
independent wildlife advisor, said it found nothing to cheer in the
nothing to cheer in the Bright results. It said both Bright and the FSEs showed
Nature's biotechnology advisor, said: "We will be asking the Advisory
conservation at the bird group RSPB, said: "This research tells us nothing
wildlife." A UK government spokesman said of the Bright findings: "It's valuable
in the "GM Nation" survey last year said GM crops should never be
Edinburgh and who led the research, said: "This is the first time that a
around half a billion years ago, they said, are likely to have been more
Grant, one of those leading the study, said: "Our simple view that 'more
perhaps 500 million years ago.' He said the finding offered clues not only to
the complexity of human brains," he said. Dr Richard Emes, a lecturer in
and another of the researchers, said: "It is amazing how a process of
from University College London, said that while the size of the brain
it still had a major role to play. He said: "We know that size isn't everything
Lead researcher Dr Jonathan Graff said: "From worms to mammals, this
up or down, not just on or off. Dr Graff said this increased the potential to
for obesity. In the meantime, he said, the only way to tackle the problem
not what I eat, it's all in my genes'," he said. "Don't give my patients another
company which makes the scanners, said it hoped to make them available to
rejected for use in mild cases. Experts said the study was interesting but small
tau. Early prescribing Professor Ballard said: "We knew there may be some
Council Centre for Neurodegeneration, said there could be other explanations
of the Alzheimer's Research Trust, said: "Although the scientists looked at
to the logarithm of n. This, it is often said, is why life seems to speed up as
the University of Cambridge in England said during a teleconference today.
during a teleconference today. Russell said that he and his colleagues found