

Autonimic Modulation in Science Dissemination: A Look into the Work of Journalists from *Folha de S. Paulo Online* and from Some International News Agencies / *Modalização autonímica na divulgação científica: um olhar sobre o fazer de jornalistas do site da Folha de S. Paulo e de agências de notícia internacionais*

Juliana Santos Botelho^{*}

Suelen Martins^{**}

Jerônimo Coura-Sobrinho^{***}

ABSTRACT

Science dissemination texts employ diverse discursive features aimed at facilitating the understanding of scientific concepts to a non-initiated public. This study aims to assess whether autonimic modulation is, in fact, a platform for discursive heterogeneity in science dissemination texts as well as to evaluate in what proportion it is present in texts written by Brazilian journalists from *Folha de S. Paulo Online* and journalists from international news agency. To do so, we analyzed a number of texts published in the sections Equilíbrio & Saúde [Balance & Health] and Ciência [Science] from *Folha de S. Paulo Online*. Surprisingly, we concluded that autonimic modulation is used in the same proportion in those texts, suggesting a high level of homogenization in the local and global modes of news production.

KEYWORDS: Science Dissemination; Autonimic Modulation; Journalists; News Agencies

RESUMO

O texto da divulgação científica lança mão de recursos discursivos variados para facilitar a compreensão de certas noções científicas pelo público não iniciado. O objetivo do presente estudo é evidenciar se, de fato, o recurso da modalização autonímica é um vetor da heterogeneidade discursiva nos textos divulgação científica e avaliar em que proporção ela aparece nos textos escritos por jornalistas da Folha de S. Paulo e de agências de notícia internacionais. Para tanto, empreendeu-se a análise discursiva de textos publicados nas sessões Equilíbrio & Saúde e Ciência, do site da Folha de S. Paulo. Surpreendentemente, verificou-se que a modalização autonímica é usada em igual proporção nos textos de jornalistas do Folha de S. Paulo e de agências de notícias, sugerindo um nivelamento da informação científica capaz de apagar as diferenças locais e globais nos modos de produção da notícia.

PALAVRAS-CHAVE: *Divulgação científica; Modalização autonímica; Jornalistas; Agências de notícia*

* Universidade Federal de Minas Gerais - UFMG, Belo Horizonte, Minas Gerais, Brazil; julianasbotelho@gmail.com

** Universidade Federal de Minas Gerais - UFMG, Belo Horizonte, Minas Gerais, Brazil; susudalettras@gmail.com

*** Centro Federal de Educação Tecnológica de Minas Gerais - CEFET/MG, Belo Horizonte, Minas Gerais, Brazil; jeronimocoura@gmail.com

Introduction

The news that Brazilian scientific production has increased above the global average in recent years has been met with much enthusiasm, not only by the local scientific community but also by Brazilian media outlets. According to figures released by the company Thomson Reuters during the 1st Thomson's Summit on Innovation Experiences [1^a Cúpula Thompson de Experiência com Inovação], set in São Paulo on October 31, 2014, Brazil went from the 24th to the 13th position in world rankings in a period of 20 years (LEITE, 2014, p.1).

It is a given that daily newspapers have a key role in popularizing the knowledge being produced by Brazilian universities and research centers. It is through them that the lay public becomes aware of research, discoveries, inventions, and new patents that have been gradually created in research centers in Brazil and worldwide. The extent to which national newspapers, through their journalists, have been able to establish a more refined dialogue with the Brazilian public (increasingly interested in science news), however, remains an open question.

This study aims to shed light on the activity of the journalists responsible for science coverage in Brazil and the world, seen as crucial agents in the fabric of popular scientific texts. To this end, it seeks to compare texts produced by journalists from domestic and international news agency in order to establish the linguistic-discursive indices that have been used and that would, at least in principle, be able to highlight the marked heterogeneity and shown heterogeneity in science dissemination.

Central to this work is the concept of autonimic modulation (AM), a discursive feature that merges the voices of experts, non specialists, and journalists, considering that this is a major sign of the polyphony present in popular science texts. That is why we intend to investigate the autonimic modulation as a register used by science journalists, to the extent that it is possible to denote the marked and shown heterogeneity in popular science articles published by journalists from *Folha de S. Paulo Online* and by those from international news agencies. Until recently, that is, before the wave of mass layoffs that have been plaguing newspaper agencies in the

country since 2012 (FONSECA *et. al.*, 2013), *Folha de S. Paulo* was considered the national circulation daily newspaper with the best science editing in the country.¹

We understand by “articles from news agencies” those texts that have been produced by journalists from international news agencies, such as *Agence France-Presse* (AFP), *British Broadcasting Corporation* (BBC) and *Reuteurs*, and that have been published in its entirety in local newspapers. We consider “news articles from *Folha de S. Paulo*” those texts that have been produced partially or entirely by local journalists – even if the news comes from international agencies.²

For this work, we raised the hypothesis that in texts published on *Folha de S. Paulo* website and produced by one or more journalists of the newspaper in question there is a tendency to significantly use more autonimic modulation in relation to texts from international news agencies. However, when applying quantitative analysis, statistical tests, and qualitative analysis of texts, that initial hypothesis was refuted, and we proved that the proportion of autonimic modulation being used is the same for texts produced by both *Folha de S. Paulo Online* journalists and journalists from international news agency.

Before we proceed with the discussion of the found data, it is necessary to present a brief overview of the function of autonimic modulation in scientific texts and its importance as an index of discursive heterogeneity.

1 Perspectives in Science Communication

Among several French Discourse Analysis authors, Jacqueline Authier-Revuz (1990, 1998, 1999, 2000, 2004) is undoubtedly one of the pioneers of thinking about the

¹ In a recent comparative study involving science coverage by three online newspapers – *Folha de S. Paulo*, *O Globo* and *Hoje em Dia* – between May 5, 2013 and May 5, 2014, it was found that *Folha de S. Paulo* was the newspaper that least resorted to reports from national and international news agencies reports over this period: 31.40% of the total science coverage is credited to agencies, compared to 53.83% for *O Globo* newspaper, and 55.14% for *Hoje em Dia*. In addition, *Folha de S. Paulo* was “the only newspaper in which Brazilians and foreign [sources] are balanced” [In original: “o único jornal cuja presença de [informantes] brasileiros e estrangeiros é balanceada”] (BOTELHO; PAIVA; GOMES, 2015, p.1317), whereas in the other two newspapers, foreign sources are most often cited. These data allow us to assume a more local bias in *Folha*’s science coverage in relation to the other newspapers and supports the initial hypothesis of this study, according to which there would be greater use of AM in the texts by journalists from *Folha de São Paulo* in comparison to journalists from news agencies.

² To establish such distinction, we considered the authorship indicated in the header of each news article, following internationally accepted copyright standards.

importance of the communicator in sharing the linguistic indices used by the specialist and the non-specialist. To Authier-Revuz (1998, p.108; our translation), “in much of science communication’s self-critique, its mission of ‘making new knowledge penetrate the general public’ consists of ‘placing the results of scientific research into an accessible format for the public [...].’”³ The studies of the French researcher are not only focused on communicative functioning but also on the communicative role of the science dissemination text: to bring new information from the scientific field to the general public.

For the author, the text is a translation practice: a discourse 2 is provided, and the translation – or “product” – replaces the first discourse as equivalent. The translation can be “perfect” as to hide that discourse 2 is a result of translation work. It is from such process that the popular science discourse is woven as reformulation of discourse 1. As such, linguistic-discursive procedures are adopted so that discourse 2 (or science dissemination) conveys knowledge unknown to the community.

In practice, the communicator performs two difficult tasks: to disseminate science and to disseminate findings in the area. According to Authier-Revuz, the passage that occurs from a discourse to another works as a symmetrically-formed dubbing.

The two speeches – shown as strangers to one another, an image in the discourse of a broken dialogue between the scientific community and the public – are placed in contact in discourse 1, which, in its heterogeneity, establishes itself as a meeting place and not as a simple instrument of transmission (1998, p.121; our translation).⁴

One must, however, relativize Authier-Revuz’s dubbing explanation, since the voice of the expert can be dubbed by the communicator, in theory, in order to seem equivalent to the language of the public. One cannot conceive of the reverse dubbing or adaptation of that public discourse – which, in science divulgation, cannot constitute a

³ Text in Portuguese: “Nos numerosos textos de reflexão da DC, sobre ela mesma, a missão de ‘fazer penetrar no grande público os novos conhecimentos’ consiste em ‘colocar sob forma acessível ao público o resultado das pesquisas científicas’ [...].”

⁴ Text in Portuguese: “Os dois discursos mostrados como estranhos um ao outro, imagem no discurso do diálogo rompido entre a comunidade científica e a pública, são colocados em contato em um discurso um, na sua heterogeneidade, que institui a si próprio como um lugar de encontro – e não como um simples instrumento de transmissão.”

citation. We, therefore, have the so-called “signs of comprehension” that the journalist receives from the target audience. Thus, we must abandon the idea of symmetric voices, the idea that it would be possible, in science dissemination, to actualize a total exchange of scientific linguistic-discursive structures by other popular linguistic-discursive structures.

Authier-Revuz (1999), in her article *Dialogismo e divulgação científica* [Dialogism and Science Divulagation], considers science dissemination a particular “genre” within practices of linguistic reformulation, one that results from scientific and educational discourses. The author supports her studies on the *constitutive heterogeneity*, or *shown and marked heterogeneity*, terms that she coined, based on Bakhtin’s concept of dialogism and Lacan’s theoretical assumptions, in order to think about the peculiarities of science dissemination (SD). For purposes of this article, we are interested in examining forms of heterogeneity and its implications for the description of science dissemination in due course. On that matter, Authier-Revuz (1999) states that

[a]ll the reformulation practices that produce a second discourse – in the advertising, politics, education fields, for instance – dependant on the “target”, offer a privileged perspective for the study of dialogic mechanisms due to the clarity with which one can infer the double restriction of the ‘already-said’ source discourse (D1) and addressee of the second discourse (D2). This is clearly the case of SD, which is assigned the role of ‘making the results of scientific research accessible to the public’ (p.10; our translation).⁵

Summing up what has been proposed by Authier-Revuz, it is important to point out that, in order to form the discourse of science dissemination, two discourses are united, i.e., educational and scientific discourses. The pedagogical discourse functions as a user’s manual of the event, the subject matter of the text. In the same space of the science dissemination text, there is the presence of the “we,” representing the

⁵ Text in Portuguese: “O conjunto das práticas de reformulação que – nos campos publicitário, político, pedagógico, por exemplo – produz um discurso segundo, em função do “alvo” visado, oferece um campo privilegiado ao estudo dos mecanismos do dialogismo, pela nitidez com a qual pode aí ser posta a dupla restrição do já-dito do discurso fonte (D1) e do destinatário do discurso segundo (D2). É claramente o caso da DC, que se atribui o papel de ‘colocar sob uma forma acessível ao público resultado das pesquisas científicas.’”

communicator and the reader, and there is the “they,” in opposition. Science divulgation is carried out from the confluence of three places: the science, the public (or the reader), and, in mediation, the place of the communicator.

2 Heterogeneity in Science Dissemination Discourse

To Authier-Revuz, it is necessary to abandon the homogeneous, closed and repeatable character that pervades the concept of language as a unit of rules and combinations. Instead, language as articulated to the subject and the world, unrepeatable, and affected by subjectivity must be emphasized. That is, the heterogeneity phenomenon is related to the interaction between language and speech.

The author, within the scope of constitutive heterogeneity, stems from Bakhtin’s contribution on dialogism and adds Lacan’s idea on the unconscious in psychoanalysis. Lacan describes two typical functions of language and the unconscious: metonymic, or word by word, and the metaphorical, one word for another. Together, contributions from Lacan and Bakhtin⁶ allow the conclusion that every discourse is heterogeneous. Along these lines, language’s material structure allows the manifestation of heterogeneity.

In Authier-Revuz’s thought, heterogeneity gains a character of non-coincidence of saying. The first non-coincidence is that of the enunciation, or the language subject’s non-coincidence, manifest as the speaker’s different responses encounter the interlocutive constitutive non-coincidence. This discursive non-coincidence is the constitutive heterogeneity. The second non-coincidence is conceptualized from Bakhtinian formulations with respect to dialogism as well as to the theory of interdiscourse. Reflections on the presence of a foreign word or the Other are made in this second conception of heterogeneity. Authier-Revuz corroborated the idea that all discourse is permeated by the discourse of others. This notion deprives the subject of an absolute place in the utterance and establishes his/her role as an individual who fights

⁶ Although the concept of heterogeneity is close to the concept of polyphony, which is outlined in the chapter Dostoevsky’s Polyphonic Novel and its Treatment in Critical Literature of Bakhtin’s *Problems of Dostoevsky’s Poetics* (1984), it is not to be confused with it.

against his/her non-unity. To Authier-Revuz (1998, p.23; our translation), “noting between his or her words the strange presence of marked words that belong to the discourse of the ‘other,’ a discourse itself draws the outline – signaling a represented interdiscursivity – of an interior/exterior border.”⁷ In terms of the science dissemination discourse, the manner of speaking takes a different format for the same content or approach.

The third non-coincidence is related to the established heterogeneity between word and thing. With this non-coincidence, according to Authier-Revuz (2000),

what appears here as the coupling of two words is no longer in the category of the discourse that encounters other discourses, an encounter in which the naming of one is certainly relativized, questioned, but at the same time strengthened, affirmed in a differential positioning among others; is in the heart of the naming of one, in the apprehensions with language, with the lack and excess by which it affects the whole naming, that there will be an open gap, the beat between “its” two words (p.349; our translation).⁸

In other words, this non-coincidence refers to the break with the biunivocal relation between words and things that are designated by them. For example, there is the metaphor/analogy that would be combined with the lack of naming in the non-coincidence between word and thing. The latter heterogeneity accounts for a “monosemizing” approach. This form of heterogeneity includes, for Authier-Revuz (2000, p.354; our translation), “the incalculable set of what polysemy, homonyms, puns, paragrammatism in all their forms bring into play in the ‘crystal’ of a given language.”⁹ It is this non-coincidence that also translates the speaker’s image facing the misconception in his/ her own speech.

⁷ Text in Portuguese: “Assinalando entre suas palavras a presença estranha de palavras marcadas como pertencendo a um “outro” discurso, um discurso esboça em si o traçado – assinalando uma interdiscursividade representada – de uma fronteira interior/exterior.”

⁸ Text in Portuguese: “O que aparece aqui como o acoplamento de duas palavras não é mais da ordem do encontro de um discurso com outros discursos, encontro no qual a nomeação de um se encontra por certo relativizada, questionada, mas ao mesmo tempo fortalecida, afirmada em um posicionamento diferencial entre os outros; é no coração da nomeação do um, nas apreensões com a língua, com a falta e o excesso pelas quais ela afeta toda nomeação, que vai-se abrir o vão, a batida entre “suas” duas palavras.”

⁹ Text in Portuguese: “O conjunto incalculável daquilo que polissemia, homonímia, trocadilho, paragramatismo sob todas suas formas põem em jogo no ‘cristal’ de uma língua dada.”

The constitutive heterogeneity is one that, if non-marked, reveals the other, because it is created in the interdiscourse and unconscious levels, which cause it to refer to the actual functioning of discourse. Every discourse has signs arising from the unconscious, and certainly the words that the subject utters had a great significance in another time and historical space; however, forgotten in the unconscious, they are seized by other voices, making sense in terms of that choice at the time in which they are used in another context.

Moreover, the shown heterogeneity refers to the voice of the Other inserted into discourse. According to Authier-Revuz (1990), forms of shown heterogeneity are mechanisms that translate the subject's illusion of commanding discourse, of having choice, intention, and decision power. The marked heterogeneity, which presents the subject through enunciative mechanisms, is evidenced by reported speech, connotation or autonimic modulation (glosses that name the foreigner, for instance). The author also separates the shown heterogeneity in two: the marked heterogeneity and non-marked heterogeneity. The marked forms are the use of quotes, direct and indirect speech, and glosses as autonimic modulation. Non-marked forms are free indirect speech, allusions, irony, and pastiche.

The marked forms are those that can be recovered in the enunciation level from language markers that indicate the presence of another voice. Being an intentional process, this heterogeneity is easily recognizable or, rather, visible, by the use of citations or comments, quotation marks, italics, intonation, types of glosses. These quotation marks, according to Authier-Revuz (1998), are AM¹⁰ *arch forms* just as allusions, free indirect speech, non-marked wordplay, for example, show glosses that name the strange element in the text, as an explanation for the elements that are unclear to the addressee. Quotation marks can be also used to point to an agreement between two parties on the suitability of a given word in a context. The author also refers to another form of shown and marked heterogeneity, that is, autonimic connotation, in which the fragment designated as another is integrated into the discursive chain without syntactic rupture.

¹⁰ AM stands for autonimic modulation and occurs, in context, under implicit forms of speech.

To Authier-Revuz (1998), the incised clauses are opacifying manifestations of the parentheses, which reveal a syntactical break without changing the sentence's meaning. An incised clause shows the syntactic breakdown or suspension, but they do not mean a syntactic restriction in the sentences in which they are inserted. On the contrary, the incised clause establishes a link between what is written before and after its use. The incised clause introduces heterogeneity and is confined to the written discourse in the form of quotes or parentheses.

The voice of the Other is evident on the text surface, revealing the presence of otherness, or the insertion of the "Other" in the discourse, which is made explicit by the rupture of the apparent oneness of the discourse. In terms of syntactic break, the appositive phrase is representative of the apparent break in the discourse unity. It is what Authier-Revuz (1990) calls simple autonomy, in which a fragment is accompanied by a syntactic break, making the enunciative coupling clear.

In short, the shown and marked heterogeneity is a linguistically describable place taken by the Other; it is the recoverable form in a discourse thread of the alien word. Furthermore, the constitutive heterogeneity is the insertion of the Other, always present in discourses everywhere. While acknowledging the importance of Authier-Revuz's ideas, a problematic issue arises in her writings: the absence of shown heterogeneity in certain genres, such as scientific and the dogmatic texts. Although these genres are considered secondary and, therefore, less prone to the emergence of other voices, there is, in the fabric of these texts, some heterogeneity markers. Authier-Revuz's own scientific text is an example of the presence of heterogeneity. Even if the voice of the speaker has to be empowered to actualize the credibility and legitimacy of the findings, the voice that precedes it will appear, albeit discreetly, in the thread of the discourse.

Assuming that the discursive heterogeneity is constitutive of the science dissemination text, it is still necessary to inquire whether or not there are differences (in terms of the presence of other voices) between the texts written by journalists from *Folha de S. Paulo Online* and journalists from international news agency. In principle, we believed that Brazilian journalists would have more instruments to represent the voices of their readership. But this hypothesis has not been confirmed, as discussed below.

3 Methodology

In terms of data collection, this research favored online news sources. The website appeared to be the ideal locus to access data, due to the easy access of new digital technologies. Before defining how many texts would make up the corpus of the research and the nature of the news articles, we proceeded to the collection of a pilot sample, with a group of texts gathered in February 2012 from the *Folha de S. Paulo* website,¹¹ in the sections Equilíbrio & Saúde [Balance & Health] and Ciência [Science]. According to Gil (2002), this test is important for the research as it ensures that the instruments used generate reliable results. After testing, we came to the conclusion that, in order to comprise the final *corpus* of the research, we needed to collect 27 news articles, as follows: 11 from news agencies, from the Ciência [Science] section; 6 texts by journalists from *Folha de S. Paulo Online* in the Ciência [Science] section; 3 from news agencies, from the Equilíbrio & Saúde [Balance & Health] section; and 7 texts by journalists from *Folha de S. Paulo Online* in the Equilíbrio & Saúde [Balance & Health] section. The total amount of texts collected in the two sections was separated into five groups: 1) news articles produced by journalists from *Folha de S. Paulo Online*; 2) news articles produced by news agencies; 3) news articles written by external collaborators; 4) information with links to the columnists' blogs in Equilíbrio & Saúde [Balance & Health] and Ciência [Science] sections, 5) information posted in the analyzed sections that is not characterized as science dissemination.

With the collected and selected texts, we carried out the analysis of the linguistic-discursive-textual data. French Discourse Analysis was used as an analytical method, for it allows access to language performance in science dissemination and takes into account the description of voices that, according to Rocha and Deusdará (2005, p.317; our translation), “resonate, cross, and shatter the illusion of unity presented in

¹¹ All the news articles that comprise our corpus were collected from the website Folha.com in February 2012. The newspaper content was migrated into the *Universo Online* (Uol) portal, with a different electronic address, in June of the same year. From that period on, the newspaper also became a service available to Uol subscribers. However, it is worth noting that even before the migration, online and print versions of *Folha de S. Paulo* had different contents, as some of the articles were exclusive to online newspaper subscribers. For this work, we will refer to the newspaper in its official name, i.e., *Folha de S. Paulo Online*.

enunciations.”¹² This perspective is fortuitous, since the purpose of the research is to study shown and marked discursive heterogeneity through heterogeneity indices and to reflect on how the voices are processed in science dissemination. French Discourse Analysis also allows the search, in the bridge between language (inner level) and the psychosocial (external level), for the reason to instrumentalize texts.

Systematically, the steps adopted for the discursive analysis of the subjects were: first, we measured the the proportion of texts that used marked and shown heterogeneity indexes. After this step, we did a hypothesis test (Fisher and Chi-Square), aiming to assess whether the proportion of autonimic modulation use is equal on *Folha de S. Paulo Online* and in international news agencies and if this ratio changes depending on the sections in which the texts are published.

4 Autonimic Modulation and Incised Clauses in the Sections Ciência [Science] and Equilíbrio & Saúde [Balance & Health]

In this section, we aim to characterize the mode of production of science dissemination texts signed by journalists from *Folha de S. Paulo Online* and international news agencies both in the sections Ciência [Science] and Equilíbrio & Saúde [Balance & Health].

The first object of analysis is text 1, Crocodilo pré-histórico descoberto em SP devorava raízes [Prehistoric crocodile discovered in SP devoured roots] (LOPES, 2012a), written by journalist Reinaldo José Lopes. The article describes a crocodile fossil discovery in rural Monte Alto, in the state of São Paulo. We analyzed text 2, Estátua pode retratar uma gladiadora, diz pesquisa [Statue may portray a female gladiator, says research] (LOPES, 2012b) also by Reinaldo José Lopes, who discusses the discovery of a statue that may represent a female gladiator, according to some scholars, but that could also represent a slave, according to others. In text 3, Índios de Rondônia vão vender carbono com selo verde [Rondonia Indians will sell carbon with green seal] (ANGELO, 2012), the communicator [science disseminator] Claudio Angelo provides readers with information on the income from the new commodity in the tribe Paiter-Suruí, from an economy and sustainability viewpoint. We also analyzed

¹² Text in Portuguese: “Ressoam, atravessam e abalam a ilusão de unidade que se apresenta nos enunciados.”

text 4, Telescópio ajuda a entender impacto de explosão solar sobre a Terra [Telescope helps to understand the impact of solar explosion on Earth], by BBC Brazil (2012), which depicts how explosions can damage the atmosphere of an orbiting planet, endangering lives in this planet.

In “It is true that the ‘Caipirasuchus paulistanus’ had a powerful bite,”¹³ Text 1 published in the *Ciência* [Science] section, the sentence between single quotation marks suggests that the journalist marks the voice of the Other by a type of autonimic modulation in which there is a non-coincidence between words and things in an attempt to bring the expression signaling the scientific field closer to the popular field. Since in the scientific field Latin is the naming convention, the speaker used the common sense expressions “caipira” (redneck), to form the Latin word “caipirasuchus,” and “paulistano” (inhabitant of the city of São Paulo), to form the Latin word “paulistanus.” To Authier-Revuz (1998, pp.19-20), one of the six forms of autonimic modulation is expressed through the use of typographical signs, such as quotation marks, characterized as the *arch forms* of autonimic modulation. In this case these marks indicate the constitutive heterogeneity of the discourse.

Excerpts of text 2, such as “the statue *can portray*,”¹⁴ “the raised arm and hand holding an object [...] *suggest triumph*”¹⁵ and “the statue from Roman times *may be one of the few* records of a female gladiator”¹⁶ reveal modulation. The same goes for the 3 excerpts of text 3: “the tribe chief, Almir Narayamoga, *estimates* that the business can generate 2 million to 4 million *reais* per year” and “the only project supported by the federal agency is the Suruí’s.”¹⁷ The communicator places himself as someone who says “if we may say so,”¹⁸ which reveals a non-coincidence of what is being said between words and things. Authier-Revuz (2000, p.336; our translation) states that “in relation to X, in the words by which a loop opens (as in *if you will* or *so to speak*, for example) the

¹³ Text in Portuguese: “É verdade que o ‘Caipirasuchus paulistanus’ tinha uma mordida poderosa” (our translation).

¹⁴ Text in Portuguese: “Estátua *pode retratar*” (our translation).

¹⁵ “O braço erguido e a mão que segura um objeto [...] *sugerem triunfo*” (our translation).

¹⁶ Text in Portuguese: “Estatueta da época romana *pode ser um dos poucos* registros de uma mulher gladiadora” (our translation).

¹⁷ Text in Portuguese: “O líder da tribo, Almir Narayamoga, *estima* que o negócio possa gerar de R\$ 2 milhões a R\$ 4 milhões por ano” e “o *único* projeto apoiado pelo órgão federal é o dos suruí” (our translation).

¹⁸ Text in Portuguese: “Se assim podemos afirmar” (our translation).

setting of the multinaming in X-Y to a non-coincidental space between the ‘enunciated’ word and the addressee, or the thing named [...].”¹⁹ This modality makes the information relative and at the same time protects the communicator, the one who does not take sides in relation to the information he/she provides.

The incised clause, according to Authier-Revuz (2004), or the syntactic break, appears in text 3 in excerpts, such as “the money will go into a kind of ‘sovereign fund’ to boost economic activities,”²⁰ “[...] potential Suruí’s clients include companies looking for ‘*charismatic credits*’ to offset emissions in its production process.”²¹ The quotation marks, which reveal shown and marked heterogeneity, represent the play of voices performed by the communicator when trying to translate new knowledge, borrowing terms used by experts. This usage was also noticed in text 1 and refers to the case of non-coincidence between words and things. In text 2, “[...] the object is a ‘sica,’ a curved dagger or short sword used by gladiators,”²² the term marked by quotation marks is explained in an appositive between commas. Perhaps the effect sought by the communicator was to show a careful use of the words from the many fields from which the news originated. Thus, we can say that the type of modulation that stands out in text 2 is the non-coincidence of the discourse with itself.

Incised clauses may also appear as appositives in news agency texts. In text 4, the term “super flares” indicates a phrase in a foreign language that was explained in the form of appositive by the journalist of the news agency. This incised clause, for Authier-Revuz (1998, p.101), establishes a connection between what is written and whatever will be said afterwards. According to the author, the incised clause is closely linked to the basic enunciation by a relation of reference that “grafts” it in the X point of the enunciation. It is, again, a case of non-coincidence of the discourse with itself.

In relation to the ways of marking discursive heterogeneity, in 36.37% of the texts produced by journalists from news agency, we find the use of quotation marks. There are cases of modulation characterized by quotation marks, showing dialogism

¹⁹ Text in Portuguese: “Em relação a X, no dizer do qual uma laçada como *se você quiser*, ou *por assim dizer*, por exemplo, abre, para um espaço de não-coincidência entre uma palavra ‘enunciada’ e aquele a quem ela se dirige, ou o referente que ela nomeia, a configuração de multinomeação em X-Y [...]”

²⁰ Text in Portuguese: “O dinheiro será aplicado em uma espécie de ‘*fundo soberano*’ para alavancar atividades econômicas” (our translation).

²¹ Text in Portuguese: “[...] Os potenciais clientes dos suruís incluem empresas em busca de ‘*créditos carismáticos*’ para neutralizar emissões de seu processo produtivo” (our translation).

²² Text in Portuguese: “[...] O objeto é uma ‘*sica*’, espada curta ou adaga recurva usada pelos gladiadores” (our translation).

between different discourses. The same case was observed in articles by journalists from *Folha de S. Paulo Online* who aim to bring experts' and non-experts' voices closer by using modulation. About this discursive interference, Bakhtin (2010a, p.91), in the essay *The Problem of Speech Genres*,²³ in *Speech Genres and Other Late Essays*,²⁴ states that “[u]tterances are not indifferent to one another, and are not self-sufficient; they are aware of and mutually reflect one another.” This makes us think that someone’s discourse can be crossed by the Other’s discourse. In the texts studied, this process of echoing and alternating subjects becomes clear by the use of nominal syntagmas, such as “Olympic molecule,” “low carbon,” “strange,” “olympicene,” “Carrington,” and “super flares.” These expressions come from the scientific realm, but the communicator uses them between quotation marks to demonstrate that they are borrowed; that is, he/she signals that they are not his/her own words and highlights, at the same time, the distinction between his/her use of the lexicon and the expert’s, showing, thus, solidarity with the word of the Other.

In the section *Equilíbrio & Saúde* [Balance & Health], we analyzed text 5 (NUBLAT, 2012b), *Doenças causadas pelo cigarro matam 357 por dia no país* [Diseases caused by smoking kill 357 a day in the country], by Johanna Nublat. The text features statistics on the death of smokers and former smokers in Brazil due to lung, heart and cancer diseases and reveals the costs of healthcare to those patients. In text 6 (COLLUCI, 2012), *País investe em produção de células-tronco* [Brazil invests in production of stem cells], reporter Cláudia Collucci writes about the funds for research and production of stem cells that were previously imported. In addition, she states that Cell Technology Centres will be restructured and qualified by the government.

Incised clauses appear in 71.43% of the articles by *Folha de S. Paulo* journalists, in the following examples, as metaenunciative juxtaposition, more specifically with an

²³ The essay *The Problem of Speech Genres* was published in the book collection entitled *Speech Genres and Other Late Essays*, published by the University of Texas Press. Differently, in Brazil, it was published in the book collection entitled *Estética da criação verbal* [Aesthetics of Verbal Creation], whose original was published in Russia in 1979. For reference of the Brazilian version of the work, see References at the end of this article.

²⁴ BAKHTIN, M. M. *The Problem of Speech Genres*. In: _____. *Speech Genres & Other Last Essays*. Translated by V. W. McGee. Austin: University of Texas Press, 1986, pp.60-102.

opacification signal, such as quotation marks or parentheses. It is important to note that that interpretation of metaenunciative juxtaposition in the text to Authier-Revuz (2004),

does not establish relations between ‘things,’ X and Y, X or Y, X that is Y (or in this case, sometimes, not only), but has a relation between the two elements, intervening with the realm *of words* that are assimilable to the relations established by the appositions, by the nonrestrictive relative clauses, by the incised clauses that are explicitly metaenunciative [...] (p.153; our translation).²⁵

The approach of the author allows us to think that the incised clause may represent, in the same level, a single word that is self-explanatory because it contemplates two sides. This actualizes the heterogeneous nature of the word that functions in more than one signifying level. These quotation marks are markers that show that that voice is the Other’s, in this case, science’s. The quotes or incised clauses in certain words refer to the *enunciative coupling*. In texts 5 and 7, the journalists from *Folha de São Paulo Online* use the word “chute” [kick] and the phrase “só dinheiro não ajuda” [money is not enough] to reveal the autonimic modulation, since Romeo Schneider’s and researchers’ voices are highlighted by the communicator. The following chart shows the use of quotes.

Title of the Article	Fragment between Quotation Marks (incised)
Diseases caused by smoking kill 357 a day in the country (NUBLAT, 2012b). ²⁶	Romeu Schneider, president of the tobacco industry chamber, says the numbers are “ <i>guesswork</i> ” [...]. ²⁷
New US laser promises to destroy cellulite ‘little holes’ (VERSOLATO, 2012). ²⁸	A new weapon against cellulite has caused excitement in the United States by promising to end once and for all the appearance of “ <i>orange peel</i> ” on buttocks and thighs. ²⁹

²⁵ Text in Portuguese: “Consiste em não estabelecer relações entre as ‘coisas’, X e Y, X ou Y, X, que é Y (ou, neste caso, às vezes, não unicamente), mas em colocar uma relação entre os dois elementos, fazendo intervir o plano das palavras, assimiláveis às relações estabelecidas pelas posições, pelas relativas explicativas, pelas incisas de reformulação explicitamente metaenunciativas [...]”

²⁶ Text in Portuguese: “Doenças causadas pelo cigarro matam 357 por dia no país” (our translation).

²⁷ Text in Portuguese: “Romeu Schneider, presidente da câmara setorial do tabaco, classifica os números de ‘chute’ [...]” (our translation).

²⁸ Text in Portuguese: “Novo laser dos EUA promete destruir os ‘furinhos’ da celulite” (our translation).

²⁹ Text in Portuguese: “Uma nova arma contra a celulite tem causado empolgação nos EUA por prometer acabar de uma vez por todas com o aspecto ‘casca de laranja’ de glúteos e coxas” (our translation).

Country invests in stem cell production (COLUCCI, 2012). ³⁰	Researchers say, however, “ <i>money alone is not enough.</i> ” ³¹
Projects in the House can put an end to flavored smoking products ban (NUBLAT, 2012a). ³²	“I believe that they’ll <i>drag on</i> these possibilities until we get close to the deadline for the ban enforcement [...]” ³³
Sale of medicines in supermarkets criticized (RIGHETTI; MIRANDA, 2012). ³⁴	For him, the measure was “ <i>imported</i> ” from countries like the US [...]. ³⁵

Table 1 - Quotes (incised clause) in journalist’s articles on *Folha de S. Paulo Online*, section Equilíbrio & Saúde [Balance & Health].

4.1 Proportion of Autonomic Modulation in Texts of Science Divulgarion on *Folha de S. Paulo Online*

Throughout our research, we sought to see how some heterogeneity indices occur in texts of science dissemination written by journalists from *Folha de S. Paulo Online* and from news agencies in the sections Equilíbrio & Saúde [Balance & Health] and Ciência [Science]. We were interested in characterizing this set of texts by their particularities, from a linguistic and discursive perspective. In addition, we attempted to verify a hypothesis that would help understand the qualitative nature of the *corpus*, that is, whether the texts published on *Folha de S. Paulo Online* that are written by *Folha de São Paulo* journalists tend to bring a more expressive work around heterogeneity indices, as autonomic modulation.

In an attempt to verify these hypotheses, we applied Fisher’s test to verify if the ratio of discursive heterogeneity indices in *Folha de S. Paulo Online* journalists’ texts is the same in texts from international news agencies. That would be our null hypothesis. We established the significance level of 0.05, which refers to the maximum error allowed in order not to reject the null hypothesis.

³⁰ Text in Portuguese: “País investe em produção de células-tronco” (our translation).

³¹ Text in Portuguese: “Pesquisadores afirmam, no entanto, que ‘*só dinheiro não ajuda*’” (our translation).

³² Text in Portuguese: “Projetos na Câmara podem pôr fim à proibição de fumo com sabor” (our translation).

³³ Text in Portuguese: “Acredito que vão ficar com essas possibilidades em ‘*banho-maria*’ até chegar próximo do prazo para a entrada em vigor do banimento [...]” (our translation).

³⁴ Text in Portuguese: “Venda de remédios em supermercado é alvo de críticas” (our translation).

³⁵ Text in Portuguese: “Para ele, a medida foi “*importada*” de países como os EUA [...]” (our translation).

In regard to the heterogeneity index in autonimic modulation, we raised the possibility that there was a larger proportion of autonimic modulation in *Folha de S. Paulo Online* journalists' texts when compared to news agency texts. After we conducted the test, we found that the p-value was 0.9816, which was the lowest level of significance that we could adopt to reject the null hypothesis. As the level of significance was 0.05 and the measure of the p-value was higher than the level of significance, the null hypothesis was not rejected. Therefore, there is evidence to conclude that the proportion of autonimic modulation in *Folha de São Paulo Online* journalists' texts is equal to the texts of news agencies in the sections Equilíbrio & Saúde [Balance & Health] and Ciência [Science].

Journalist	Section		Total
	Balance	Science	
Folha	17.14%	82.86%	100.00%
Agência	44.44%	55.56%	100.00%
Total	22.73%	77.27%	100.00%

Table 2 - Test Results for Ratio of Autonimic Modulation in the sections Equilíbrio & Saúde [Balance & Health] and Ciência [Science].

With regard to the index of incised heterogeneity, we raised the possibility that this ratio was higher in *Folha de S. Paulo Online* journalists' texts in comparison to news agencies' texts. After we conducted the test, we found that the p-value was 0.1515, which was the lowest level of significance that we could adopt to reject the null hypothesis. As the level of significance was 0.05 and the measure of the p-value was higher than the significance level, the null hypothesis was not rejected. Therefore, there is evidence to conclude that the proportion of incised clause texts in *Folha de S. Paulo Online* journalists' texts is equal to the news agencies' texts in the sections Equilíbrio & Saúde [Balance & Health] and Ciência [Science].

Journalist	Newspaper Section		Total
	Balance	Science	
Folha	60.00%	40.00%	100.00%
Agency	14.29%	85.71%	100.00%

Total	33.33%	66.67%	100.00%
--------------	---------------	---------------	----------------

Table 3 - Test Results, Ratio of Incised Clauses in the sections Equilíbrio & Saúde [Balance & Health] and Ciência [Science].

With regard to modulation as a resource that highlights heterogeneity, we noticed that in the sections Ciência [Science] and Equilíbrio & Saúde [Balance & Health] journalists from *Folha de S. Paulo Online* and news agency make use of this feature as a means of bringing voices together or creating a metaenunciative juxtaposition, or yet of marking foreign words (unknown to the public). Journalists from *Folha de São Paulo Online* and news agency, in the Science section, and from *Folha de S. Paulo Online*, in the Equilíbrio & Saúde [Balance & Health] section, use modulation marked by typographical signs, quotation marks, or incised clauses.

Conclusion

Before conducting this study, we believed that articles from news agencies would be more generic and that those from *Folha de S. Paulo Online* would be more suited to the specificity of the local public. However, we found that autonimic and incised modulations appear in the same proportion in texts from *Folha de S. Paulo Online* and from news agencies. This is proven by the accuracy of the chosen tests and by the collaborative use of quantitative methods as a support for qualitative analysis.

The finding that indices were similarly addressed by journalists from *Folha de S. Paulo Online* and news agency can reveal standardization on the treatment given to information in order to erase differences in the production of science dissemination texts. Contrary to what we assumed at the beginning of our research, it may be a mistake to state that Brazilian journalists treat science dissemination differently. Given this result, it is worth asking whether Brazilian journalists have, in fact, a more refined knowledge of their audience. Anyway, the analysis of the use of autonimic modulation in these texts reveals that the articles from international news agencies are as generic as the ones from *Folha de S. Paulo Online*.

We should also question the reasons for this standardization. We know that the layoffs and downsizing in newspapers newsrooms have substantially affected the division of labor within their editorial staff. The most commonly used term to describe this state of affairs is “global crisis.” In addition to that, the phenomenon of technological convergence is changing internal production routines, the distribution of journalists in various editorial teams in the same newspaper as well as the time span used for assigning stories, investigating, and writing a story (NEVEU, 2006, pp.63-68). With specific regard to Brazil, some authors had already alerted to the fact that the reorganization of productive routines caused by layoffs resulted inexorably in the overworking of a smaller news staff (FONSECA *et al.* 2013, pp.1-2) or in the diversification of areas of activity of journalists and scientists, such as scientific blogs (ALMEIDA, 2013).

We are left with a question: to what extent is the proximity of local journalists with their local public an expression of this crisis, in the sense that it standardizes forms of news production and the dialogue between the expert, the communicators [science disseminators], and their readership? In any case, such standardization occurs, paradoxically, amid the increase in national scientific production and misses the opportunity to explore the linguistic universe of readers who are increasingly eager for scientific content.

REFERENCES

ALMEIDA, C. A ascensão dos blogues de ciência. *Ciência Hoje online*, 02 jul. 2013. Disponível em: [<http://cienciahoje.uol.com.br/blogues/bussola/2013/07/a-ascensao-dos-blogues-de-ciencia>]. Acesso em: 20 mar. 2014.

ANGELO, C. Índios de Rondônia vão vender carbono com selos verdes. *Folha.com*. São Paulo, 09 de abril 2012. Disponível em: [<http://www1.folha.uol.com.br/ciencia/1073195-indios-de-rondonia-vaovender-carbono-com-selo-verde.shtml>]. Acesso em: 13 jan. 2016.

AUTHIER- REVUZ, J. Heterogeneidade(s) enunciativa(s). *Cadernos de estudos linguísticos*, Campinas, UNICAMP – IEL, n. 19, p.25-42, jul./dez.,1990. Disponível em: [<http://revistas.iel.unicamp.br/index.php/cel/article/view/3012/4095>]. Acesso em: 13 jan. 2016.

_____. *Palavras incertas: as não coincidências do dizer*. Campinas: Editora Unicamp, 1998. Disponível em: [<http://pt.slideshare.net/moniquecominlosina/157105752-authierrevuzpalavrasincertaspdf>]. Acesso em: 13 jan. 2016.

_____. Dialogismo e divulgação científica. *Rua*, Campinas, n.5, p.9-15, mar. 1999. Disponível em: [http://periodicos.sbu.unicamp.br/ojs/index.php/rua/article/view/8640645/8193]. Acesso em: 14 jan. 2016.

_____. Duas palavras para uma coisa: trajetos de não-coincidência. *Revista Universa*, v. 8, n. 2, p.333-359, jun. 2000.

_____. *Entre a transparência e a opacidade: um estudo enunciativo do sentido*. Revisão técnica da tradução. Leci Borges Barbisan e Valdir do Nascimento Flores. Porto Alegre: EDIPUCRS, 2004.

BAKHTIN, M. Os gêneros do discurso. In: BAKHTIN, M. *Estética da criação verbal*. 5. ed. Trad. Paulo Bezerra. São Paulo: WMF Martins Fontes, 2010a, p.261-306.

_____. O romance polifônico de Dostoiévski e seu enfoque na crítica literária. In: BAKHTIN, M. *Problemas da poética de Dostoiévski*. 5. ed. Trad. Paulo Bezerra. Rio de Janeiro: Forense Universitária, 2010b, p.3-51.

BOTELHO, J. S.; PAIVA, D.; GOMES, R. D. Lacunas da cobertura de ciência no Brasil: transformando a crise em indicadores. In: *Congresso RedPop 2015*, 2015, Medellín. *RedPop Arte, Tecnología y Ciencia: nuevas maneras de conocer*, 2015. p.1311-1318. Disponível em: [http://pt.slideshare.net/CorporacionParqueExplora/libro-redpop-2015-50527506]. Acesso em: 10 ago. 2015.

COLLUCCI, C. País investe em produção de células-tronco. *Folha.com*. São Paulo, 17 de Abril de 2012. Disponível em: [http://www1.folha.uol.com.br/equilibrioesaude/1077306-pais-investe-em-producao-decelulas-tronco.shtml]. Acesso em: 13 jan. 2016.

DA BBC BRASIL. Telescópio ajuda a entender impacto de explosão solar sobre a Terra. *Folha.com*. São Paulo, 18 de Maio de 2012. Disponível em: [http://www1.folha.uol.com.br/bbc/1092161-telescopio-ajuda-a-entender-impacto-de-explosao-solar-sobre-a-terra.shtml]. Acesso em: 13 jan. 2016.

FONSECA, B. *et al.* A revoada dos passaralhos. *Pública*, 10 jul. 2013. Disponível em: [http://apublica.org/2013/06/revoada-dos-passaralhos/]. Acesso em: 13 jan. 2016.

GIL, A. C. *Como elaborar projetos de pesquisa*. 4. ed. São Paulo: Atlas, 2002.

LEITE, M. “Em 20 anos, país vai da 24ª a 13ª posição em ranking de pesquisa”. *Folha de S. Paulo*, 01 de Novembro de 2014. Disponível em: [http://www1.folha.uol.com.br/ciencia/2014/11/1541834-em-20-anos-pais-vai-de-24-a-13-em-ranking-de-pesquisa.shtml]. Acesso em 13 nov. 2014.

LOPES, R. J. Crocodilo pré-histórico descoberto em SP devorava raízes. *Folha.com*. São Paulo, 31 de Março de 2012(a). Disponível em: [http://www1.folha.uol.com.br/ciencia/1069897-crocodilo-pre-historico-descoberto-em-sp-devorava-raizes.shtml]. Acesso em: 13 jan. 2016.

_____. Estátua pode retratar uma gladiadora, diz pesquisa. *Folha.com*. São Paulo, 21 de Abril de 2012(b). Disponível em: [http://www1.folha.uol.com.br/ciencia/1079394-estatua-pode-retratar-uma-gladiadora-diz-pesquisa.shtml]. Acesso em: 13 jan. 2016.

NÉVEU, É. Crises e renovações do jornalismo. In: *Sociologia do Jornalismo*. São Paulo: Ed. Loyola, 2006, p.63-68.

NUBLAT, J. Projetos na Câmara podem pôr fim à proibição de fumo com sabor. *Folha.com*. São Paulo, 12 de Maio de 2012(a). Disponível em: [http://www1.folha.uol.com.br/equilibrioesaude/1089469-projetos-na-camara-podem-porfim-a-proibicao-de-fumo-com-sabor.shtml]. Acesso em: 13 jan. 2016.

_____. Doenças causadas pelo cigarro matam 357 por dia no país. *Folha.com*. São Paulo, 31 de Maio de 2012(b). Disponível em: [http://www1.folha.uol.com.br/equilibrioesaude/1098161-doencas-causadas-pelo-cigarromatam-357-por-dia-no-pais.shtml]. Acesso em: 13 jan. 2016.

RIGHETTI, S.; MIRANDA, G. Venda de remédios em supermercado é alvo de críticas. *Folha.com*. São Paulo, 27 de abril de 2012. Disponível em: [http://www1.folha.uol.com.br/equilibrioesaude/1082297-venda-de-remedios-emsupermercado-e-alvo-de-criticas.shtml]. Acesso em: 13 jan. 2016.

ROCHA, D.; DEUSDARÁ, B. *Análise de conteúdo e análise do discurso: aproximações e afastamentos na (re)construção de uma trajetória*. Alea: Estudos Neolatinos (Impresso), Rio de Janeiro, v. 7, p.305-322, 2005.

VERSOLATO, M. Novo laser dos EUA promete destruir os “furinhos” da celulite. *Folha.com*. São Paulo, 17 de Maio de 2012. Disponível em: [HTTP://www1.folha.uol.com.br/equilibrioesaude/1091686-novo-laser-dos-eua-promete-destruir-os-furinhos-da-celulite.shtml]. Acesso em: 13 jan. 2016.

Translated by Eloisa de Aquino – eloaquino@gmail.com

Received June 15, 2015

Accepted March 10, 2016