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## PRESENTATION

The second issue of volume 60 fully expresses Alfa's quality of broadly representing the current trends in linguistics research. This coverage is manifested by the diversity of study objects, levels of linguistic analysis, and theoretical models, as discussed below. Another aspect deserves to be highlighted as a mark of the set of works presented here: their theoretically dialogical character. Nothing more up-to-date than dialogue, nothing more current than interfacing, or interdisciplinarity.

Such dialogue is the basis of Rosário and Oliveira's paper, the one opening this issue. The authors draw up a critical assessment of the development of functionalist studies until they reach a point of dialogue with cognitive studies, and the subsequent construction of a holistic approach to grammatical phenomena based on the interrelationship between Functionalism and Cognitivism. Taking the conjunction of the two theoretical perspectives, they discuss the concepts of *construction*, *constructionalization* and *linguistic change*, demarcating their relationship and their differences with classical concepts as *grammaticalization* and *lexicalization*. Their analysis, however, is not limited to an assessment of what has been done; it also brings the application of the theory in a case study - the analysis of Locative Verb constructions in Portuguese according to the constructional approach. With this, the authors provide a presentation and a defense of the theoretical model called 'Centered-in-use' Functional Linguistics or Cognitive-Functional Linguistics.

The following two papers also share the functionalist approach, but associate this perspective with different theoretical counterparts. Zunino, Abusamra and Raiter's paper focuses on the issue of causality, investigating the construction of this meaning in two-clause sequences in Spanish. The study articulates functionalist and psycholinguistic perspectives, experimentally evaluating the role of two types of knowledge - prior knowledge about the world and linguistic knowledge (semantic) - for understanding causal relationships. "Everyday" linguistic stimuli - associated with world knowledge - and "technical" linguistic stimuli - unlinked to this kind of knowledge are interpreted by native speakers of the variety under study. The results allowed reconsidering the role of principles such as *iconicity* in processing the causal meaning of two-clause sequences.

Lopes-Damasio study also starts from a functionalist approach and also focuses on a phenomenon at the level of clause junction - juxtaposed paratactic constructions. This study, however, departs from the previous one in its issues and strategies of analysis and in the theoretical approaches with which it establishes dialogue. The author analyzes data from a text corpus produced by trainees of initial series. In order to characterize

adequately the relationship between the construction components, she proposes a necessary association between, on one hand, prosodic, morphosyntactic and semantic aspects of the constructions and, on the other hand, the discursive context in which they are located. The results of this analysis are interpreted both from the perspective of Discursive Traditions model and as depending on the specific conditions of the writing acquisition process.

From the analysis at the level of clause junction and from the construction of meaning in association with the discursive context, we move to the level of the noun phrase. Foltran and Nóbrega look into the behavior of intensifier adjectives in Brazilian Portuguese, to provide them a morphosyntactic, syntactic and semantic characterization. Condensing the vast existing literature on the subject of intensification, the authors arrive at a typology of intensifier elements, from which they pick out, as an object of study, the innovative intensifier adjectives (as *tremendo*), denominal (as *senhor*) and those acquired as loanwords (such as *mega* and *big*). In addition to offering a detailed description of the structural properties of the intensifiers, their study brought elements to propose a revision of the morphological status of intensifiers acquired through loan, traditionally treated as prefixes: in the light of new data, the authors defend their adjectival nature.

The fifth article explores a topic still poorly investigated, which mobilizes the morphology and phonology interface: the status of theme vowels in Portuguese noun class. Matzenauer and Bisol propose to define and characterize these elements, taking into account their possible role in the derivational process in Brazilian Portuguese; accordingly, their analysis argues and demonstrates that theme vowels are part of the language lexical entries and that the suffixes combine with such forms, in a process called “stem-based derivation”. As part of the undertaken characterization, the authors distinguish between legitimate theme vowels (*a* and *o*) and the vowel *e* that, in most cases, takes up the theme vowel position but has, in fact, the epenthetic vowel status .

Under the perspective of discursive semiotics, Barros analyzes an extensive corpus of different autobiographical genres (literary autobiography prose, autobiographical poems, academic memorials). The author looks into the way two discursive organizations of memory - the *past-event memory* and the *event memory* - manifest and articulate in these texts. This analysis highlights the relationship that is established between enunciator and enunciatee, the contract signed in this interlocution through the ‘truth’ built in the text and proposed to the reader that it designs.

This issue ends with two papers that address language topics as a starting point for the investigation of issues in other areas. Nóbrega, Souza and Azevedo’s paper is located in the field of Applied Linguistics, in its contemporary perspective, focused more on social aspects linked to the educational process than in structural aspects of the teaching-learning situation. Based on this intrinsically interdisciplinary approach, the authors propose to investigate the social construction of knowledge through the analysis of students’ personal experience reports in the context of English language

classroom. One of the main questions of the study is the language role in the learning and knowledge construction processes. In this scenario, language is understood from the conjunction of two theoretical models perspectives - the sociocultural theory and the Systemic-Functional Linguistics.

Finally, closing this issue, the reader will find Bailer and Tomitch's paper. The authors bring a comprehensive review of the literature on behavioral and neuroimaging studies on multitasking involving language. The theme is very contemporary and, as shown by the authors, involves the articulation of knowledge of several areas related to cognition: from experimental psychology or neuropsychology, which seek to measure the effect of multitasking situations on the functioning of the brain and perception skills, to education, to the extent that such studies allow us to understand the relationship of multitasking practices with learning processes.

As I sought to reveal, this issue is comprehensive in thematic scope and analysis approaches: word, sentence and text grammar; formalist and functionalist approaches; semantics and discourse from different perspectives; the enunciation as a space of signification and of the social construction of knowledge; language and cognition, all these aspects are covered in these pages. "Tailoring" the differences is, as I said at the beginning, the work on the interface, be it constitutive of the adopted theoretical model, be it something sought out of it, in the articulation with different perspectives.

As in any situation of dialogue, in theoretical and methodological dialogues, a (pre) dominance of one or another 'participant' might occur. What is undeniable is that the result is transformative for all; the articulation of concepts and the negotiation of assumptions lead to a new proposal. The balance is a greater and better understanding of the functioning of the faculty of language and of individual languages, our main goal. As the new editor of *Alfa* from this issue on, I hope that is the balance resulting from the reading of the studies presented here. And that these studies motivate future new dialogues.

Rosane de Andrade Berlinck  
Editor





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***ORIGINAL ARTICLES***



# FUNCTIONALISM AND CONSTRUCTION GRAMMAR APPROACH

Ivo da Costa do ROSÁRIO\*  
Mariangela Rios de OLIVEIRA\*\*

- **ABSTRACT:** This paper presents, discusses and exemplifies the direction of the functionalist research in its most recent orientation, in its dialogue with cognitive studies. As a result of this interrelation, we highlight the constructional approach to grammar, emphasizing the function x form pairing, which marks the linguistic expressions. Besides pointing out the theoretical and methodological gains that such dialogue has brought to Functionalism, this article also refers to the specificities of both theoretical approaches and to necessary adjustments to enable researches in this interface. The treatment of grammar in a holistic perspective and the strictness in detecting properties of meaning and structures, which mark linguistic usages, are considered positive and promising biases of functionalist research in a constructional approach.
- **KEYWORDS:** Functionalism. Constructionalization. Constructional change. Cognitivism.

## Introduction

In recent years, the interface Functionalism x Cognitivism has called the attention of an increasing number of researchers. The dialogue between these approaches of linguistic investigation has produced a useful theoretical body and allowed for a great amount of robust empirical analysis with an increasing level of depth.

In four sections, this paper presents the current state of this issue, based on data from the Portuguese language. In the first section, entitled *Functionalism and Cognitivism*, we have outlined the classical and contemporary versions of functionalism in the North-American trend, with special attention to the phenomenon of linguistic change. It is possible to ascertain how the functionalist studies have departed from atomic paths: from the lexicon to the grammar or from the least grammatical to the most grammatical. Over time, the studies of the lexical or grammatical item progressively incorporated other contextual elements. At this point, we highlight the contributions

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of Heine (2002) and Diewald (2002, 2006). After these contributions, the nowadays called Usage-based Functional Linguistics or Cognitive-functional Linguistics began to take shape, borrowing terms, concepts and ideas from cognitive studies.

Still in section 1, we discuss a few bases of Cognitivism and the founding concept of grammatical construction (cf. GOLDBERG, 1995, 2006; CROFT, 2001). From these theoretical contributions, it is possible to postulate that the language structure is forged both in historical and routine experience, and it is derived from the cognitive processes of general domain. Therefore, the adopted view of language is no longer centered on empirically proven tokens, i.e., on the linguistic material itself, but on instances of greater abstraction.

Section 2 is dedicated to the discussion of the constructionalization processes and linguistic change. In this section, we make appropriate associations of these processes of change with the most classical mechanisms of grammaticalization and lexicalization. Both grammatical constructionalization and lexical constructionalization focus on a theoretical framework that considers mainly three analytical factors: schematicity, productivity and compositionality.

Still in section 2, we propose a constructional hierarchy based on the latest studies on the processes of linguistic change. It is a tripartite proposal, which considers the existence of schemas, subschemas and micro-constructions, which are materialized in the so-called constructs.

Section 3 presents a case study about the connective construction LocV, formed by locative plus verb, which is analyzed according to the already mentioned theoretical framework in order to present a concrete applicability of the constructional approach. After this stage, some final considerations will be pointed out.

## **Functionalism and cognitivism**

In this section, our focus is the correspondence between these two theoretical approaches that form the basis for the treatment of grammar proposed here, with an emphasis on grammaticalization - the functional point-of-view, in the North-American trend, according to Traugott (2008b), Bybee (2010), Givón (1979, 1995), among others, and the cognitive one, as proposed by Croft (2001), Goldberg (1995, 2006), Fillmore (1968), among others. We will thus highlight the most relevant aspects of each of these perspectives, pointing out the similarities that enable us to establish a partnership between both approaches, from the perspective of grammatical change.

## **The classical and contemporary functionalist versions**

In its initial stage, functional studies were more specifically geared toward categorial change at the grammar level. This stage back to the concept of grammaticalization

as a path from lexical to grammatical categories, as found in Meillet (1958), or from least to most grammatical categories, according to Kurylowicz (1965). The research of isolated items is prominent and the focus on functional aspects or on specific trajectory of items is remarkable. During this first period, mainly starting from the decades 60 and 70 of the 20th century, functionalism has been dedicated to the investigation of the correlation *function > form*, in the linguistic usage, in the defense or in the reinstating of the iconic marks of this use. Of special importance in the set of functionalist research at this time are the studies on grammaticalization dedicated to the detection of historical trajectories of categories in a more atomic perspective, specifically concerned with characterizing properties of form or meaning of the aforementioned categories. In the change by grammaticalization, the focus lies on the survey for reducing marks, in functional terms, like the phenomena of abstraction and polysemy which characterize the category derivation, or be it in formal terms, in the research of erosion, the loss of structure resulting from normal usage.

In those early decades, although reference is made to the importance of contextual aspects in the change by grammaticalization, such mention do not add more strictness or discretion to the analysis since they do not define and specify the properties of the context in which a particular item is used and its role in relation to aspects of meaning and form. More general and less accurate references are found, for example, in DeLancey (1993), for whom the starting point of the linguistic change lies in a certain *productive construction*, and in Bybee (2003), in which the grammaticalization is assumed to be the creation of new constructions.

Thus, the interest of functionalist research focused on grammaticalization in the aforementioned period is more specifically geared to issues related to the functional marks of specific items or, on the other hand, to its formal traits. As Traugott (2015) points out, although the correlation *function > form* has been referred to as the basic design of the functionalist studies, initial research tends to one of the two trends, which, in a sense, conceptually drifts away from that basic assumption. Examples of the prevalence of one of the trends would be the studies of Lehmann (1985), about the trajectory of the relational names into affixes, in the emphasis on the structural dimension, or the investigations of Bybee, Perkins and Pagliuca (1994), about the derivation *ability > epistemic possibility*, at the meaning level.

In view of such framework, and taking into account the current state of the North-American functionalist researches, we refer to this phase as the *classic version* of Functionalism. This is a key moment in the path of these studies, in which, in view of the highly prestigious generative theory current at the time, formalist and innatist, present themselves, contrastively or complementarily, as a model of analysis which reinstates and gives another dimension to the importance of the linguistic usage, relating it to iconic properties and highlighting interactive strategies as grammar motivators.

Currently, this classic version, whose focus lies on a more reductionist investigation perspective and which produced and has produced fundamental descriptions and analysis for the linguistic research, was complemented and enriched with the expansion of the research object. In contemporary times, the American trend of Functionalism expands its spectrum of observation and incorporates, more effectively, the contextual dimension. In this sense, the holistic and contingent approach of linguistic usage stands out, and it considers that items do not occur nor produce meaning in isolation, and it is necessary to observe contextual relationships. Such reorientation conceives linguistic structure as derived from general cognitive processes, according to Bybee (2010). Linguistic usage, in this context, is understood as a product of experience, of routinization and perspective in language and by language, among other motivations. Factors of cognitive nature had already been on the North-American classic functionalist agenda, such as factors related to iconicity and markedness under Givón's terms (1995, 1979). However, the refinement of these factors gained importance in the 21st century, with the explanation of contextual properties and their relationship with cognitive processes, with the understanding that cognition, derived from interactive pressures and socio-historical experience, manifests itself in context.

Such an approach, which is the result of a realignment of the linguistic research objects, has also consequences in the design of grammaticalization, as it happens to incorporate the contextual, cognitive and pragmatic dimensions more explicitly in their most recent definitions. In accordance with Traugott and Trousdale (2013), we assume a broader conception of context, which incorporates the linguistic surroundings, including syntax, morphology, phonology, semantics, pragmatic inference, modality (written/spoken), and that also takes into account broader properties, such as sociolinguistic properties (profile of interlocutors, time and space of interaction) and discourse properties (typological sequence, discourse genre).

Thus, we find in Traugott (2012) the grammatical change considered as the theory of the relationships between pairs of form/meaning and its probable directionality over time. As it can be observed, this is a broad design, which explicitly includes the contextual dimension, allowing the insertion of both grammaticalization and lexicalization in this general spectrum. According to such perspective, linguistic change can be handled both at the level of procedural change, which leads to categorial migration, on the grammaticalization axis, and at the level of change restricted to content, without migration to more closed classes, in the lexicalization axis. The current stage of the functionalist research following this orientation has therefore been named as *Usage-based Linguistics* or *Cognitive-Functional Linguistics*, as seen in Bybee (2010), Traugott and Trousdale (2013) or, in Brazil, in Martelotta (2011), Oliveira e Cezario (2012), Oliveira e Rosário (2015), Teixeira (2015), Aguiar (2015) and Arena (2015), among others.

Another reflection of the holistic consideration of the linguistic usage that marks the contemporary version of Functionalism lies in the treatment of the binomial



function x form. If, in the early decades, the analysis focused in either one or another of these axes, as mentioned here, the current trend is a more integrated treatment of both, from the assumption that functional and formal properties mutually involve one another. So, instead of the primacy of the first axis, as the exclusive motivator of linguistic use, marked by (uni) directionality *function > form*, what we have today is the correlation of functional and formal aspects in the origin and establishment of linguistic categories, translated as the directionality *function < > form*. Therefore, the dimension of form is enlarged, in a procedure that balances both axes - meaning and structure. We understand that treating such dimensions with equal measure means not only assuming them as having equal importance but also, and primarily, giving functionalist research greater strictness and control in its criteria and procedures. The assumption that formal and functional aspects are correlated leads to the need of explanation and description of those aspects, which has been the focus of contemporary Functionalism.

In the wake of this trend, functionalist researches have focused on the treatment of the contextual dimension of linguistic usage, considering the processes of change, as pointed out by Traugott and Trousdale (2013) and Traugott (2012, 2015), among others. These authors assume that pragmatic and polysemy ambiguity, which are considered fundamental for the generation of the early stages of change, should be investigated precisely from the analysis of contextual dimension; at sentence level, they should be investigated in the analysis of properties of the linguistic surroundings or in broader terms, in the investigation of sociolinguistic or discourse aspects, depending on the type and nature of the research object.

Based on this design, Diewald (2002, 2006) proposes a contextual taxonomy that includes from the original or preliminary stages to those already considered as the environments in which the change is more fully fixed and established. Diewald's proposition (2002, 2006) has close correspondence with Heine's (2002), holding that, between the original usages and the usages conventionalized via grammatical change, there are ambiguous and diffuse contexts, which are responsible for the trajectory towards the establishment and systematization of a new usage, as we illustrate in the case study section of this paper.

Next, we present Traugott's table (2012), which synthesizes the two proposals for referred contextual derivation:

**Table 1** – Comparison of contextual taxonomy of Heine (2002) and Diewald (2002, 2006), based on the version of Traugott (2012, p. 9)

Heine	Diewald
Stage 1: <i>normal</i> use	Stage 0: <i>normal</i> use
Stage 2: <i>bridge</i> context (pragmatic, semantic)	Stage 1: <i>atypical</i> context
	Stage 2: <i>critical</i> context (multiple opacity: pragmatics, semantics and structural)
Stage 3: <i>switch</i> context (grammaticalization)	Stage 3: <i>isolated</i> context (grammaticalization: reorganization and differentiation)
Stage 4: conventionalization	

**Source:** Traugott (2012, p. 9).

As we can observe in Table 1, Heine (2002) and Diewald (2002, 2006) understand context as *cline*. *Normal* contextual environments related to conventionalized modes of expression in the linguistic community become ambiguous and are re-interpreted for reasons of pragmatic-discursive order, such as *bridges* (Heine) or *atypical* (Diewald). In sequence, in addition to the polysemy or semantic-pragmatic reinterpretation, neo-analyses occur<sup>1</sup> at structure level, in the most advanced stage toward grammatical change, configuring *switch* (Heine) or *critical* (Diewald) phase. Finally, authors name the stage considered as the establishment of the new use *conventionalized* (Heine) or *isolated* (Diewald).

The approach of linguistic change as contextual expansion, in more linguistic terms, can still be detected in studies of Himmelmann (2004), with emphasis on the syntactic environment in which a particular item occurs. According to the author, grammaticalization is basically a process of expansion of context in three levels. Level a) change of the host class, with the paradigmatic expansion of members of a given category, due to the entry of new member in the class. Level b) change of syntactic context, involving the process of metonymy, with rearrangement in the order of internal constituents and consequent formation of a new regular syntax of expression. Level c) change of semantic-pragmatic context, considered by Himmelmann (2004) as the most important one, since it involves fading of meaning, with re-semanticization and anaforic associative use.

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<sup>1</sup> According to Traugott and Trousdale (2013, p.36), inspired by Andersen (2001), in this article we use *neo-analysis* instead of *re-analysis*, based on the understanding that it is not possible to analyze a newly built structure one more time as it still did not have any previous analysis so far. Thus, all language change is, in fact, an inaugural and new interpretation.

As seen before, the importance of contextual and cognitive dimension widens in studies on grammaticalization and it leads, in parallel and consequently, to the approach to linguistic change as expansion. In this reorientation, to the classic focus of research, characterized by reduction, we add another, a more holistic and expanded one, which incorporates the first, which has allowed the more extensive study of the objects under analysis.

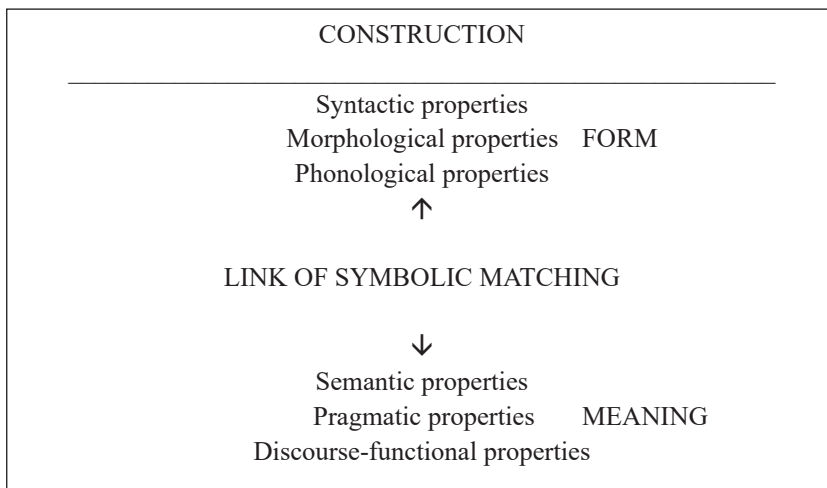
## **Cognitivism and grammatical construction**

From the group of cognitive research, distributed among diverse trends, contemporary functionalist studies focus, specifically, on the ones targeted to the description and analysis of grammatical constructions. In this sense, contributions of Croft (2001), Croft and Cruse (2004), Goldberg (1995, 2006) and Langacker (2008) gain importance, in addition to studies of Fillmore (1968) about the semantics of *frames*, among others. Based on the consideration that language structure is forged both in historical and routine experience, and that it is derived from the cognitive processes of general domain, Cognitivism begins to investigate the effective uses in their context of production as well, thus moving closer to the Functionalism.

A fundamental point in this theoretical framework is the concept of *grammatical construction*, defined by Goldberg (1995, 2006) as a conventionalized pairing of meaning and form, as a symbolic schema from which all components of grammar are instantiated. Constructional meaning is understood as greater or distinct in relation to the sum of the meaning of its components; on the other hand, each of the referred components contribute to the establishment of the general meaning. In this model, the focus does not lie on specific items, but on the instantiation of schemas, in the relationship between subparts and their level of entrenchment. Thus, this is about the relevant approximation with the approach of grammatical change by expansion, as referred to in section *Functionalism and Cognitivism*, about the contemporary Functionalism.

Having said that, we assume construction as a basic and founding grammatical unit. Language, therefore, is defined as a set of specific and hierarchical constructions that, when interconnected, compose a wide network, in which phonological, morphosyntactic, semantic and pragmatic properties are integrated. A schematic version of this semantic-syntactic traits match is found in Croft's model (2001, p.18), presented in table 2:

**Table 2** – Symbolic structure model of radical construction



**Source:** Croft (2001, p.18).

According to table 2, construction is defined as a bundle of properties correlated in two central axes – form and meaning. In this analytical model, there is no precedence of any axis, since the focus lies in the link of symbolic matching itself which marks them. The merit of Croft’s model (2001) also lies in allowing greater strictness to the research in this field, since it presupposes the detection of the six properties listed for the interpretative description of the constructions, which are integrated in the network of conventionalized units, generically called *constructicon*<sup>2</sup>.

When summarizing the liable dimensions of approaching for the constructions, Traugott and Trousdale (2013, p.13) point to three broader and gradient perspectives: size, phonological specificity and conceptualization. In table 3 below, using examples of Portuguese, we illustrate these dimensions, adapted from the authors aforementioned:

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<sup>2</sup> Structured, hierarchical and interconnected set of constructions in a given language.

**Table 3** – Dimensions of the constructions

Size	Atomic <i>café, -s (pl)</i> [coffee]	Complex <i>sei lá, por isso</i> [I don't know, because of that]	Intermediate <i>pós-graduação</i> [post-graduation]
Specificity	Substantive <i>café, -eiro</i> [of coffee]	Schematic <i>SV [VP], Sprep [PP]</i>	Intermediate <i>Adj - mente</i> [Adj - suffix forming adverb of manner -ly]
Concept	Contentful <i>café, N</i> [coffee]	Procedural <i>-s (pl), por isso</i> [because of that]	Intermediate poder (verbo modal) [can - modal verb]

**Source:** Author's elaboration. Adapted from Traugott e Trousdale (2013, p.13) for portuguese.

Starting from Table 3, three parameters stand out, based on which constructions of a given language are classified; in each of these parameters - two more dedicated to form and a third one to meaning - apart from the extreme points, we find the intermediate level, highlighting the gradience and the prototypicality of the *construction*. The first of the parameters concerns the dimension of the construction, which classifies it as atomic (monomorphic, such as an ending or simple word, devoid of thematic vowel or another grammatical constituent) and complex (phrase or compound word), also making provision for an intermediate group, such as derived by pre-fixation. The second dimension is concerned to the phonological specificity of the construction, in such a way that more specificity of filling corresponds to minor virtual schematicity. Based on this parameter, the constructions are distributed as more substantive or idiomatic, such as fixed phrases and lexical terms, or as more schematic and virtual, like VP and PP, also admitting the intermediate group, as in the Portuguese schema *adj-mente*. [the adjective + *mente* =adverb of manner] The third dimension, related to the axis of meaning, considers the conveyed concept type, which can be more lexical, such as names and verbs, or, on the other hand, more procedural, such as grammatical categories, like endings or connectors, also taking into account, according to the other parameters, intermediate points, as, for example, the meaning of modalization or evidentiality.

The dimensional triad illustrated in table 3, presented in a *cline* form, demonstrates how contemporary functionalist researches, referred to in the previous sub-section, can be interrelated to the constructional grammar approach. The proposal of correlation of two formal dimensions (size and phonological specificity) and a semantic dimension (conceptualization) highlights the greatest connection *function < > form*, assumed in this paper as the current trend of the usage-based functionalist studies.

Thus, we understand the unfolding of the Functionalism x Cognitivism interface as: a) lexical and grammar classes share traits and are disposed in trajectory; b) the (uni) directionality of the classic *functional cycle* (GIVÓN, 1995) is taken only as directionality, assuming the constructional connection in network and its intersections; c) linguistic usage starts to be understood in its double face – as instantiation of constructions, the empirically proven token, and also as the environment in which new constructional changes originate, motivated by factors of communicative-pragmatic and cognitive order, in addition to the structural factors.

### **Constructionalization and linguistic change**

Over time, linguistic change has been receiving various treatments depending on the theoretical affiliation of the researchers dedicated to this object of study. Since Classical Antiquity, various theories have been postulated for the explanation of this natural phenomenon that affects all the living languages of the world.

In the American Functionalist approach, the classical processes of grammaticalization and lexicalization have long aroused the attention of researchers and, without a doubt, they are still vital to the research in this line of theoretical investigation. It must be pointed out, though, that both have a closer focus on the development of particular items of a language. In the constructional grammar approach, on the other hand, the focus is on both atomic and complex constructs. Furthermore, there is special interest in more abstract linguistic organization schemas.

With respect to the process of grammaticalization, according to what was exposed in the previous section, authors generally oscillate between a perspective of reduction and expansion. For some, grammaticalization entails losses such as phonetic erosion or coalescence; for others, this process is profitable, as it brings pragmatic and semantic expansions.

Although they seem to be in antagonistic positions, these approaches are complementary. The truth is that many aspects of the so-called grammaticalization by expansion occur due to factors of grammaticalization by reduction. For example, phonetic erosion (reduction), when it occurs, normally brings semantic-pragmatic gains (expansion).

The approaches of grammaticalization by expansion can be associated with the process of grammatical constructionalization, defined as the development of procedural functions and the consequent increase in productivity. They focus especially on the frequency and degree of abstraction of grammatical items. The approaches of grammaticalization by reduction, in turn, can be associated with the grammatical constructionalization with reduction in compositionality and focus on an item internally or on a group of items.

The constructional grammar approach is a usage-based theory. Thus, the processes of language change always emerge from the interaction of speakers, who negotiate new meanings in the course of interaction. According to Traugott and Trousdale (2013, p.1), in this approach, language can be considered as a network of pairs of form and meaning. That network, because of its very nature, presents various degrees of instability, which lead to the process of linguistic change. From this vision, it is possible to postulate the existence of two major processes: constructionalization and constructional changes.

These processes can be considered an attempt to reinterpret the phenomena of grammaticalization and lexicalization starting from a constructional perspective. On the other hand, they are not merely different labels for the same phenomena. In the construction grammar approach, a point worth mentioning is how the mind conceptualizes or constructs the experience of the speaker in the world. Due to this fact, the degrees of specificity/schematicity, productivity and compositionality, which run through the issue of (inter)subjectivity, are fundamental factors in the linguistic analysis.

### **Constructionalization e constructional changes**

According to Bergs e Diewald (2008, p.5), the process of constructionalization can be defined as “the formation of new units (constructions) based on independent materials until that moment”. In other words, it is about the creation of a pairing of new form and new meaning. This process normally happens by means of neo-analyses and analogies in the pragmatic field, going through the semantic field and, finally, through the formal field.

Departing from the pragmatic level, constructionalization starts from the negotiation of suggested inferences that, over time, become conventionalized at the level of schema (or macro-construction). This process is similar to the so-called pragmatic-semantic expansion described by Himmelmann (2004). With this process of change at pragmatic level, one leaves room to the possibility of change at other levels of grammar, such as the phonological and morphosyntactic levels.

The constructionalization can be grammatical or lexical. The *grammatical constructionalization* consists in the development of a series of changes in micro-steps in the pair form and meaning, of a more procedural characteristic. The *lexical constructionalization*, in turn, is associated with the development of new signs of form and meaning in which the meaning pole is primarily associated with a more concrete semantics and the form pole is associated with the categories of noun, verb and adjective.

*Constructional changes*, in turn, are defined as alterations that affect already existing construction traits or characteristics. They can occur either at the level of form or meaning. Such changes occur from linguistic use, and they not always lead to the emergence of new constructions.

Constructional changes may occur both before and after the process of constructionalization. The so-called *pre-constructionalization constructional changes* usually associate with semantic-pragmatic expansion and small distributional changes. The *post-constructionalization constructional changes*, in turn, typically involve collocational expansion and sometimes phonological and morphological reductions.

Departing from these postulates, Traugott e Trousdale (2013, p. 91-92) assert that linguistic change generally follows the steps below:

*1 - Innovation.*

- The hearer interprets and analyzes the construct differently from the way the speaker expressed it.
- The hearer reuses the construct with the new meaning.

*2 - Conventionalization.*

- Another hearer starts using the construct with a new meaning in specific niches.

*3 - Constructionalization*

- When the morphosyntactic and semantic neo-analysis is conventionalized in the population of speakers, a new micro-construction is created.

*4 - Post-constructionalization.*

- The new micro-construction can be expanded and reorganized into sub-schemas.

*5 - Reduction of form.*

- The frequent use of the token or obsolescence of the construction may lead to the decrease of use and even to zero.

In the next subsection, we discuss the factors commonly recruited for the analysis of the processes of constructionalization and constructional changes. As we are going to point out, many assumptions are retrieved from the classical studies of grammaticalization and lexicalization conducted so far.

## **Schematicity, productivity and compositionality**

In the context of the constructional perspective of language change, three factors stand out: schematicity, productivity and compositionality. These concepts have been used by Langacker (2005) and can be aligned in the following way: *schematicity* concerns the constructional scope (the degree of generality of the construction formal and functional properties); *productivity* with *constructional vitality* (how often new instances can be generated by a constructional schema), and *compositionality with*



*constructional alignment* (to what extent a constructional schema is or is not created in a predictable way from its component parts).

#### a) Schematicity

When we mention schematicity, it is fundamental to deepen the concept of schema a little bit, departing from the theoretical approach we have adopted. A schema can be defined as a taxonomic generalization that points to routinized experience standards. They are abstractions unconsciously perceived by speakers, since various language constructions are generated by them.

In the perspective that we postulate, the schematicity level must be considered in a continuum. Therefore, there are constructions which are quite schematic and abstract, as there are constructions which are little or reasonably schematic. Such gradience has to do with levels of generality or specificity of the construction. For example, the word *mosquito* is a more specific item, and therefore less general than *insect*. *Animal*, in turn, is more general and less specific than *insect*. In terms of grammatical relations, intransitive verbs are more specific than the vast category of *verbs*. *Adjectives* are more specific and less general than *nouns*.

According to Goldberg's point of view (2006, p. 98), the speakers are not aware of the language-specific items only. On the contrary, the schematic or generalized knowledge is also part of human cognition. The sentence *Eu comi um bolo* [I ate a cake], for example, is formed based on a more general and schematic level of the type *Subject V Obj*. It is from this abstract and general schema that speakers produce the previous sentence and all other sentences formed in Portuguese starting from a subject, a verb, and a direct object, as long as it maintains similarity with the semantics proposed by the schema.

The process of creating new constructs from a more general schema is called *sanction*. However, it should be noted that the sanction is not always total. In some cases, partial sanction is tolerated as a normal process of the language. This tolerance to non-conventionality is an important factor for linguistic change and for the creation of new schemas, as it works as a trigger for innovation.

Abstract constructions can allow constructs not yet attested in the language. Thus, we can postulate that the creativity of the speaker, in elaborating new instantiations in the communicative process, stems from his/her knowledge of language schemas. These new instantiations, in turn, can set up a process of language change over time, as long as they move forward from the level of innovation.

#### b) Productivity

Just like what happens with schematicity, productivity is also a gradient phenomenon. When mentioning productivity, we refer to the issue of frequency, which is a highly regarded factor since classical functionalism.

Traugott and Trousdale (2013, p.17) state that the productivity of a construction belongs to the level of the schemas and relates to its extensibility, namely, (i) the degree to which the schemas sanction other less schematic constructions; (ii) the degree to which such schemas are restricted.

In the constructional grammar approach, especially in the field of productivity, the research of Bybee (2003) proves to be quite useful. For example, the distinction between type frequency and token frequency is retrieved and respectively associated with the frequency of construction and the frequency of construct.

The item productivity is one of the major contributions of the studies in grammaticalization and lexicalization to the constructional grammar approach. After all, since the earliest studies in this field, researchers have been stressing the importance of frequency, which may be responsible for the routinization and crystallization of new language uses.

### c) Compositionality

The third factor, called compositionality, refers to the degree of transparency between form and meaning in terms of construction. In the constructional grammar approach, we can identify two distinct types: semantic compositionality and syntactic compositionality.

Semantic compositionality is related to the sum of the meaning of the parts. We assume that a construction is more compositional in semantic terms when the meaning of the parts is still retrieved in the meaning of the whole. Syntactic compositionality, in turn, relates to the level of morphosyntactic integrity of the subparts, in the sense that the more compositional, the more these subparts retain the grammatical properties of their source category.

Generally speaking, the phenomenon of linguistic change points to the reduction of compositionality, both syntactic and semantic. This means that, progressively, the direction of the parts becomes increasingly more opaque, as well as the morphosyntactic formation of the construction. In some cases, one cannot even predict the primary meanings that originated a new construction in the language. This is what we can see, for example, in sayings and proverbs and in cases of grammaticalization of connectors, such as *todavia* [however] and *embora* [although].

The analysis of these three factors enabled the usage-based linguistics to assume that the constructionalization process involves increase in productivity and schematicity, but a decrease in compositionality.

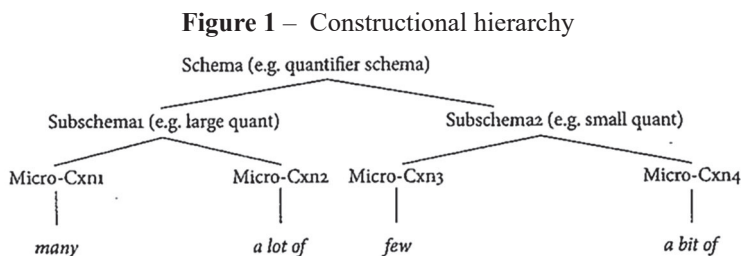
## **Constructional hierarchy: schema, subschema, and micro-construction**

Another relevant contribution of the constructional grammar approach is precisely the displacement from the analytical look over an item to the whole language

environment that surrounds it, as well as its schematic properties. In other words, when analyzing a particular instantiation, the effort of the researcher focuses on taking into consideration the most abstract and general levels that enable its genesis and development.

In the perspective we adopted, there is a theoretical postulate that organizes the constructions in a hierarchy consisting of three levels: schemas, subschemas and micro-constructions. Those three levels are explained from the degrees of generality and abstraction that define them.

Traugott and Trousdale (2013, p.17) illustrate this proposal, based on the quantifying construction of the English language:



**Source:** Traugott and Trousdale (2013, p.17)

As can be seen from Figure 1, in the example, the schema is represented by the class of quantifiers, regarded as the highest level of the constructional hierarchy. At an intermediate level, there are two possible subschemas: the quantifiers that represent a large amount and the the quantifiers that indicate small amounts. At an immediately lower level of the hierarchy, we detected the micro-constructions *many*, *a lot of*, *few* and *a bit of* that are materialized in speech through various possible constructs.

As Traugott and Trousdale (2013) demonstrate with Figure 1, any language speaker who has knowledge of a given set of micro-constructions naturally also has knowledge of subschemas and schemas that instantiate them, often unconsciously.

In the model we adopted, which is essentially usage-based, the constructs are the concrete instantiations of the language, i.e., what users actually produce. According to Bybee (2010, p.14), the construct helps to shape the mental representation of the language and is the locus of innovation. After all, speakers embody language through the constructs.

It is worth mentioning that the innovations at the level of the constructs match more abstract levels of constructions, enabling the emergence of new uses. The replication of these occurrences naturally leads to innovative formations in language, due to the need for greater expressiveness in language. These new formations can become real in the linguistic system or they can simply become obsolete or even disappear altogether.

## Case study – the connective construction LocV

In order to demonstrate the applicability of the constructional grammar approach, within the context of usage-based linguistics, we will present one of our research objects in this section.<sup>3</sup> We are referring to the textual connective construction formed by locative pronoun (Loc) and verb (V), hereafter referred to as LocVconec. The LocVconec is a kind of semantic-syntactic pairing highly integrated, in which the loss of compositionality, corresponding to the dissipation of properties of the categories of their subparts - Loc and V, is offset by a gain in schematicity, such as advocated in Oliveira e Rocha (2011) and Rocha (2011). Taking into consideration Table 3, presented in the subsection *Cognitivism and the Grammatical Construction*, we classify the LocVconec as a construction that is: a) complex, because it is formed by two subparts; b) schematic, because of the high conventionalization that composes it; (c) procedural, because of the grammatical content it brings about.

The data we present in this section belong to the website *Corpus do Português*, available at [www.corpusdoportugues.org](http://www.corpusdoportugues.org). We work with fragments of written European Portuguese (EP) and Brazilian Portuguese (BP), focusing on qualitative analysis and taking into consideration quantitative aspects, within a historical perspective<sup>4</sup>.

The class of the connectors is considered more advanced in the cline of linguistic change when compared to other classes of lexical type, such as nouns or verbs. We assume that this class is a channel for procedural and more abstract content, in the establishment of logical-textual relations and that results in constructional change or constructionalization. In this trajectory, more compositional formations will leave room, via neo-analyses and inferences, to the more schematic and abiding uses of the grammatical function. These uses have their selection and frequency motivated by pragmatic-discursive type factors, such as the following occurrences of contemporary Portuguese:

(1) Deve fazer umas quadrinhas novas... Porque não faz? - Fiz já. - Pode recitar? - Pois não. - Diga lá.; - **Lá vai**: Ai, Filomena, Se eu fosse como tu, Punha uma máscara Na cara do Dudu. (19:Fic:Br:Barreto:Urbana)

[“You should make some new rhymes ... Why don’t you?” “I’ve already made them”. “Can you recite?” “Yes, I can”. “Tell us”. “**There you go**: Oh, Filomena, if I were like you I would put a mask on Dudu”.] (19:Fic:Br:Barreto:Urbana)

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<sup>3</sup> The data presented here are part of an integrated study, supported by CNPq and Faperj, developed under the Speech & Grammar Study Group UFF, as described on the website <http://discursoegramaticauff.blogspot.com.br/>

<sup>4</sup> The LocVconec is the subject of the doctoral thesis of Rossana Alves Rocha, a study currently developed in the Post-graduate program in Language Studies at UFF. The data presented here were analyzed in the qualifying examination of her thesis, approved in 2014.

(2) Conheci, mais e de súbito, que essas confissões de autores são coisa perigosa: se se diz pouco, parece simplicidade afetada e insincera; se se diz um tanto mais, parece fatuidade e pedanteria. Quis fugir à resposta; mas estava preso pela promessa. Palavra de tabaréu não torna atrás... **Aí vai**, pois. Em mim o caso literário é complicadíssimo e anda tão misturado com situações críticas, filosóficas, científicas e até religiosas, que nunca o pude delas separar, nem mesmo agora para lhe responder. (19: Fic: Br: Rio: Time).

[I suddenly understood more clearly that these authors' confessions are dangerous; if you say little, it sounds like unnatural and insincere simplicity; if you say a little more, it sounds like vanity and pedantry. I wanted to evade the answer; but I was bound by the promise. Naïve people cannot go back on their word ... **Here it is**, then. For me, the literary case is complicated indeed and it is so entangled with critical, philosophical, scientific and even religious situations, that I could never separate it from them, I cannot even do it now in order to answer your question.] (19: Fic: Br: Rio: Time).

In (1) and (2), the constructs *lá vai e aí vai* [there you go and here it is] instantiate *LocVconec*. Those are highly entrenched uses, in which the traces of the original categories of their subparts wane, in order to form a semantic-syntactic whole, which acts in the articulation of ampler textual portions, connecting them. Less schematic and more compositional, such formations come to integrate another category of language, the category of the connectors, in marginal or less prototypical position.

Because of its productivity and older record in the corpus analyzed, we assume that **aí está [that is it]** is the model micro-construction of *LocVconec*, in Bybee's terms (2010). This is the most recurrent type in contemporary usage of Portuguese and it can serve as an analog basis for new instantiations of *LocVconec*. We are referring to usage such as:

(3) O melhor era fazer como todos os homens, até casados, até recém-casados. O melhor era fazer como o pai. **Aí está**. Joaquim por mais que expulsasse a lembrança amarga daquela noite da Rua das Flores era constantemente perseguido por ela. Daí a timidez de suas primeiras aventuras, nome com que ele dourava a sentida sordidez dos coitos pagos à vista. Uma aventura, uma conquista. Parecia um criminoso. Escolhia horas adiantadas da noite, se exasperava quando custavam para abrir a porta e ele ficava sujeito às olhadas dos transeuntes, exigia um quarto bem trancado, tapava o buraco da fechadura. Inutilmente procurava se confortar. (19: Fic: Br: Castillo: Maria).

[The best thing to do was to do it like all other men, even the married ones, even newlyweds. The best thing to do was to do it like the father. **That is it**. Joaquim, no matter how he expelled the bitter memory of that night on Rua das Flores, was constantly haunted by it. Hence the timidity of his first adventures, name with which he disguised the perceived sordidness of the sexual act paid in cash. An adventure, a conquest. He felt like a criminal. He would choose the late hours at night, and became exasperated when they were slow to open the door, making him subject to the looks of passers-by, he would demand a well locked room and covered the keyhole. He sought comfort, to no avail.] (19: Fic: Br: Castillo: Maria).

Dissertation-type sequences, as shown in (3), are privileged contexts for the articulation of LocVconec. These are fragments marked by (inter) subjectivity and by shared inferences, as Traugott and Dasher (2005) endorse. We assume here that these contextual environments motivate instantiations of LocVconec, because such schema articulates logical-textual relations that compete for exposure and defense of point of view. This is what happens in (3), in which the *construct **ai está [that is it]***, bordered by larger pause and connecting two textual portions, acts on behalf of what the speaker seeks to defend, namely, the shy and unconventional behavior of the character Joaquim.

In the texts of contemporary Portuguese surveyed<sup>5</sup>, in accordance to Diewald (2006 2002), we found 59 isolated contexts of instantiation LocVconec. From this group, 27 belong to the micro-construction ***ai está [That is it]***, as shown in (3), which totalize half of the general data.

In addition to the higher productivity of ***Ai está*** in contemporary sources, corresponding to the 20th century, the exemplarity of this micro-construction also manifests itself in the records of its instantiation in the oldest synchronies of the language. We argue that the *cline* of constructionalization of ***Ai está*** has been registered from at least the 15th century, in which we detected its normal context (DIEWALD, 2002), in which Loc and V preserve its source category traits, such as the following:

(4) Capitulo XVIIIº como o comde pos primeiramente as atalaias & em que lugares, & como os mouros vieram, & da escaramuça que hii ouve. Amtre as cousas que o comde ordenou pera guarda da çidade assy foram as atalaias, as quaes foram postas logo primeiramente sobre Barbaçote, **em hũ outeiro que hii está** & no dia seguynte que hordenarão mamdou o comde hũ de cavallo que fosse por hos homês ã ellas, o qual, amdando çercamdo a çidade pera descobrir allgũs mouros, se hos hii avia, sayram a elle hũa soma delles que jaziam escomididos & começarão de ho seguyr. (Crónica do Conde D. Pedro de Meneses, 1400-1500).

[Chapter 18 – How the Count put the sentinels first, in which places, how the moors came and the battle that followed. Among the things the Count commanded for the city guards there went the sentinels, who were first deployed over the fort, on **another hill that here lies**. In the following day, the Count ordered the men to go on horseback and the sentinels to walk and besiege the city in order to find some moors, if there were any and one of them who was hiding came out, and they began to follow him.] (Crónica do Conde D. Pedro de Meneses, 1400-1500).

In fragment (4), extracted from of a narrative based text, **hii está [here lies]** makes anaphoric reference to a place (“outeiro” - a hill) which in effect is located at a specific place. This way, **hii está** is configured as a lexical arrangement, which collaborates for the spacial *frame* and the contextualization of the narrative scene. Each subpart of

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<sup>5</sup> As shown later in this section in Table 1, we highlight the 59 data referred to among the 565 general data of use of contiguous Loc and V.

**hii está** maintains its semantic-syntactic integrity, highlighting greater compositionality and the diminutive schematicity of this arrangement.

In the sources of the 16th century, the exclusiveness of normal contexts in the instantiations of Loc and V are preserved. Until that century, we only find Loc and V used effectively as adverb and verb, respectively. We argue that the later constructionalization, which is derived from LocVconec has its origin in the pre-verbal ordering of Loc, considered recurrent in the ancient stage of the language. As Martelotta (2012) demonstrates, older synchronies of Portuguese display greater positional variability of the adverb in relation to the verb. This variability, in more recent stages, mainly starting from the 19th century tends to decrease in favor of a tendency to post-verbal ordering. In this sense, LocVconec is interpreted as having its origin in the ancient tendency of pre-verbal ordering of Loc.

In the 17th century, considering normal contexts such as (5), we found data which configure themselves as atypical contexts (DIEWALD, 2002), such as (6):

(5) Então o presidente disse em segredo para alguns dos seus oficiais: Chamai aqui logo a Filemon, porque ele, com suas graças e trejeitos e música dulcíssima, sem dúvida há-de amansar a este emperrado. Buscado Filemon onde não estava, como havia de aparecer? “Senhor (disseram os oficiais) não o pudemos achar”. Tinha ele um irmão chamado Teon, ou Teonas; a este perguntou o presidente: Que é feito de teu irmão? E ele, como sabia do disfarce, respondeu logo: É esse que **ai está** em tua presença. Foi logo descoberto e conhecido; e o presidente, entendendo que o fizera por via de entremês, para dar que rir a todos, desfechou a rir e disse: “Já sabemos que és nascido para (...)”(Manuel Bernardes, Nova Floresta, 1688).

[Then the president said to some of his officers, in secret: Haste to call Philemon here, because his gestures, grimaces and sweet music will definitely soothe this stubborn man. They looked for Philemon but he was nowhere to be found. “Sir”, (the officers said), we could not find him.” He had a brother called Teon or Teonas; the president asked the man: What happened to your brother? Knowing about the disguise, he quickly answered: **Here is** the man who is in your presence. This was soon revealed and known; and the president, understanding he had done it as a joke so as to make everybody laugh, began to laugh himself and said: “We already know you were born to (...)”(Manuel Bernardes, Nova Floresta, 1688).

(6) Bom amigo he o gatto, se nam arranhasse. C. Caõ de palheiro nem come, nem deixa comer. Comadres, & vizinhas, as reuezes ham farinhas. Como te fizer teu compadre, assi lhe faze. Companhia de dous, companhia de bons. Companhia de tres he mà res. Contas na maõ, & o olho ladram. Cuida o mentiroso, que tal he o outro. D. Dadiua roim a seu dono parece. **Debaixo de boa palaura, ahiestá o engano.** Debaixo de bom sayo, está o homem mao. De roim a roim, pouca he a melhoria. De roim a roim quem acomette, vence. (Adagios, Antonio Delicado, 1651).

[A cat would be a good friend, if it did not scratch. The dog in the manger will not eat the oats nor let anyone eat them. Friends and neighbors have the same problems. Do to people what you would like people to do to you. Two is company three is a crowd. We need to be careful

and watchful of thieves. A liar thinks others are lying too. Bad people give bad things to others. **Under beautiful words, here is the deceit.** Don't judge a book by its cover. There is no use in lamenting, the one who advances is the one who conquers] (Adagios, Antonio Delicado, 1651).

In direct speech, as in the fragment (5), *ai está* displays greater compositionality, with anaphoric reference of Loc to the sentence subject, the maintenance of the deictic character of Loc, in the nomination of the interlocutor, and the permanence of full content of V. Yet, in (6), the context is more abstract and subjective. As a component of an expository sequence of adages, *ahiestá* arises in (6) more internally linked and prepended to the non-prototypical subject *o engano [deceit]*. Such configuration collaborates so that the meaning of Loc and V can be more abstract, leading them to be interpreted as one structure only, in formal terms and in only one meaning, as it highlights certain evidential or demonstrative function. We consider contexts like (6) the effective initial stage of change that derives in constructionalization LocVconec.

In the 18th century, the picture of the previous century remains with records of normal and atypical contexts of Loc and V. Next, we present one of the fragments of the referred atypical use:

(7) De versu agitur à pag. 329. 13. \* Vertex, icis, || redemoinho de vento, ou de agoa: moleira da cabeça, cume de qualquer cousa, pólo do Ceo. 151. 2. \* Verto, is, || volver, virar, verter, mudar, revolver, \* Activ. Vertis id mihi vitio, || attribuis-me, imputais-me isso a vicio. \* In eo res vertimur, || **ahi está** o ponto da cousa, nisso consiste 194. 24. 233. \* fin. Veru, u, || espeto, ou zaguncho, \* dativ. & abl. Pl. Verubus. 125. 18. Vervex, ecis, || o carneiro castrado. 309. 3. \* Vesanus, a, um, || cousa louca, sem onse, furiosa: \* Vesania, ae, || falta de onse, ou loucura 304. \* fine. Vescor, eris, || comer, apascentar-se, sustentar-se: \* Apud Virg. Vesci aurâ, || viver 178. \* fin. 226. 6. 21. Vesper, (Manuel Alvares, Gramatica, 1744).

[(7) De versu agitur pag. 329. 13. \* Vertex, icis, || whirlwind, fontanelle, summit of something, pole. 151. 2. \* Verto, is, || turn, change, revolve, \* Activ. Vertis id mihi vitio, || attribute this to me\* In eo res vertimur, || **here is** the heart of the matter, this consists on 194. 24. 233. \* fin. Veru, u, || spit or spear, \* dativ. & abl. Pl. Verubus. 125. 18. Vervex, ecis, || castrated ram. 309. 3. \* Vesanus, a, um, || crazy thing, meaningless, furious: \* Vesania, ae, || meaninglessness, or insanity 304. \* fine. Vescor, eris, || to eat, to feed, to sustain oneself: \* Apud Virg. Vesci aurâ, || 178.viver \* fin. 226.6. 21. Vesper,] (Manuel Alvares, Gramatica, 1744).

In (7), a grammar compendium, in the absence of an explanation of a Latin term, we found **ahi está [here is]** preceded by the non-prototypical subject *o ponto da cousa. [the heart of the matter]*. This context is very similar to (6), in which, also in expository sequence, Loc and V are more paired, in terms of form and meaning, allowing a more integrated reading of both constituents.

Only in 19th century data could we find more related usage of Loc and V, including the most conventionalized ones with instantiations of LocVconec. We present the



four contexts of occurrence below, based on Diewald's taxonomy (2002, 2006) aforementioned.

(8) - Está enganado, Sr. Abade – veio-lhe à mão Clemente. – Fosse um criminoso que me pedisse de comer e de beber, quando passasse à minha porta, eu, com ser regedor, não lho recusaria. O que a minha casa não há-de ser, isso não, é esconderijo de ladrões, de malvados e de refractários; nem sei que grande glória venha daí a quem tanto mal faz à sociedade, não deixando que se cumpram as leis. **O vinho aí está.** Efectivamente apareceram dois rapazes, empunhando cada qual uma caneca a transbordar de puríssimo vinho verde, que os dois caçadores esvaziaram de um fôlego. (18: Dinis: Fidalgos).

[You are wrong, Abbot – Clement said, reaching for his hand. “Had it been a thief who asked me to eat and drink when passing by my door, I, as a rector, would not refuse it. However, my house will not become a hiding place for robbers, for wicked and rebellious men; I do not even know what is the glory in inflicting so much evil to society, not permitting the law to be obeyed. **Here is the wine.** With effect, two young men appeared, each holding a mug filled to the brim with the purest green wine, which they drank in one gulp.] (18: Dinis: Fidalgos).

(9) O imperador que apoiou o sr. Dantas, negando indenização pelos negros de 60 anos, se prestará também a apoiar a política da indenização? Que papel ficará fazendo este país, se consentir em qualquer das duas hipóteses? Não reconhecerá ele finalmente que tem sido governado por uma facção, assalariada pelo Tesouro e decidida a tudo empenhar para garantir o salário? Deixamos aí de pé esta série de interrogações. A lógica da História faz destas emboscadas. Quem transigir com a pirataria **aí está** a consequência. O direito natural diz: ninguém pode reduzir a cousa pessoa humana. A religião diz: é inviolável na sua liberdade a imagem de Deus sobre a Terra. (18: Patrocínio: Campanha).

[Will the emperor who supported Mr. Dantas in denying compensation for the 60-year-old black men, also support the compensation policy? What is this country doing, if it consents to either one of these two hypotheses? Won't it finally understand that it has been ruled by a faction who receives a salary from the Treasure and who is determined to guarantee their salaries? We leave these questions to be considered. The logic of history prepares such traps. **Here is** the consequence for those who allow piracy. Natural rights say that no one can underestimate a human being. Religion states: God's image on Earth cannot have his freedom violated.] (18: Patrocínio: Campanha).

(10) E por isso, disse ao pequeno a verdade: disse-lhe que num momento de loucura, o papá tinha dado um tiro em si. – E ele? – E ele, replicou Afonso sorrindo, perguntou-me quem lhe tinha dado a pistola, e torturou-me toda uma manhã para lhe dar também uma pistola. E **aí está** o resultado dessa revelação: é que tive de mandar vir do Porto uma pistola de vento. Mas, sentindo Carlos em baixo, aos berros ainda pelo avô, os dois apressaram-se a ir admirar a corujazinha. Vilaça ao outro dia partiu para Lisboa. Passadas duas semanas, Afonso recebia uma carta do administrador, trazendo-lhe, com a adresse da Monforte, uma revelação imprevista. Tinha

voltado a casa do Alencar; e o poeta, recordando outros incidentes da sua visita a Mme. De l' (18:Queirós:Maiais).

[That is why he told the truth to the little boy: he said that his father had shot himself in a moment of insanity. What about him? "About him"? Replied Afonso smiling, he asked me who had given the pistol to his father, and insisted that I gave a pistol to him all morning. And **here is** the result of the revelation: I had to order a toy pistol from Oporto. But as he felt Carlos was sad, still under the effect of his grandfather's yelling, they both hastened to admire the little owl. Vilaça left for Lisbon the following day. After two weeks, Afonso received a letter from the manager, bringing an unpredicted revelation with Monforte's address. He had gone back to Alencar's house; and the poet, recalling other events when he visited Mme. De l' ] (18:Queirós:Maiais).

(11) Com que direito intervém? Eu tenho ou não tenho razão? Fui ou não fui caloteado? Eusébio – Home, o sinhô se cale! Olhe que eu sou mineiro! Lourenço – Não me calo, ora **ai está**. E declaro que não me retiro daqui sem estar pago e satisfeito! (Senta-se) Eusébio – Seu home, olhe que eu ... Lourenço (Erguendo-se) – Eh! Lá! Eh! Lá! Agora sou eu que lhe digo que se cale! O senhor não tem o direito de abrir o bico... Lola (Chorando) – Que vergonha! Que vergonha! Eusébio (À parte) – Coitadinha ... Lourenço – A princípio supus que o senhor fosse o amante desta senhora. (18:Azevedo: Capital).

["By what right do you intervene? Am I right or not? Wasn't I welshed?" Eusebio: "Shut up, sir! I am from Minas Gerais, mind you!" Lourenço: "I will not be quiet, **here it is**. And I declare I will not leave this place without getting paid! (He sits down) Eusebio: "You .... Watch out..." Lourenço (standing up from his seat): "Hey, I tell you to be quiet, you have no right to open your mouth ..." Lola (weeping) "What a shame! What a shame!" Eusebio (aside): "Poor her" ... Lourenço: "At first I thought you were this woman's lover." ] (18:Queirós:Maiais).

In (8), **ai está** is configured as the normal context; it is a less schematic and more compositional usage found in data concerning lexical level and the first formations found for this arrangement, detected since the 15th century. In (9), as we ascertained in (6) and (7), corresponding, respectively, to fragments of the 17th and 18th centuries, we find the atypical context, in which the postposition of non-prototypical subject, such as *a consequência*, [the consequence] allows a more abstract and integrated interpretation of **ai está**. Yet, in (10), a context which was only detected in the 19th century in the sources searched, the level of semantic-syntactic binding of Loc and V increases; besides the postposition of the non-prototypical subject *o resultado dessa revelação* [the result of this revelation], characteristic of atypical context, there is a pause prepending the Loc, causing **ai está** to take on critical context properties, in a more advanced stage of semantic-syntactic binding to both constituents. Next, in (11), we find **ai está** as effective isolated context, as the instantiation context LocVconec; in these environments, the compositionality of Loc and V is very committed with the increase of its schematicity; the properties of each subpart wane and the traits of the connector class stand out in the whole that Loc and V start to compose.

The isolated context of LocVconec is configured as the final stage of grammatical constructionalization, since the formation of a new semantic-syntactic pairing in the language occurs, obeying a procedural function, which becomes, albeit marginally, part of the connector class. Therefore, this is grammaticalization by expansion, which creates a new schema and allows the emergence of new usage, via neo-analysis and analogization (TRAUGOTT; TROUSDALE, 2013).

The 20th century data confirm what is found in the 19th century, highlighting the gradience and category prototypification advocated by Bybee (2010). In the aforementioned Corpus of Portuguese, database used in our research, we selected six micro-constructions of LocVconec schema, namely: **aí está**, **lá está**, **aqui está**, **lá vai**, **aí vem** e **aí vai** [that is it, there it is, here it is, there it goes, here it comes and there it goes] in sources of contemporary Portuguese, taking into account the type of articulated context. These types were chosen because of its recurrence of usage. Next, we present the frequency of contexts in which Loc and V are arranged contiguously, based on Diewald's proposal (2002, 2006), because of its highest level of refinement of contextual continuum in relation to the classification by Heine (2002):

**Table 4** – Frequency of LocV contexts in contemporary Portuguese

Context	Aí está [That's it].	Lá está [There it is]	Aqui está [Here it is]	Lá vai [There it goes]	Aí vem [Here it comes]	Aí vai [There it goes]	TOTAL
Normal	44	131	68	44	28	8	323
Atypical	51	5	11	15	9	7	98
Critical	29	4	6	29	6	11	85
Isolated	27	4	9	3	13	3	59
TOTAL	151	144	94	91	56	29	565

Source: Author's elaboration.

As we can ascertain from Table 4, **aí está** is more frequent and, the most important point, it registers the greatest number of isolated contexts, i.e., with a more grammatical usage as a connector; out of the 59 data in isolated context, among 565 general ones, 27 are tokens of **aí está**. The second most instantiated micro-construction is **aí vem**, with 13 registers in isolated context, out of the general 59 of its occurrence. It is followed by **aqui está**, with 9 tokens of isolated context, and then, with lower frequency, sporadic cases of **lá está**, **lá vai** e **aí vai**. In the case of the *type* **aí vai**, we point out that it also featured a more distinctive register, with higher number of data in critical context than in normal context. For the detection of the contexts, we used the same criteria applied in the analysis of **aí está** in the distinct synchronies of the Portuguese language.

Focusing on the records by context, we observed that the normal one, corresponding to the lexical and more compositional level of Loc and V, remains as the most productive in relation to four out of the six researched patterns – they are 323 data out of 565

general. Only *aí está* registers a higher frequency of atypical contexts than normal ones, besides being the most productive type and with higher frequency of use in isolated contexts, which becomes another evidence of the exemplarity of this pattern as an effective prototypical micro-construction of the LocVconec in relation to others. In absolute numbers, the frequency of each context is proportional to the *cline* proposed by Diewald (2006, 2002) and by Heine (2002), given that one can establish the following derivational correspondence:

**Schema 1** – *Cline* of contextual frequency of LocV in contemporary Portuguese

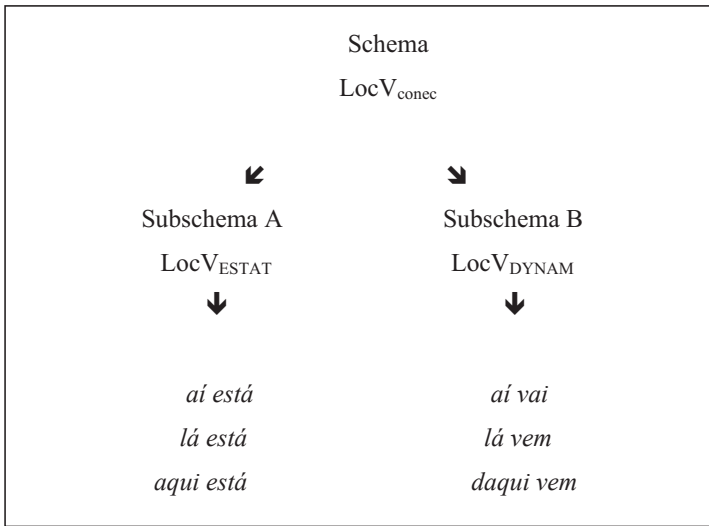
normal context	>	atypical context	>	critical context	>	isolated context
↓		↓		↓		↓
323		98		85		59

**Source:** Author’s elaboration.

Considering that the contextual gradience illustrated in Schema 1 corresponds to the trajectory of the constructionalization of LocVconec in Portuguese and also taking into consideration the data obtained by means of diachronic research, we can come to some relevant considerations. One of them is that we are facing a more recent schema of the language, which resulted in grammaticalization. It started in the 17th century at least, in the articulation of atypical contexts and culminated in the 19th century, with the record of the occurrence of isolated contexts. With the creation of this new pairing, one more member integrates the class of connectors. Such pairing is classified as a complex, schematic, procedural and a little compositional language formation.

At the internal level, the LocV<sub>conec</sub> turns out to be highly integrated with its subparts, collaborating for the formation of a new meaning and a new function. Such schema unfolds in subschemas, depending on the semantic type of the instantiated V, if stative-locative, such as *estar* (verb to be), or dynamic, such as *ir* or *vir* [to go or to come]; the subschemas, in turn, are distributed into micro-constructions as in the case of stative subschema, the *types aí está, lá está e aqui está*. Schema 2 demonstrates the proposed constructional hierarchy:

## Schema 2 – Constructional hierarchy of LocVconec



Source: Author's elaboration.

### Conclusion

In this paper, we could ascertain how the studies on the interface Functionalism x Cognitivism are fruitful, providing a rich and promising agenda of linguistic research. Among the various themes that can be developed in this field of study, we highlight the issue of grammatical and lexical categorization, the process of directionality and the broader look on our objects of study, focusing them at construct level and, at the same time, in more general and abstract dimensions of linguistic organization, permeated by factors of pragmatic-communicative and cognitive order, in addition to structural factors.

Under this new perspective, grammaticalization still has its role and importance, but it gains a broader dimension in at least two ways: by expansion and by reduction. The approaches of grammaticalization by expansion can be associated with the process of grammatical constructionalization, defined as the development of procedural functions and the consequent increase in productivity. They focus especially on the frequency and degree of abstraction of grammatical items. The approaches of grammaticalization by reduction, in turn, can be associated with the grammatical constructionalization with reduction in compositionality and they focus internally on an item or on a group of items.

In the constructional grammar approach, there are three fundamental factors: schematicity, productivity and compositionality. When seen in a gradual and related way, these factors are related to the issue of (inter) subjectivity and provide strictness to the procedures of analysis. At constructional level, these factors can be associated as follows: schematicity is concerned with *constructional scope* (the degree of generality of the formal and functional properties of construction); *productivity with constructional*

*vitality* (how often new instances can be generated by a constructional schema), and *compositionality with constructional alignment* (to what extent a constructional schema is created in a predictable or non-predictable way from its component parts).

This paper proposed an implementation of the constructional approach to the textual connective construction LocVconec. From the theoretical basis adopted, it was possible to postulate that LocVconec is a construction with the following characteristics: a) complex, because it is formed of two subparts; b) schematic, because of the high convention it is made of; (c) procedural, because of the grammatical content it conveys.

Because of its productivity and older record in the corpus analyzed, we assume that **ai está** is the model micro-construction of LocVconec, in Bybee's terms (2010). This is the most recurrent type in contemporary usage of Portuguese and it can serve as an analog basis for new instantiations of LocVconec.

We reiterate that the reflection presented throughout this paper illustrates how the dialogue between theories can be productive for scientific research in Linguistics. The incorporation of cognitive theoretical assumptions to functionalist research of the American trend contributes to a more holistic perspective about the phenomena of language, as it was made clear in the analysis of connector LocVconec construction. In this approach, the cognitive component starts to receive greater strictness and systematization in scientific research to the same extent that the formal issues, linked to linguistic structure, also begin to receive more attention, balancing the correlation function < > form. Therefore, we hope that further research, both theoretical and empirical, may add to the proposal we presented, with a progressive development of the so-called *constructional grammar approach*, expanding the description and the analysis of the network of constructions in Portuguese.

ROSÁRIO, I.; OLIVEIRA, M. Funcionalismo e abordagem construcional da gramática. *Alfa*, São Paulo, v.60, n.2, p.233-261, 2016.

- *RESUMO: Este artigo apresenta, discute e exemplifica os rumos da pesquisa funcionalista em sua orientação mais recente, no diálogo com os estudos cognitivistas. Fruto dessa interrelação, destaca-se a abordagem construcional da gramática, na ênfase do pareamento função x forma que marca as expressões linguísticas. Além de apontar os ganhos teórico-metodológicos que tal diálogo tem trazido no âmbito do Funcionalismo, o artigo faz referência também às especificidades de ambas as vertentes teóricas e aos ajustes necessários a fim de que possam ser desenvolvidas pesquisas nessa interface. O tratamento da gramática em perspectiva holística e o rigor na detecção de propriedades de sentido e estrutura que marcam os usos linguísticos são considerados vieses positivos e promissores da pesquisa funcionalista de abordagem construcional.*
- *PALAVRAS-CHAVE: Funcionalismo. Construcionalização. Mudança construcional. Cognitivismo.*

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# CAUSALITY, ICONICITY AND CONTINUITY: THE EFFECTS OF PRIOR WORLD KNOWLEDGE ON THE UNDERSTANDING OF CAUSAL RELATIONS

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- **ABSTRACT:** This paper studies the involvement of world knowledge and its interaction with linguistic (semantic) knowledge in the understanding of causal relations. We will attempt to determine to what extent the iconicity principle and the Continuity Hypothesis – see especially Murray (1997) – apply in Spanish and whether they are subject to restrictions attributable to the type of information processed. We also discuss Sanders’ (2005) causality-by-default hypothesis and provide relevant evidence for assessing its correctness. To test our hypotheses, we investigate the comprehension of two-sentence texts of two types (in “everyday” and in “technical” language) under four conditions: normal and inverted order (cause–effect vs. effect–cause); with and without connective. We predict that our “type of information” variable, one of the core elements of this study, will condition causal relations processing and modify to some extent the classical claims of iconicity and Continuity Hypothesis. The results show that lack of prior knowledge, indeed, can affect the predictions and assumptions of the iconicity principle and the Continuity Hypothesis and that, if there is no prior knowledge, the introduction of linguistic clues (connectives) facilitates and even becomes indispensable for understanding.
- **KEYWORDS:** Causality. Iconicity. Continuity. World knowledge. Connectives.

## Introduction

This research is part of a broader investigation intended to study the conceptual and semantic dimensions of *causality* and *counter-causality*, especially the linguistic processing in which speakers engage when they linguistically produce and understand this type of relation (ZUNINO, 2012; ZUNINO; RAITER, 2012; ZUNINO; ABUSAMRA; RAITER, 2012a; 2012b; 2012c). We will employ a

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psycholinguistic (and, therefore, experimental) approach and, in this regard, our perspective distinguishes elements that are put together by theoretical grammatical studies (GALÁN RODRÍGUEZ, 1999; PORTOLÉS, 1998), by discourse analysis studies (ANSCOMBRE; DUCROT, 1994; MARTIN ZORRAQUINO; PORTOLÉS, 1998) or by pragmatic approaches (SPERBER; WILSON, 1995) and groups other elements which, sometimes, have been analyzed separately. It should be stressed that, in our proposal, the global dimension of *causality* will comprise both consecutive and causal structures (two linguistic ways of expressing the same cause-effect relation) and will not make *a priori* differences between physical and mental causality. Thus, real/natural causes, causes arising from world knowledge (beliefs), and causes arising from personal expectations (reasons) will all depict the same basic general notion, the cause-effect relation.

In this particular case, we propose articulating two central issues in relation to *causality* and its linguistic processing: on the one hand, the assumptions of the Continuity Hypothesis (MURRAY, 1997) and, on the other hand, the intervention of two types of knowledge in the discursive processing of causal relations, namely world knowledge and linguistic knowledge. This distinction is particularly relevant because it enables to analyze the extent to which the former type influences the understanding of causal relations, presented in their two syntagmatic forms (cause-effect versus effect-cause), and how it is articulated with the latter type, by examining the role of semantically meaningful connectives (conveying linguistic information). A first aim of this paper is to verify to what extent the Continuity Hypothesis applies in Spanish.

In order to explore these issues, we have designed a test to examine the understanding of causal relations between two sentences and have analyzed its results. For each type of stimulus –everyday and technical stimuli– the following conditions were evaluated: (a) without a connective, in habitual order (cause-effect) and in inverted order (effect-cause) and (b) with connective *entonces* (“so”) in habitual order and *porque* (“because”) in inverted order.

## Theoretical Framework

Since this research falls within the scope of psycholinguistic studies, it is based upon basic notions that have led us to adopt our approach to the problem: (1) *processes* rather than results must be studied in order to inquire into the production and understanding of any language; (2) grammar is deemed to be an *ability* of the speaker/listener and not a theoretical construct that can be observed to a lesser or greater extent by any given statement<sup>1</sup>; (3) to have true explanatory power, a theoretical model must be supported by a mental correlate which has been experimentally tested.

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<sup>1</sup> In this respect, speakers/listeners need not be cognizant of –have reflected upon– grammatical rules and syntactic structures proper to their languages to handle –i.e. to produce and understand– well-formed sentences/statements.

## Causality in Language

*Causality* has been most consistently analyzed in two linguistic areas: in the first place, *verbs* and their capacity for containing in their conceptual structure (JACKENDOFF, 1990), and transmitting to the sentence predication, the so-called “implicit causality”, and, in the second place, *connectives* as instructions for discursive processing (PORTOLÉS, 1998; among others).

“Implicit causality” is usually defined as the causal interpretation that may be derived or projected from the meaning of certain verbs. Some studies have focused on the tendency of listeners/readers to construct a causal or consecutive phrase after sentences like “The lawyer interrogated the suspect [...]”<sup>2</sup>, which might arise from the event structure of the verb (PICKERING; MAJID, 2007). Other studies revolve around lexical causative verbs (“Mary broke the eggs on the mixture”) and around the so-called periphrastic causatives (“Carlos caused his dog to sit”) in relation to the Theory of Force Dynamics (TALMY, 1988, 2000).

With a more discursive or textual point of view, these studies discuss causal connectives and their primary role in achieving local and global coherence. One of the first lines of psycholinguistic research that have centered on the discursive level intends to study and account for the complex processes implied in text comprehension<sup>3</sup> (ABUSAMRA et al., 2010; GERNSBACHER, 1991; GOLDMAN; GRAESSER; VAN DEN BROEK, 1999; MOLINARI MAROTTO, 2000). One of lines that has been most developed postulates that, during this process, a reader constructs a *mental representation* of the situation described: successfully remembering and handling the information processed hinge on a correct retrieval of the information organized in that mental representation. Since Van Dijk and Kintsch’s (1983) and Johnson Laird’s (1983) proposals, the *Situation Models Theory* presented original and productive approaches, whose premises and assumptions have been revisited and reformulated.

The studies on text comprehension (conducted mainly in English) provide plentiful evidence that readers routinely direct attention to the *causal* information of a text during the process of reading/understanding. Many authors (CARON; MICKO; THURNING, 1988; HABERLANDT, 1982; GOLDMAN, et al., 1999; MILLIS; JUST, 1994; MURRAY, 1997; TRABASSO; SECCO; VAN DEN BROEK, 1985; ZWAAN; RADWANSKY, 1998; among others) maintain that causal relations form the “backbone” of situation models and are essential for achieving coherence, both locally and globally. Investigations largely propose that one of the fundamental determinants for this process to be successfully carried out is the capacity of adequately handling a given type of lexeme, known as connectives. These particles are considered to structure, for the most part, the text temporal-causal configuration, to give instructions for the specific

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<sup>2</sup> Where the sentence might be followed by “[...] because he wanted to find out the truth.”, for instance.

<sup>3</sup> In general, the study of discourse production has been set aside due to methodological difficulties (DE VEGA; CUETOS, 1999).

conceptual and semantic processing, and to largely enable to make inferences and to establish relationships between textual information and world knowledge. Opposed to causal and consecutive connectives (specific to the causal dimension) are the ones that suspend or deny a causal relation expected, that is, adversative and concessive connectives (considered “counter-causal” in the present research).

Most studies on this type of conceptual/semantic relation (CEVASCO; VAN DEN BROEK, 2008; HABERLANDT, 1982; KUPERBERG et al., 2006; KUPERBERG; PACZYNSKI; DITMAN, 2011; MILLIS; JUST, 1994; MURRAY, 1997; SINGER; GRAESSER; TRABASSO, 1994; among others) may be divided into two broad areas of research. Some of them analyze the explicit discursive/textual relations and the role of connectives for adequately establishing and/or understanding these relations and others attempt to analyze the creation of relationships through inferential mechanisms. All of them research into the interrelations between the (superficial) discursive/textual information, world knowledge, and the mental models constructed to interpret and understand a piece of discourse.

## **Iconicity, continuity and causality**

### **Iconicity and causality**

The notion of *iconicity* (usually related to isomorphism,<sup>4</sup> but not fully discernible to it) is a fundamental part of the classical debates, such as the discussion about the relationship between language, world and thought (ESCAVY ZAMORA, 2001; HAIMAN, 1983; SIMONE, 1995). In opposition to the thesis about arbitrariness of the linguistic sign and linguistic relativism (CARRUTHERS, 1996; MALT; WOLFF, 2010; SAPIR, 1921), *iconicity* supposes the existence of a relation of influence between world (physical or its conceptual representation) and the way we verbalize it. The direction of that relation would be world-language (“motivation” is the term generally used). At a discursive level, this suggests that statements are structured in correspondence with the events to which they refer and that the existing relationship between them is the same as the one between the referred events: statements substitute events, because they are their reflection (SIMONE, 1995). From the three classical principles taken into consideration when analyzing *iconicity*<sup>5</sup> (quantity, proximity and sequential order), the one studied the most in regard to discourse comprehension is the sequential order

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<sup>4</sup> It refers only to the concrete correspondence between “natural order” (facts of the world) and “figurative order” (linguistic expression); while *iconicity* in a broader sense involves more abstract ideas such as motivated language, pragmatic perspectivism and conceptual organization, among other issues (ESCAVY ZAMORA, 2001; HAIMAN, 1983).

<sup>5</sup> It is also considered as a gradual notion: the relationship between a certain language and the world can be more or less iconic in comparison to the one between another language and world; or even have different degrees of iconicity in the different components of the linguistic structure (lexicon, syntax, discourse) (MARCUS; CALUDE, 2010).

principle:<sup>6</sup> the order of the events in the world (real or represented) is reflected in the syntagmatic order of the clauses describing it verbally (MARCUS ; CALUDE, 2010).

In regard to *causality*, it can function as a model to analyze the idea of *iconicity* (cause-effect order vs. effect-cause order is paradigmatic) but it is also a conceptual dimension in which another theoretical and philosophical debate can be observed. Since neither the debate about causal realism or conceptualism (DAVIDSON, 1985, 1992; KIM, 2007; VIALE, 1999; SEARLE, 1983) is not settled and neither is the one about the relation between perception of physical causality and reasoning, causal judgmental and mental causation (LESLIE; KEEBLE, 1987; SLOMAN, 2005) are settled, it is not possible to determine which is the direction of influence in the case of causal dimension. Therefore, it would not be possible to define *iconicity* for all the cases of causal judgments or reasonings. On the other hand, it would be possible to assume the existence of some conceptual organization of causal relations (whatever be the relation of that representation with the physical world) and to evaluate psycholinguistically the processes interplaying in each case, and infer, according to those results, which could be that organization (NOORDMAN; VONK, 1998; SANDERS, 2005). This, of course, would keep the notion of *iconicity* in terms of the bond between conceptual representation and language, but it would not clarify much about the relation of either with the physical world. Nevertheless, it would mean a step forward in relation to some of the aforementioned questionings.

There are several studies that have empirically analyzed the effect of iconicity in discourse processing (ABUSAMRA, 2011; FENKER; WALDMANN; HOLYOAK, 2005; WALDMANN, 2001; WALDMANN; HOLYOAK, 1992): keeping the iconic order (temporal as well as causal) facilitates consistently the processing. However, it is not clear what interaction this variable can have with the absence/presence of prior world knowledge. Since the notion of *iconicity* itself requires to be contrasted with the world or its mental representation, it seems fundamental to know the nature of this bond. The question would be: what is the effect of the iconic order inversion in a text when the reader cannot involve his/her prior world knowledge in the comprehension process?

## Continuity and causality

Until the early 1990's, few studies dealt with the role of connectives during reading and text comprehension (CARON; MICKO; THURING, 1988; HABERLANDT, 1982). Throughout that decade, a considerable number of studies (most in English) focused on this issue and demonstrated, somewhat uniformly, that connectives facilitated reading and comprehension (MILLIS; JUST, 1994; among others). Nevertheless, it became necessary to refine that information and determine whether all connectives (even those belonging to the same semantic dimension) exerted the same influence on processing.

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<sup>6</sup> Also known as Semantic Principle of Linear Order (GIVÓN, 1995).

Murray (1994) showed that, both in terms of memory (off-line) and in terms of reading times (on-line), only adversative connectives had a truly facilitatory role. Murray (1997) came back to the issue and explicitly formulated his Continuity Hypothesis. This proposal has at least two basic assumptions: (1) readers tend to represent textual information according to the sentence order (that is, they assume that events will occur in a linear fashion and in the order in which they are presented: iconicity principle) and (2) continuity is the text organization strategy by default, so a text based on continuity relations will be more quickly and easily processed. Based on these assumptions, Murray (1997) analyze the role of connectives and tests two hypotheses: (a) connectives work as processing semantic instructions and are critical during the on-line reading process (readers are sensitive to the nuances of meaning conveyed by specific connectives and not all connectives work in the same manner); (b) in effect, textual *continuity* seems to be established by default; and (c) connectives signaling a break in continuity have a higher (facilitatory) impact than connectives that only reinforce a continuity relation.

Still, Murray (1997) also refers to certain lines of investigation that may be pursued in the future and are chiefly related to *causality*. On the one hand, Murray himself recognizes the need to analyze the role of specific connectives and compare them within the same dimension: for example, “because” and “so”, since the former would be discontinuous (in its most frequent use), while the latter would signal continuity. Yet, on the other hand, an effect should be pointed out that can be observed in his third experiment and is not discussed afterwards. The author analyzes the differences stemming from the processing of sentence pairs with no connective and with semantic inappropriate connectives. With casual connectives, the findings show that the inappropriate connective condition was not any more disruptive than the no connective condition.

Sanders (2005), in a similar vein to which we propose here, has postulated a “causality-by-default hypothesis” to resolve what he defines as the “causal complexity paradox”: despite casual structures are considered complex (more than additive, for example), empirical evidence shows that their processing is privileged and easier (faster and more effective to construct mental representations of discursive information). The causality-by-default hypothesis explains this by stating that:

Because readers aim at building the most informative representation, they start out assuming the relation between two consecutive sentences is a casual relation [...]. Subsequently, causally related information will be processed faster, because the reader will only arrive at an additive relation if no causal relation can be established. (SANDERS, 2005, p. 113).

Some of those lines of investigation will be pursued in this paper.



## Experiment

The main objectives of the present research were: 1) to test up to what extent the Continuity Hypothesis (MURRAY, 1997) can be confirmed when understanding causal relations in two types of text (everyday and technical texts<sup>7</sup>) and applying two variables in each case: (a) habitual order (cause-effect) versus inverted order (effect-cause)<sup>8</sup>; (b) absence versus presence of a causal connective; 2) to relate our results with the *Causality by default Hypothesis* (SANDERS, 2005).

The following hypotheses will be examined:

- 1) In absence of a connective, readers tend to process *causality* by iconicity: cause-effect (causal order by default or unmarked).
- 2) If the stimuli are technical, owing to the impossibility of using prior world knowledge, the situation described in (1) will become more evident.
- 3) If a connective is used: (a) the situation described in (1) will tend to disappear and (b) technical stimuli will be processed in the same manner as everyday stimuli.
- 4) The connective inserted will be consistent with the predictions made by the Continuity Hypothesis: *porque* (“because”), which signals discontinuity, will have more beneficial effect than *entonces* (“so”), which signals continuity.

## Method

### Participants

Forty-four subjects (32 women and 12 men), aged 39.29 on average (Standard Deviation –SD-: 13.78), between 21 and 69 years of age, participated in this experiment. All of them speak Spanish as first language and received formal education for 12-18 years. For methodological purposes (*matched subjects* design: (GRAVETTER; WALLNAU, 2009)), the 44 participants were grouped in 22 pairs according to their ages, education levels and sexes, so as to analyze the results statistically as repeated measures from the same subject (Group 1: mean age=38.7, SD=12.97; Group 2: mean age=39.9; SD=14.83). Using this distribution, we obtained data from 22 participants per condition assessed.

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<sup>7</sup> For a description of the types of stimulus, see Section *Materials*.

<sup>8</sup> We consider the habitual order unmarked and the inverted order marked.

## Materials

The stimuli presented have two clauses. Under the first condition, they make up two sentences and, under the second, they make only one sentence where the two clauses are linked by a causal connective. Each text is followed by a question in the form of “Does A generate B?”

Concerning the syntactic structure of the sentences used and other grammatical restrictions, it should be noted that: (a) they have the usual S-V-O structure and, sometimes, a simple adjunct (for example, “*Hoy a la mañana*” [today in the morning]); (b) short sentences were provided and, insofar as possible, compound sentences were avoided; (c) verbs are always in indicative either in present or past tense (both types of past tense are used, according to the stimulus); (d) there are no cleft sentences, (defining or non-defining) relative clauses, adverbial clauses, or noun clauses; (e) explicit negatives were avoided, both in stimuli and in questions (lexical negatives were used only when strictly necessary).

With respect to the distinction between “everyday” stimuli and “technical” stimuli, it should be pointed out that the so-called “everyday” stimuli are texts that express (narrate or describe) everyday situations/events where the subject therefore can (and often automatically does) use his world knowledge during the comprehension process. In these cases, participants must deal with familiar information like “water puts out fire”. The so-called “technical” stimuli are texts that express situations/events unfamiliar to most participants<sup>9</sup> because they belong to very specific fields of knowledge of certain scientific disciplines, so they are unlikely to use their world knowledge to process such texts. These cases contain information like “the enzyme calmodulin generates the process of phosphorylation of synapsin I”.

The length of the stimuli was controlled according to their number of words. Since no time comparisons would be made between everyday and technical stimuli, only within-group length (“everyday” and “technical”) was controlled. The result of this design (taking into account that the experiment was conducted in Spanish) was the following:

- a) All the stimuli have between 12 and 24 words; the average number of words in “everyday” stimuli is 14.3 and, in “technical” stimuli, 19.5.
- b) Questions have between 7 and 14 words; the average number of words in “everyday” stimuli is 9.4 and, in “technical” stimuli, 12.4.

The variable “time” (either in a verb or in any other linguistic element) was balanced such that half of the stimulus would represent a structure with two specific chronologically successive events (T1–T2: “*El secuestrador los amenazó con su arma.*”

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<sup>9</sup> Since we knew the participants’ professions and/or fields of expertise, we excluded the possibility that any of them may have specific scientific information on any of the disciplines chosen to draft the stimuli.

*Los rehenes entraron en pánico.<sup>10</sup>*” [The kidnapper threatened them with his weapon. The hostages panicked.] and the other half would express two events in a temporally generic manner, where no elements would explicitly indicate the temporal factor (T1: “*Camila tiene sensibilidad dental. Evita comer cosas muy frías o muy calientes.*” [Camila has tooth sensitivity. She avoids eating too cold or too hot food]).

In “technical” stimuli, the number of technical lexemes or phrases was controlled: they all contain 2-4 technical words or phrases, with an average of 3.

Examples of the stimuli used:

**Table I** – Examples of stimuli in all evaluated conditions

Type of information	Order	Connective	Stimulus
Everyday	Habitual	Absent	<i>Guadalupe goes swimming every day. She is getting fitter and fitter. Is swimming getting Guadalupe fitter?</i>
		Present	<i>Guadalupe goes swimming every day, so she is getting fitter and fitter.</i>
	Inverted	Absent	<i>Guadalupe is fitter and fitter. She goes swimming every day.</i>
		Present	<i>Guadalupe is fitter and fitter because she goes swimming every day.</i>
Technical	Habitual	Absent	<i>The calcium activated the enzyme calmodulin. The process of phosphorylation of synapsin I started. Did the enzyme calmodulin provoke the phosphorylation of synapsin I?</i>
		Present	<i>The calcium activated the enzyme calmodulin, so the process of phosphorylation of synapsin I started.</i>
	Inverted	Absent	<i>The process of phosphorylation of synapsin I started. The calcium activated the enzyme calmodulin.</i>
		Present	<i>The process of phosphorylation of synapsin I started because the calcium activated the enzyme calmodulin.</i>

Source: Zunino (2014).

<sup>10</sup> Even though there exist some stimuli in anaphoric and cataphoric cases that can make the processing more complex, their elimination was impossible for two reasons: a) the methodological decision for the evaluation of the variable “habitual causal order vs. inverted causal order” was to maintain both sentences lexically and syntactically unaltered, so that the only difference in condition was order; b) research in the discursive level and with abstract conceptual relations makes it impossible to control exhaustively all the morphosyntactic and lexical elements intervening without an excessive reduction of the texts that could work as valid stimuli.

## Procedure

All tests were designed and run with SuperLab 4.0. Both the adequacy or type of answer and times (RT) taken to read the stimulus and to answer or solve the task were assessed. Stimuli were presented at random in all cases. Tests were taken individually, with an examiner present (to avoid any inconvenience). Where the same stimuli were assessed, differing only in the order or in the presence or absence of the connective, sessions were held at least 7 days apart to avoid any bias.

The instructions were provided both in writing on the computer screen and orally: the examiner explained everything necessary to reinforce the written instructions and ensure the dynamics of each test would be comprehended. After the instruction, informants could do an example to practice and verify whether they had any question about any exercise. They were especially requested to ask any question before beginning or at the end of each block. At the end of each block, participants could decide to go ahead or take a break, according to how demanding they had found the task.

In each block, 40 stimuli were presented (20 were “everyday” stimuli and 20 were “technical”). In each group, a half contained a causal relation and the other half contained a counter-causal relation (adversative or concessive)<sup>11</sup>. That is, 10 stimuli under each condition: 10 everyday causals, 10 technical causals, 10 everyday counter-causals, 10 technical counter-causals. We will discuss here only the results of the causal dimension.

Besides, two distracting stimuli (fillers) were presented at the outset of the block and discarded afterwards, so that the measurement of the mean times (RT) would not be affected by problems unrelated to the studied process (such as the habituation to the task). The other stimuli were presented randomly.

Participants pressed the space bar and the text would show up in black type on a white screen. They were expected to read it at their own pace and then press the space bar again. A yes-no question also in black type, but in bold and italics, then popped up below the text, which remained on screen. The question (in the form “Does A generate B?”) was always intended to expressly state or actualize the mental representation of a causal relation, which might or might not appear in the stimulus. Thus, stimuli in the causal modality were expected to be answered “yes” (while stimuli in the counter-causal modality were supposed to be answered “no”, so the type of answer expected was also balanced within each block). Informants should respond by pressing the “s” key for “Yes” or the “n” key for “No” (they were instructed to place their finger in each key to make measuring RTs as accurate as possible). They were allowed to refrain from answering by pressing the space bar if they did not know the answer or believed they were unable to answer saying only “yes” or “no”.

Finally, it should be noted that the variable “order” (habitual versus inverted) and the variable “type of information” (everyday versus technical) were evaluated in a

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<sup>11</sup> This organization allowed us to avoid adding fillers, with the subsequent excessive extension of each list of stimuli: counter-factual stimuli functioned as fillers for the causal ones, and vice-versa.

Confounded Factorial Design (KIRK, 2009) as follows: one block presented “everyday” stimuli in habitual order and “technical” stimuli in inverted order and the other presented the opposite combination. This precludes participants from giving automatic answers or becoming accustomed to the test dynamics, since they cannot see a clear uniformity in the form of presenting stimuli.

Each member of the participating pairs (see Section *Participants*) was placed in a different group. The total design involved 4 lists and 2 groups of subjects. Lists 1 and 2 were assigned to the first group of subjects; list 3 and 4 to the second group. Thus, Group 1 performed the task under the following conditions: everyday stimuli without connective in habitual order and with connective *porque* (“because”); technical stimuli without connective in inverted order and with connective *entonces* (“so”). Group 2 performed the task under the following conditions: everyday stimuli without connective in inverted order and with connective *entonces*; technical stimuli without connective in habitual order and with the connective *porque*.

## Results

Both reading times (RRT) and answering times (ART) were observed, as well as the type and adequacy of the answers.

Firstly, an analysis was conducted to spot extreme cases and to refine the raw data. We used a detection method that factors in sample size (COUSINEAU; CHARTIER, 2010; THOMPSON, 2006) and does not generate lost cases by eliminating extreme values (RATCLIFF, 1979, 1993). For that purpose, means and deviations of every subject under each condition were calculated (these calculations only included the RTs of the items correctly answered) and it was verified whether there was any case outside 2 SD of the mean per subject per condition. According to this criterion, no cases liable to be eliminated were found either for the RRTs or for the ARTs.

The first step to analyze the results was to compute the frequency of each type of answer. To examine the type of answer (level of adequate answers) with the analysis of variances<sup>12</sup>, the proportion of adequate answers of every subject under each condition was logistically transformed. Each correct answer represented one point, so any given subject could have 5/10, that is, 0.50 of adequate answers under a given condition. Hence, every subject had a score (and a proportion associated with that score) under each condition analyzed. After the logistic transformation, these data were used to make the relevant comparisons with repeated measures tests or ANOVA, for independent samples, as appropriate. Secondly, cases answered adequately were used to calculate the RTs means per subject and to perform different tests. In order to avoid unnecessarily multiple comparisons (and the ensuing restrictiveness in p-values), were performed: a) a full factorial analysis to verify main effects and interactions; b) only relevant

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<sup>12</sup> With percentages or proportions it is not possible to perform this type of test: (WOODS; FLETCHER; HUGHES (1986)).

comparisons of RTs means. As suggested by Clark, 1973, et al., the calculations were made for F1 (analysis per subject), F2 (analysis per item), and min F' (quasi F-ratio for the generalization of both effects). The data of frequencies, RT means, and standard deviations are shown on Tables II and III.

**Table II** – Answers: percentages and scores  
(adequate answers after the logistic transformation).

		Adequate (%)	Inadequate (%)	No Answer (%)	Adequacy Score
Everyday Stimuli	w/o a connective, in habitual order	96.3	2.3	1.4	4.94
	w/o a connective, in inverted order	90.7	6.9	2.3	4.28
	<i>Entonces</i> (“so”)	96.8	1.4	1.8	5.59
	<i>Porque</i> (“because”)	99.1	0.5	0.5	6.61
Technical Stimuli	w/o a connective, in habitual order	72.8	19.7	7.5	2.05
	w/o a connective, in inverted order	46.5	42.3	11.3	-0.02
	<i>Entonces</i> (“so”)	94.5	4.1	1.4	4.98
	<i>Porque</i> (“because”)	77.6	19.2	3.3	2.20

Source: Zunino (2014).

**Table III** – Reading Times (RRT), Answer Times (ART) and standard deviations (SD) per condition.

		RT (ms)	SD (ms)	AT (ms)	SD (ms)
Everyday Stimuli	w/o a connective, in habitual order	4674,14	1456,25	5421,38	1795,75
	w/o a connective, in inverted order	5012,13	1351,13	6446,00	2498,25
	<i>Entonces</i> (“so”)	4591,44	1445,45	5205,24	1795,75
	<i>Porque</i> (“because”)	4096,48	1013,28	3528,59	938,82
Technical Stimuli	w/o a connective, in habitual order	9851,44	3022,57	18626,96	7476,92
	w/o a connective, in inverted order	9279,66	7701,04	15880,57	7235,27
	<i>Entonces</i> (“so”)	6946,48	2063,67	8909,81	3898,19
	<i>Porque</i> (“because”)	7798,56	2845,29	14065,17	7197,67

Source: Zunino (2014).

For both the treatment of answers and RTs, a full factorial analysis 2x2x2 was performed. It had two factors between subjects (TYPE OF INFORMATION and ORDER) and a within subject/repeated measures (presence/absence of CONNECTIVE) factor<sup>13</sup>.

For answers, in the within-subject analysis, the only effect found was the effect of the factor presence/absence of CONNECTIVE ( $F_{(1,84)}=27,48$ ;  $p=,000$ ), while none of the interactions were significant. For the analysis of between subjects, both factors (TYPE OF INFORMATION and ORDER of the causal relation) showed significant effects, as well as its interaction. TYPE OF INFORMATION:  $F_{(1,84)}=50,66$ ;  $p=,000$ ; ORDER:  $F_{(1,84)}=6,85$ ;  $p=,010$ ; TYPE OF INFORMATION \* ORDER  $F_{(1,84)}=9,22$ ;  $p=,003$ ).

Afterwards, the contrasts specifically relevant for this research were conducted. The first set of within-group comparisons for each type of stimulus (everyday and technical) comprised the following: (1) no connective in habitual order versus with connective “*entonces*” (“so”); (2) no connective in inverted order versus with connective *porque* (“because”). A second set of between-group comparisons was made to compare the between-group factors. ORDER factor in everyday stimuli: (3) no connective in habitual order versus no connective in inverted order. Everyday and technical stimuli under the different conditions of ORDER and presence/absence of a CONNECTIVE: (4) no connective in habitual order; (5) no connective in inverted order; (6) with connective *entonces*; (7) with connective *porque*. From the first set, the first two contrasts proved statistically significant for technical stimuli (contrast 1:  $F_{(1,21)}=11,69$ ,  $p=,003$ ), but not for everyday stimuli. The second contrast was significant for both types of stimulus (everyday:  $F_{(1,21)}=9,93$ ,  $p=,005$ ; technical:  $F_{(1,21)}=54,66$ ,  $p=,010$ ). This demonstrates that, for the technical stimuli, both the order of causal presentation and the inclusion of the connective seem to be conditioning factors for comprehension. From the second set of between-group comparisons, the ORDER factor proved to be significant just for technical stimuli (contrast 3:  $F_{(1,42)}=7,96$ ;  $p=,007$ ). For the TYPE OF INFORMATION factor, all contrasts were significant except for 6 (contrast 4:  $F_{(1,42)}=10,79$ ,  $p=,002$ ; contrast 5:  $F_{(1,42)}=29,64$ ;  $p=,000$ ; contrast 7:  $F_{(1,42)}=35,36$ ,  $p=,000$ ). Only in the case of the condition with *entonces* (“so”) the connective showed enough impact to assimilate the levels of adequate answers in technical and everyday stimuli. In the other cases, the possibility/impossibility of intervention of prior world knowledge continued to be a determinant factor in performance.

In order to analyze processing times, an initial full factorial analysis was performed. For RRT, in the within-subject treatment it was observed an effect of the factor presence/absence of CONNECTIVE ( $F_{(1,84)}=7,97$ ;  $p=,005$ ), while interactions were not significant. For the variables between subjects, only TYPE OF INFORMATION showed a significant effect ( $F_{(1,84)}=53,48$ ;  $p=,000$ ). Neither the variable ORDER of the relation nor its interaction (TYPE OF INFORMATION \* ORDER) were significant. For ART, on the other hand, in the within-subject analysis, both the presence/absence

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<sup>13</sup> Multiple comparisons were made with Bonferroni adjustment.

of CONNECTIVE factor and its interactions were significant. CONNECTIVE:  $F_{(1,84)} = 35,59$ ;  $p = ,000$ ; CONNECTIVE\*TYPE OF INFORMATION:  $F_{(1,84)} = 11,67$ ;  $p = ,001$ ; CONNECTIVE\*ORDER:  $F_{(1,84)} = 4,48$ ;  $p = ,037$ ; CONNECTIVE\*TYPE OF INFORMATION\*ORDER:  $F_{(1,84)} = 18,60$ ;  $p = ,000$ . For the analysis between subjects, the only significant effect was for the variable TYPE OF INFORMATION:  $F_{(1,84)} = 120,45$ ;  $p = ,000$ .

In this framework, basically three specific contrasts were relevant to each type of stimulus (everyday and technical):

- 1) No connective in habitual order versus no connective in inverted order<sup>14</sup>. For everyday stimuli, in the RT analysis per subject (F1), there were no statistically significant differences for RRT ( $F_{(1,42)} = ,637$ ;  $p = ,429$ ) or for ART ( $F_{(1,42)} = 2,44$ ;  $p = ,126$ ). In the analysis per item (F2), there were not statistically significant differences for RRT ( $F_{(1,18)} = ,387$ ;  $p = ,541$ ) or for ART ( $F_{(1,18)} = 1,38$ ;  $p = ,256$ ) either. For technical stimuli, the comparison per subject (F1) did not prove statistically significant for either time measure (for RRT,  $F_{(1,42)} = ,105$ ;  $p = ,747$ ; for ART,  $F_{(1,42)} = 1,53$ ;  $p = ,223$ ). However, in the comparison per item (F2), the RRT comparison was statistically significant ( $F_{(1,18)} = 4,41$ ;  $p = ,05$ ), although min F' was not ( $F_{(1,34)} = ,11$ ). The ART comparison was not statistically significant. Thus, the on line measures did not show significant differences for the variation in the order of the causal relation in neither stimuli group. Even in the case of technical stimuli, the condition of presentation of inverted-order (effect-cause) implied lower RTs than the condition in habitual order (see Section 4.3).
- 2) No connective in habitual order versus with connective *entonces*<sup>15</sup>. For everyday stimuli, in the RT analysis per subject (F1), there were statistically significant differences for neither time (for RT,  $F_{(1,21)} = ,031$ ,  $p = ,863$ ; ART:  $F_{(1,21)} = ,151$ ,  $p = ,701$ ). The analysis per item (F2) did not show statistically significant differences between the RRT ( $F_{(1,21)} = ,196$ ;  $p = ,668$ ) and ART means ( $F_{(1,21)} = ,088$ ;  $p = ,774$ ). The value of min F' was not significant either. For technical stimuli, however, all contrasts proved statistically significant. Comparisons per subject (F1): for RRT,  $F_{(1,21)} = 14,59$ ;  $p = ,001$  and for ART,  $F_{(1,21)} = 27,56$ ;  $p = ,000$ . Comparisons per item (F2): for RRT,  $F_{(1,21)} = 38,12$ ;  $p = ,000$  and, for ART,  $F_{(1,21)} = 52,63$ ;  $p = ,000$ . The calculation of min F' was also significant: for RRT, min F'  $_{(1,32)} = 10,55$ ;  $p < ,05$  and for ART  $_{(1,32)} = 18,09$ ;  $p < ,05$ . Thus, for the cases of causal presentation of cause-effect order, the inclusion

<sup>14</sup> Everyday: "Guadalupe goes swimming every day. She is fitter and fitter." vs. "Guadalupe is fitter and fitter. She goes swimming every day."

Technical: "The calcium activated the enzyme calmodulin. The process of phosphorylation of synapsin I started." vs. "The process of phosphorylation of synapsin I started. The calcium activated the enzyme calmodulin."

<sup>15</sup> Everyday: "Guadalupe goes swimming every day. She is fitter and fitter." vs. "Guadalupe goes swimming every day, so she is fitter and fitter."

Technical: "The calcium activated the enzyme calmodulin. The process of phosphorylation of synapsin I started." vs. "The calcium activated the enzyme calmodulin, so the process of phosphorylation of synapsin I started."



of the connective only accelerated the reading and answering processes in the case of technical stimuli. In contrast, if there existed the possibility of involving prior world knowledge during comprehension, the impact of the connective was not significantly beneficial.

- 3) No connective in inverted order versus with connective *porque*<sup>16</sup>. In this case, all contrasts for everyday stimuli were significant. Contrasts per subject (F1): for RRT,  $F_{(1,21)}=5,19$ ;  $p=,033$  and for ART,  $F_{(1,21)}=26,09$ ;  $p=,000$ . Contrasts per item (F2): for RRT,  $F_{(1,21)}=35,71$ ;  $p=,000$  and for ART,  $F_{(1,21)}=82,82$ ;  $p=,000$ . Given these results,  $\min F'$  was computed for both measures and both were significant: for RRT,  $\min F'_{(1,30)}=4,53$ ;  $p<,05$ ; for ART,  $\min F'_{(1,30)}=19,84$ ;  $p<,05$ . However, for technical stimuli, neither contrast was statistically significant. Contrasts per subject (F1): for RRT,  $F_{(1,21)}=,866$ ;  $p=,363$  and for ART,  $F_{(1,21)}=1,66$ ;  $p=,211$ . Contrasts per item (F2): for RRT,  $F_{(1,21)}=,298$ ;  $p=,598$  and for ART,  $F_{(1,21)}=4,25$ ;  $p=,069$ . As follows, the condition of inverted causal relation showed a pattern of processing times inverse to the previous one. The inclusion of the connective accelerated the reading and answering processes only for everyday stimuli. The impossibility of involving prior world knowledge, combined with the inversion of causal order, could not be eluded by the inclusion of a connective.

## Discussion

### Types of Answer

To begin with, it is essential to discuss the types of answer. As shown in Table II, the most outstanding information is the degree of randomness of the answers under the no-connective condition in inverted order to technical stimuli. However, this is not the case in everyday stimuli, where the inverted order of the causal relation seems to only slightly hinder comprehension without statistical significance. Moreover, it should be noted that, under the no-connective habitual-order condition, there is a significant difference between everyday and technical stimuli, but it is not so striking and, of course, it is not in the degree of randomness. That is, although both cases show statistically significant differences, it is only under the inverted order condition that the type of answer does not display a clear tendency. This seems to show, at least, two facts: (a) the lack of prior world knowledge as an element of the comprehension process is in itself significant for this process and (b) the order of presentation of the causal relation seems to have some bearing on processing in all cases, although, when combined with the lack of prior world knowledge, it might become an effective barrier

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<sup>16</sup> Everyday: "Guadalupe is fitter and fitter. She goes swimming every day." vs. "Guadalupe is fitter and fitter because she goes swimming every day."

Technical: "The process of phosphorylation of synapsin I started. The calcium activated the enzyme calmodulin." vs. "The process of phosphorylation of synapsin I started because the calcium activated the enzyme calmodulin."

to comprehension. Nevertheless, the degree of randomness under the no-connective condition in technical stimuli is interesting for another reason and essential in reference to the iconicity principle. According to this principle, there is a tendency to understand that the syntagmatic order of clauses follows the order of events. If it were invariably observed, participants under the no-connective condition in technical stimuli, in absence of prior knowledge about the “order of events”, would be expected to understand the sentences regarding the first clause as the *cause* of the relation and the second as the *effect*. This would result in a far higher level of error than the degree of randomness: an inverted pattern with respect to the same condition but in habitual order. Still, the results indicate that subjects, in the absence of previous information about the events in question, do not indiscriminately use the syntagmatic order as a criterion, but they give ambivalent answers: randomness may be read as “both may be correct” or “I don’t really know”.

Furthermore, the effect of inserting the connective must be discussed in each case. For technical stimuli, the presence of the connective (that is, inserting a semantic instruction, in linguistic terms) begot a statistically significant improvement in the understanding process under all conditions. Yet, it should be highlighted that introducing “*entonces*” (so) under the habitual-order condition enhances comprehension but reflects the same tendency. In contrast, introducing *porque* (“because”) under the inverted-order condition eliminates the randomness level and, for the first time, determines the tendency of the answers. Once again, it is possible to point out, at least, two facts based on these data: (a) absent the prior world knowledge, the presence of linguistic elements that work as semantic instructions for processing is relevant in all cases, regardless of order or the continuity/discontinuity condition between clauses and (b) in the case of unfamiliar causal relations (which cannot be figured out with the prior world knowledge) presented in inverted order, the connective seems not only to facilitate, but also to be indispensable for, successful comprehension<sup>17</sup>.

Finally, it is noteworthy that each connective (*entonces* versus *porque*) brings about different effects in both types of stimulus. Whereas *entonces* did not substantially facilitate understanding in everyday stimuli but it did in technical ones, *porque* proved substantially facilitatory in both cases, causing nearly 100% of everyday stimuli answers to be adequate. In turn, a comparison of adequate answers to stimuli of both types with the same connective will show that there are no significant differences between everyday and technical texts containing *entonces*, while everyday stimuli containing *porque* are significantly better understood than technical ones (which are still more difficult to understand) with the same connective. Probably, understanding this pattern might require simultaneously articulating all the variables discussed: (a) if the Continuity Hypothesis is accepted, inserting *entonces* into everyday stimuli should not be expected

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<sup>17</sup> This might be understood as an extreme case of the Continuity Hypothesis: in this case, the connective is not only “more beneficial”, but it enables the reader to understand. Still, in the discussion of the processing times, it will be demonstrated that the condition containing *entonces* is the most beneficial one.

to produce a major impact; on the other hand, inserting *porque* is expected to bring about more significant effects, which is evidenced by the results presented here: it equalize results in everyday stimuli under both order-related conditions (or, said another way, it eliminates the differences arising from the inverted-order clauses); (b) in the case of technical stimuli, the lack of prior world knowledge seems to be more influential than the inversion of clause order (even though, of course, if both are combined, it becomes the most complex condition) so, in any event, adding linguistic information to compensate for the lack of prior knowledge will have important consequences; (c) as has been stated, the combination of both variables (world knowledge and order) results in a “scale” of difficulty where technical stimuli in inverted order are the most complex ones and never prompt answers as adequate as do everyday stimuli. Inserting the connective apparently enables to overcome the difficulty presented by one of the variables but not by both at the same time. Thus, technical stimuli in habitual order receive as many adequate answers as do everyday stimuli, since one “barrier” (order) would seemingly be lifted and the connective appears to compensate for the lack of prior world knowledge. In technical stimuli in inverted order, on the other hand, the connective (*porque*) can break down only one barrier, so those stimuli are not understood to the same extent as everyday stimuli under the same condition (which, besides, receives the highest level of adequate answers of all the conditions analyzed). Owing to this pattern, the Continuity Hypothesis would become more complex and come under scrutiny: the presence/lack of prior world knowledge constitutes a variable that might modify some predictions made through that hypothesis.

## Processing Times

First, it should be underscored that, in online measures of processing times (both reading times –RRT– and answer times –ART–), under neither type of stimulus was there a statistically significant facilitation of the habitual-order condition. Nonetheless, one fact is worthy of mention: in the case of everyday stimuli, in line with the predictions of the Continuity Hypothesis and the iconicity principle, reading and answering times were shorter (not significantly shorter though) under the habitual-order condition. Nevertheless, in technical stimuli, this pattern is the opposite (although it is not statistically significant either). Then again, the iconicity principle does not seem to work in an unrestricted fashion, but only when the prior world knowledge may come into play as a variable. It may be thought that, in reality, there is a correspondence between the textual representation of the causal relation and the mental representation of the causal structure of the events already stored and that, in such case, the condition under which both coincide is facilitatory; but this would not be the case if the causal relation were not previously stored. In other words, the syntagmatic order does not impose the order in which events will be represented in a new casual relation, nor does it facilitate understanding unfamiliar relations.

Second, the effects of inserting the connective in each case must be discussed. It should be pointed out that the pattern traced is similar to that discussed in the previous section. The connective *entonces* significantly accelerates the process only in technical stimuli, concerning both RRTs and ARTs. Inserting *porque*, in contrast, significantly accelerates the process only in everyday stimuli; in technical stimuli, there is facilitation, but it does not lead to significantly shorter RRTs or ARTs. This pattern spotlights certain limitations of the Continuity Hypothesis. Its predictions are supported again in the case of everyday stimuli, which involve prior world knowledge and are understood, to a certain extent, by recognizing/identifying a previously stored causal relation. Nonetheless, the same predictions would turn out to be incorrect whenever the lack of prior knowledge about the causal relation bars that “recognition” and, instead, requires a novel construction. Put another way, in the case of technical stimuli, a marker of discontinuity (such as *porque*) did not prove more beneficial than a marker of continuity (like *entonces*). This pattern is presumably repeated exclusively when it is only the continuity/discontinuity of familiar relations that must be compensated for, rather than the continuity/discontinuity of relations that require construction “from scratch” in the same reading/comprehension process. In this regard, continuity/discontinuity might refer not so much to discursive relations *per se* as to the way in which familiar relations are stored and their correspondence with textual relations. Whenever the causal relation is not previously known, the least difficult condition is habitual order with connective (*entonces*) and in this case the reinforcement of the connective does appear to confer a significant benefit, although it is a continuity relation. On the contrary, *porque* (which provides a significant benefit in inverted-order familiar relations) does not facilitate comprehension enough to surmount two obstacles at the same time: the lack of prior knowledge and the inverted order.

## Conclusions

In conclusion, and in view of the results obtained, the hypotheses formulated at the beginning should now be reviewed.

The first hypothesis proposed that, in the absence of a connective, readers tend to process *causality* by iconicity: cause-effect (causal order by default or unmarked). This was confirmed in everyday stimuli, although it is not so evident in technical stimuli, which do not entail prior world knowledge. This information leads to the second hypothesis, which suggested that, if the stimuli are technical, owing to the impossibility of using prior world knowledge, the situation described in the previous hypothesis will become more evident. The study of the “type of information” variable constitutes one of the main concerns of this paper. The results of this Experiment support our initial prediction and exhibit the limits of the *iconicity principle* assumptions. It was noticeable that, as far as technical stimuli are concerned, two facts should be stressed:

(a) the no-connective inverted-order condition leads to random answers rather than to a pattern opposite to that observed under the habitual-order condition, which appears to demonstrate that the iconicity principle does not invariably apply; (b) there are not statistically significant differences between processing times, although they are shorter under the inverted-order condition. On the other hand, in everyday stimuli, the iconicity principle does seem to apply, in keeping with the Continuity Hypothesis, which proposes that the default case is cause-effect in the habitual order and is processed more quickly and more successfully.

The third hypothesis posits that, if a connective is used: (a) the tendency to process the relation by iconicity will gradually disappear, on account of the influence of the accurate semantic instruction given by the connective (and in line with the Continuity Hypothesis, whereby the most substantial benefit would be obtained with connectives signaling discontinuity) and (b) technical stimuli will be processed in the same manner as everyday stimuli. The former part of this hypothesis would be corroborated in everyday stimuli, because inserting *porque* greatly facilitates understanding, causing almost 100% of the answers to be adequate and significantly shortening processing times. This does not hold true in technical stimuli, and we see again how the type of information involved conditions the process: the most considerable benefits are gained by introducing *entonces*. In this respect, the latter part of the third hypothesis is verified only under the condition containing *entonces*, in which everyday stimuli and technical stimuli receive the same level of adequate answers. On the contrary, in the condition containing *porque*, adequate answers to technical stimuli are significantly lower than adequate answers to everyday stimuli. In reference to the last hypothesis (according to which the effects of inserting the particle would be consistent with the Continuity Hypothesis), it might be noted that, based on the results obtained in this experiment, it may be necessary to narrow the scope of the Continuity Hypothesis put forward by Murray (1997) to causal relations that the speaker knows before linguistically processing them. That is, this hypothesis is presumably confirmed for *causality* presented in habitual order and in inverted order, as long as familiar causal relations come into play (this means that the speaker has the events stored as *cause* and *effect*). Here, the process entails retrieving information previously stored and contrasting it with the textual information. In these cases, where comprehension seems to be inevitably affected by the prior world knowledge, both the iconicity principle and the Continuity Hypothesis are confirmed for causal relations. Yet, it does not seem straightforward to extend the predictions implied by these proposals to new causal relations, which must be constructed “from scratch” during the understanding process.

Lastly, it is important to mention that, beyond the specific results and their particular relations with the assumptions and predictions of Murray (1997) and Sanders (2005) Hypotheses, this article falls within a series of studies with broader questions and interests (FRANK et al., 2007; HAGOORT et al., 2004; KUPERBERG

et al., 2006, MCNAMARA et al., 1996; NOORDMAN; VONK, 1998; SANDERS, 2005; among other). How do our mental representation of the world and the conceptual structures stored in long term semantic memory intervene in the comprehension of discourse? How does that information articulate with textual information and the linguist knowledge of the listener/reader? Is it possible to establish some seriality of processing (be it top-down or bottom-up)? Or are they processes that can exist simultaneously and in strategic terms depending of each text and each listener/reader and his/her objectives?

In this particular article, it becomes clear that the possibility to involve our world knowledge during comprehension is a fundamental element for the process and, even if it is not possible to define the exact characteristics of the conceptual organization of that knowledge, it is possible to affirm that the notions of *iconicity* and *continuity* seem to show some possible criteria for that organization. The experiments currently being conducted (ZUNINO; ABUSAMRA; RAITER, 2012b, 2012c), with relations that suspend expected causality bonds (for instance, through adversative or concessive structures) will allow us to define with greater detail if *causality* could also be a criterion of conceptual organization and which relation it could establish with the previous ones. In the line of Sanders (2005), we think that *causality* constitutes a privileged dimension to study and discuss the complex relationship between thought and language, and even, between thought, language and real world. Within this framework, it is our intention to continue studying the articulation between that potential causal conceptual organization, the causal organization of discourses and the psycholinguistic processes involved in their comprehension.

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- *RESUMEN: Este trabajo estudia la intervención del conocimiento previo sobre el mundo y su articulación con el conocimiento lingüístico (semántico) durante la comprensión de relaciones causales. Se intenta verificar hasta qué punto el principio de iconicidad y la hipótesis de continuidad – especialmente, a partir de la propuesta de Murray (1997) –, se confirman en español. Esperamos, también, relacionar nuestros resultados con la propuesta de Sanders (2005): Hipótesis de causalidad por defecto. Para ello, se evalúa la comprensión de textos bioracionales de dos tipos (“cotidianos” y “técnicos”), en cuatro condiciones: orden habitual e invertido (causa-efecto vs. efecto-causa); sin y con partícula conectiva presente. Esperamos*

que la variable “tipo de información”, uno de los elementos centrales de este trabajo, genere un condicionamiento notable durante el procesamiento de relaciones causales y modifique de algún modo las predicciones del principio de continuidad e iconicidad. Los resultados obtenidos muestran que la ausencia de conocimiento previo, en efecto, puede alterar las predicciones y supuestos del principio de iconicidad y de la hipótesis de continuidad; y que, en casos de ausencia de conocimiento previo, la introducción de pistas lingüísticas (partículas conectivas) no sólo es facilitadora del proceso de comprensión sino imprescindible para poder llevarlo a cabo exitosamente.

- **PALABRAS CLAVE:** Causalidad. Iconicidad. Continuidad. Conocimiento de mundo previo. Partículas conectivas.

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# TOWARDS A LINGUISTIC-DISCURSIVE APPROACH FOR CLAUSE JUXTAPOSITION IN BRAZILIAN PORTUGUESE: ORALITY AND WRITING IN LITERACY PRACTICES

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- **ABSTRACT:** In order to consider the relationship between the elements of juxtaposed paratactic constructions, based on the hypothesis that these elements should be analyzed in their discursive context, along with their prosodic, morphosyntactic and semantic properties, I work with a functionalist model of junction (RAIBLE, 2001); an understanding of writing as inherently heterogeneous and as an enunciation mode (CORRÊA, 2004); and a concept of writing acquisition which takes discursive traditions into account (KABATEK, 2006), aiming to study these constructions from a linguistic-discursive perspective in writing acquisition data. Based on qualitative and quantitative analyses, the work has confirmed the above-mentioned hypothesis and shown that: (i) within the syntagmatic composition of a given tradition, other traditions are dynamically involved; (ii) the subject's discursive purpose, according to their representation of a moment, space of interlocution and other recipient(s) define the traditions which act as material for generating a tradition; (iii) in the investigated data, the combination of DTs and the junctions which occur in a given tradition repeatedly take the form of juxtaposition, as a sign which graphically points towards the actual situation of enunciation.
- **KEYWORDS:** Discursive tradition. Juxtaposition. Writing acquisition. Orality. Literacy.

## Introduction

In this paper, I study juxtaposed paratactic constructions in a sample of texts written by children in the first and second grades of primary school. Therefore, I shall use a functionalist model of junction, based on discretionary processes and a two-dimensional arrangement (RAIBLE, 2001), in which the tactic and logical-semantic and cognitive axis are intersected (KORTMANN, 1997); a theoretical foundation which defines writing as inherently heterogeneous and as a mode of enunciation (CORRÊA, 2004);

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as well as a concept of acquisition of this mode of enunciation which accounts for writing/speaking traditions (KABATEK, 2006).<sup>1</sup>

The perspective of parataxis by juxtaposition is guided by a proper view of the way these constructions are contextualized, as complexes placed in discursive environments, related to discursive traditions (DTs). In order to create utterances, a child deals with idiomatic rules (system and norm) and discursive rules, which belong to the domain of DTs – covering acts of speech, genres and textual types, styles, literary forms etc. – and refer to traditional ways of speaking/writing, which rule discourse production and reception.

As in previous work (LOPES-DAMASIO, 2014; TUÃO-BRITO, 2014; LONGHIN-THOMAZI, 2011a, 2011b), the approach of tradition compositionality relating to junction, here specifically juxtaposition, presumes that DT acquisition is always a process (OESTERREICHER, 1997). The child progressively assimilates fixed and variable properties of DTs, i.e., what these traditions evoke as *already-said* and as a *project of saying*.

Thus, this paper centers around the following question: On what is the relationship between the components of a paratactic juxtaposed construction based? The hypothesis is that the components of this construction should be analyzed in their discursive context, in association with their prosodic, morphosyntactic and semantic properties. The analysis of this context, in turn, should consider the DT in which the utterance is made.

This text is organized into four parts. In the first, one I shall present the theoretical assumptions and the expectations based on them; in the second, I shall introduce the view (on) and the way of viewing writing acquisition data. In the third and fourth parts, which feature the data analysis, I shall present (i) a proposal of contextualized analysis, providing an interpretation of the juxtaposed paratactic constructions in the light of discursive aspects related to the morphosyntactic and semantic characteristics of the described schemes and (ii) a combination of this analysis with the DT approach, in order to relate the results of (i) with the predictions for the *modes of saying/speaking* in discussion, along with the conditions of text production. I finish with final remarks.

## The assumed and the expected

From a Halliday functionalist view (1985), the term parataxis includes structures called asyndetic juxtaposition in traditional grammar, i.e. constructions whose clauses have the same status, without any linking word, and which can codify any meaning

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<sup>1</sup> Kabatek (2005, p.159) defines them as “[...] *la repetición de un texto o de una forma textual o de una manera particular de escribir o de hablar que adquiere valor de signo propio (por lo tanto es significable). Se puede formar en relación con cualquier finalidad de expresión o con cualquier elemento de contenido cuya repetición establece un lazo entre actualización y tradición [...]*” “[...] the repetition of a text or a textual form or a particular way of writing/speaking which gains the status of individual sign [thus able to convey meaning]. It can originate in relation to any purpose of expression or any content element whose repetition creates a link between actualization and tradition [...]”.

relations, from the most concrete, such as symmetric addition, to the most abstract, such as concession. In this sense, the identification as *parataxis* points towards an aspect of the tactic way of functioning, as opposed, for instance, to *hypotaxis*, while the identification as *juxtaposed* shows an aspect of the mechanism by which this taxis occurs, as opposed to equivalent constructions articulated by other mechanisms than “zero” ( $\emptyset$ ), such as *e, ou, mas, por exemplo, isto é* etc.<sup>2</sup>

Current research focusing on this type of construction considers prosodic, semantic and syntactic properties of parataxis and concentrates on the description of the semantic relationship created between the elements of the construction (PEKAREK-DOEHLER et al., 2010, THUMM, 2000). According to Thumm (2000), the precise nature of the relation established between these clauses is defined through discursive inferences, based on the (co-)context where they occur. This suggests that the subjects<sup>3</sup> project their text/utterance towards the other/recipient<sup>4</sup> through many contextualization hints and that the other/recipient is guided by these signs. Under these conditions, if juxtaposed paratactic constructions are recognized and interpreted by these others/recipients, how should they be identified by the analysts? This issue has not yet been sufficiently covered in literature (see for instance THUMM, 2000, p.7), mainly when it comes to considering the context in real situations of interlocution, i.e. according to the concept of an alive and concrete language (COSERIU, 1979). The analysis of juxtaposed paratactic constructions, often considered *primitive* or *syntactically simple*, should focus on how a subject signals to the other/recipient that two states of things *p* and *q* make a meaning relationship *x*, not *y*, emerge in a given (co-)context and that they are not simply placed in the discourse as two completely independent propositions.

In the analyzed texts, the lack of junctives to show the existing relation between the clauses is supplied by other forms of contextualization, whether they be lexical, prosodic, syntactic, kinetic or of any other nature. From this perspective, contextualization, according to Auer (1992, p.5 apud THUMM, 2000, p.8), tries to answer questions such as, “by which means is an activity *orchestrated* to be heard as such?” The search for answers to this question should start with the assumption that the interpretation of an utterance, as well as its production, is based on its *locus* of occurrence, which in turn is related to the DTs. In this *locus*, contexts are not given, they are not simply *there* as a complete, preset, ready-made, unchangeable set which the subjects simply evoke. Instead, they are dialogically established and re-adjusted during the verbal interaction. Therefore, the dynamic notion of (con)text, not as a product, but as a process, should

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<sup>2</sup> Paratactic juxtaposed constructions may differ from their lexically marked counterparts regarding, for instance, their discursive-pragmatic functions.

<sup>3</sup> The subject is understood as *individuation*, referring to the dialogic movement of the writer who, as a result, only has an individuality within the concept of dialogism.

<sup>4</sup> Following the concept of Authier-Revuz (1990, p.26) that words are always “someone else’s [...] no word is neutral, but instead is inevitably carried, occupied, inhabited, crossed by discourses in which it has led its socially sustained existence”, the subject always negotiates with the other what is constitutive to him and therefore defines how his utterances emerge.

be acknowledged. Under this perspective, I understand the incomplete face of DTs to be *projects of saying* which, through a dialogue with the “already-said”, evoke other new sayings which are intrinsically linked to the *locus* of production.

Thumm (2000, p. 8), quoting Auer (1986, p.24), stresses that these contextualization procedures can create a kind of connection between two essential parts. The junction mechanisms, in this sense, are empirically observable data or clues given by contextualization. However, when the phenomenon does not display these mechanisms, the clues should be found in the linguistic-discursive *environment* of the construction. Still, they are empirical and observable, as long as a component of world knowledge, organized in schemas, *frames* or *scripts*, is taken into account.

One criterion to define contextualization hints is their non-referential nature (THUMM, 2000, p.9), i.e. they do not have any meaning out of context and, although they are lexical elements, they can allow specific readings in particular contexts. This means that they indicate *frames/schemas/scripts* in an unstable way.<sup>5</sup> In these terms, contextualization clues are flexible, their signaling value is relational, meaning that the same clue might have different signalling values according to the context.

*Frames* can be operated and analyzed on a more local (micro) and more global (macro) level. In this work, I will locally analyze predicative constructions paratactically connected by juxtaposition, in order to investigate the factors which contribute to this link, as well as to the emergence of meaning in the complex. Thus, in line with Pekarek-Doehler et al. (2010) and Thumm (2000), I intend to show that the link is created based on morphosyntactic, semantic/lexical and prosodic properties, but also closely related to the context on the discourse level, in a more global sense. The analysis is meant to show the high sensitivity of the paratactic concatenation to its discursive environment, here considered to be part of DTs.

This perspective is therefore guided by the notion of paratactic constructions as local implementations which fit into a discourse, reflecting and projecting aspects of their production context on it. The analysis of paratactic juxtaposed constructions not as isolated elements, but constitutive parts of this context, considers them not simply a juxtaposition of two or more predicative sequences, but a construction integrated in and by its discursive environment in a complex and dynamic manner.

## Writing acquisition data: material and method

Writing acquisition data provides a thought-provoking material to study the process by which the complex relationship between the subject and language is created and changed, based on a discussion about the dynamic nature of this relationship within

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<sup>5</sup> The idea of *frame* considered here is culturally determined, as a known activity which allows the production, interpretation and/or comprehension of utterances in the form of different DTs. Thus, we consider the concept of expectation structures: “A *frame* refers to an expectation about the world, based on previous experience, against which new experiences will be measured and interpreted” (TANNEN, 1993, p.16 apud THUMM, 2000, p.11).



a language theory marked by DTs. The idea is not to observe the process of writing acquisition/learning only as a language system and norm, but rather to observe the relationship between the system, the norm and speaking/writing traditions, which act as a filter for making utterances. The purpose is to see what has been called writing acquisition as a process which involves the children's<sup>6</sup> imaginary movement through representations of linguistic forms as well as representations related to traditional ways of speaking/writing, as relatively stable types of utterances made in different spheres of human activity (BAKHTIN, 2000).

The process of text production, in the perspective of Corrêa (2004), would be mediated by images which the writers create about (their) writing, referring both to the product of their images about social representations of writing and to the construction process in various social practices. As such, DTs are considered here to be a substance and product of language.

The utterances chosen for this research are made on a semiotic basis – the graphic mark (writing) – and taken as a *mode of enunciation* (CORRÊA, 2004). In this sense, according to Abaurre, Fiad and Mayrink-Sabinson (2002, p.22), “[...] writing acquisition is a particular moment in a more general process of language acquisition. At this stage, once in contact with the written representation of the language he speaks, the subject rebuilds the story of his relationship with language.”<sup>7</sup> Thus, writing is a space where characteristics appear which reflect an image of writing created at school, but strongly marked by orality, since it is developed inside an oral thinking system (ABAURRE, 1990; STREET, 2006).

These characteristics point towards the heterogeneity of writing and are based on the theoretical status of speaking/writing (CORRÊA, 2008), which contrasts with the idea of writing as a representation of language in which *spoken* and *written language* are opposed in an imprecise and dichotomic way. Furthermore, it contrasts with the view of speech and writing as modalities, since the oral and written modalities are defined by references to their semiotic basis: the sound (speech) and the graphic mark (writing), creating a difference which has served as an inappropriate basis to validate the strong opposition between spoken and written practices, as if the semiotic aspect were the only relevant one to them.

Koch and Oesterreicher (2007), followed in Brazil by Marcuschi (1997, 2007), propose the so-called *methodological dichotomization of the speech/writing relationship* by creating a *typological continuum of text genres*, which includes the intermediate points between one extreme assumed to be typically oral and the

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<sup>6</sup> The idea of *imaginary* as a representation, according to Corrêa (2004 p.XIX), relates very well to its etymology, in the sense that it refers both to finished images and to their (re)construction. “The term ‘imaginary’, which, in its archaic usage, is also the name of the trade responsible for this kind of craft [...] would at once correspond to the set of images and to the – always unfinished – work of the craftsman when leaving his mark on the images he made.”

<sup>7</sup> Original text: “[...] a aquisição da escrita é um momento particular de um processo mais geral de aquisição da linguagem. Nesse momento, em contato com a representação escrita da língua que fala, o sujeito reconstrói a história de sua relação com a linguagem.” (ABAURRE; FIAD; MAYRINK-SABINSON, 2002, p.22).

other extreme assumed to be typically written. On this perspective, the semiotic bases, which are relevant to the constitution of the text *continuum*, are combined with other factors, such as communicative proximity/distance. The authors consider these to be related notions which should be evaluated through realization (phonic or graphic) and text concept (oral or written), which can occur on a *continuum of endless intermediate forms*.

Although this is the approach of many researchers who use the concept of DT, the dichotomization between both modalities remains, despite in fact being methodological and considering the variety of texts in the intermediate points of the *continuum*. Therefore, as already mentioned, I tend to adopt a proposal which defines speech and writing as modes of enunciation in which writing, though it is a solitary enunciation, never takes place without a representation of an other/reader/recipient, which creates a link with the mode of enunciation of speech, given that, more than the physical presence of interlocutor, what counts is the representation (CORRÊA, 2008, 2004).

As a result, in this work, the written mode of enunciation is considered a space where demonstrations of the subjects' singularity are valued, being understood as hypotheses and operations of these subjects, not as failures/mistakes. This option leads to an analytical treatment which is not bound by adequacy of the children's enunciation to the researcher's proposal or the correction models as provided by grammar for adults (CORRÊA, 2007).

The subject's hypotheses and operations, in the process of writing acquisition, concern not only the level of education, as traditionally understood, but the acquisition of different DTs, covering linguistic rules, DT rules and the way the subject relates to them, i.e. covering a concept of literacy which underlies an extensive socio-historical process related to reading and writing practices (STREET, 2006). Including the subject who is *learning to write* in formal literacy practices involves not only the process of codification and decodification, assumed in the elimination of illiteracy, but also a dialogical relationship between these practices and those typical for orality, since this movement does not start only with the process of formal writing acquisition. At the start of formal schooling, the children have already moved through several oral and written social practices. From this contact, they obtain great knowledge, here understood as images, of what is traditional or recurrent in the ways of speaking and writing.<sup>8</sup>

Thus, I am not suggesting a natural and direct path from orality to writing, but rather highlighting the role of orality traditions, which the child knows, in their acquisition process of the written mode of enunciation. In addition to the role of orality come the traditions related to the image of writing conveyed by school and the heterogeneous nature of writing. The oral and formal traditions and this image of writing are connected

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<sup>8</sup> The same approach is followed by Capristano and Oliveira (2014) based on discursive genres from a Bakhtinian perspective. What I call traditional here corresponds to discursive genres, but might also correspond to other instances not related to them, such as linguistic constructions, forms of treatment etc. The main link between these notions, however, is that both are socially prefigured and expanded once the child enters the school environment.

to the presence of the other, a physically present or represented interlocutor and the point of reference needed for the subject and his writing process (CAPRISTANO; OLIVEIRA, 2014).

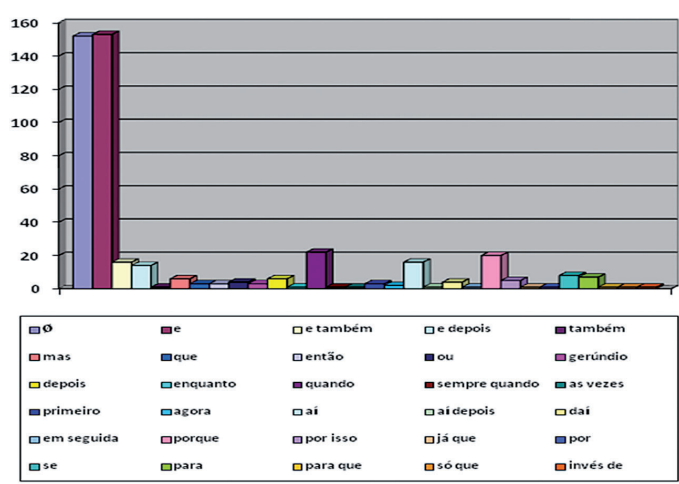
Following this perspective, the research universe comprises 100 texts extracted from the database about children’s writing acquisition, formed to support the work of the Research Group *Estudos sobre a Linguagem* (CNPq/UNESP, Brazil).<sup>9</sup> The selected material includes writings of students from the first and second grade of a public school (Romano Calil) located in the outskirts of the city of São José do Rio Preto, Brazil.

As to the method, a quantitative and a qualitative approach have been combined in two main stages: (i) analysis of juxtaposed paratactic constructions considering contextual-discursive aspects which define the characteristics of the constructions; (ii) combination of this analysis with aspects of the DTs where the texts are inserted.

### Morphosyntactic and semantic aspects in discursive traditions

Previous research (LOPES-DAMASIO, 2014; TUÃO-BRITO, 2014; LONGHINTHOMAZI, 2011a, 2011b) has suggested that, in writing acquisition data, the subjects prefer junction schemas with *e* (and) and juxtaposition to codify the various meaning relations, as shown in Chart 1:

**Chart 1 – Token frequency of junction mechanisms**



Source: Tuão-Brito (2014, p.79).

<sup>9</sup> The proposals have been created and assigned by Capristano and have been collected every two weeks. The students have been tracked from 2001 to 2004, during the four years of primary school, always in the context of school.

Table 1 shows the frequency of juxtaposition in the analyzed texts, along with the meaning relations listed in a scale with increasing cognitive complexity:

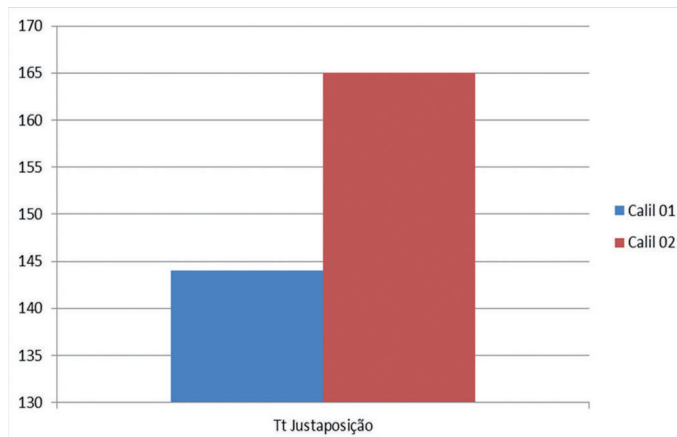
**Table 1** – Frequency of juxtaposition in writing acquisition data

Ø	ADDITION	MODE	SIMUL TIME	POST TIME	CAUSE	CON TRAST	Tt
<b>CALIL01</b>	81 26.21%	0 0%	0 0%	45 14.56%	17 5.5%	1 0.32%	144 46.6%
<b>CALIL02</b>	81 26.21%	1 0.32%	1 0.32%	53 17.15%	25 8.09%	4 1.29%	165 53.39%
<b>Tt</b>	162 52.42%	1 0.32%	1 0.32%	98 31.71%	42 13.59%	5 1.61%	309 100%

Source: Author's elaboration.

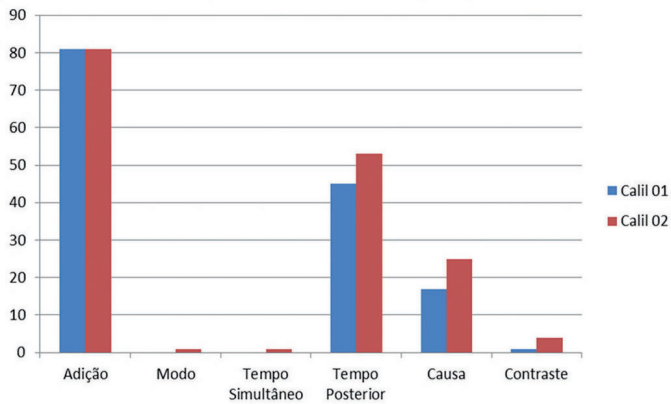
The following Charts complete the information provided by Table 1. It is remarkable how the frequency of juxtaposition usage increases in second grade writings (CALIL 02), see Chart 2. This increase is explained by the use of this junction strategy to codify a wider range of meaning relations, see Chart 3:

**Chart 2** – Juxtaposition in data from the 1<sup>st</sup> and 2<sup>nd</sup> grade of primary /2school



Source: Author's elaboration.

**Chart 3** – Meaning relations of juxtaposition in data from the 1<sup>st</sup> and 2<sup>nd</sup> grade of primary school



**Source:** Author's elaboration.

The increased frequency of juxtaposed constructions in data from the 2<sup>nd</sup> year of primary school contrasts with these which relate parataxis, especially juxtaposition, to simplicity and to the syntax of spoken language (in a dichotomic view) and language in its *most primitive stages*. Instead, analysis shows that, in less advanced texts, in the 1<sup>st</sup> grade, and more advanced ones, in the 2<sup>nd</sup> grade, different semantic relations are codified through the dialogic context mobilization, strongly associated to DTs and the relation between the traditions of orality, known by children, and those of formal literacy, in stage of acquisition.

In order to illustrate these statements, the following subsections show some texts written according to the proposals (P) presented in the List 1, according to the semantic patterns in Chart 3 – addition, time, cause and contrast – which will help explain the discursive basis which supports the relation between the components of the construction.

**List 1 – Proposals for the analyzed text production**

<b>Proposals</b>	<b>Proposal Description</b>	<b>Texts</b>
P(1) <b>Dengue</b>	The researcher handed out a leaflet about dengue and told all children not to comment with the others what they had received. Then, he asked them to read and see the leaflet attentively by themselves. Afterwards, he collected the leaflet and requested that they write about the read topic.	(01)
P(2) <b>Experience description</b>	Together with the children, the researcher made an experiments which imitated a water purification process. While they did the procedures, he asked them to pay great attention, since they should describe that experiment afterwards, so a third person could read and repeat all stages.	(05)
P(3) <b>Sad story</b>	The researcher asked the children if they remembered any sad story which had happened to them or loved ones and requested that they tell the chosen story in writing.	(02)
P(4) <b>Candidates to presidency</b>	The researcher asked the children if they knew who would be the candidates to presidency. After receiving affirmative answers, he listed five candidates on the board together with the children and asked them to write a letter to one of them, explaining what they thought he should do to improve the situation in Brazil.	(10)
P(5) <b>Story of Little Red Riding Hood</b>	The researcher asked the children if they remembered the story of Little Red Riding Hood and asked them to help him tell it. After this oral activity, he asked the children to tell their own story (version) of <i>Little Red Riding Hood</i> . During this activity, the researcher told some parts of the story <i>Little Red Riding Hood</i> by Chico Buarque de Holanda, trying to give examples of how they could change their stories.	(06)
P(6) <b>Shopping list</b>	The researcher asked the children to write a text in which they instructed a third person to go shopping. In this text, they should (a) choose a supermarket and indicate its location; (b) explain which products and how many the chosen person should buy; (c) define the amount this person could spend and, finally, (d) indicate the place where the person should deliver the purchases.	(03)
P(7) <b>Cake recipe</b>	The researcher brought a cake and asked which ingredients were needed to bake it. The children gave a few suggestions. Then, he read the recipe of a chocolate cake and asked them to write a recipe of something which they liked.	(04)
P(8) <b>Lecture report</b>	The children attended a lecture about the functioning of the hearing system and afterwards the researcher asked them to write to a third person (father, mother, aunt, uncle, brother, grandparents etc.) telling what they had understood about the lecture.	(08)
P(9) <b>Need glasses?</b>	The researcher asked if the children liked animals and possessed any. Then, he told them that he had found a magazine with a story describing an animal which they certainly did not have at home: the tapir. The text was read aloud twice by the researcher, who asked them to write what they had understood.	(07)

Proposals	Proposal Description	Texts
P(10) <b>About the painting</b>	The researcher presented a few copies of the work of Lasar Segall – the pictures: <i>Retrato de Lucy, Paisagem brasileira, Floresta crepuscular, Interior de pobres II, O encontro</i> – and a picture of the author at the age of about 29. Afterwards he asked the children to pretend that they were artists (painters) and draft a painting, describing it (name, kind of material and the reason why they had done or intended to do the painting).	(09)
P(11) <b>Invitation to Érica</b>	The researcher told the children that they were going to write an invitation to the journalist Érica who would come to visit them and talk about her work in the newspaper and how newspaper articles could be written. He arranged with the children that only the two best invitations would be delivered to the journalist in the name of the class – one representing the girls, the other one, the boys.	(11)

**Source:** Author's elaboration.

As can be seen in List 1, the proposed text productions do not indicate one single DT requested by the researcher, i.e. they do not require a single type of relatively stable enunciation:<sup>10</sup>

P(1) *Dengue* – in order to do the activity according to the requirements of the proposal, the child could at once develop the injunctive and list DTs, focusing the text on a list of what *should and/or should not be done* to avoid Dengue;

P(2) *Experience description* – the writer could realize the descriptive, narrative and injunctive DTs, focusing the text on a description of the experience and/or injunctions for proper execution of the experience and/or a narration which would tell someone else about it (see CAPRISTANO; OLIVEIRA, 2014);

P(3) *Sad story* – although the proposal focuses on narration, the writer might also infer the need to explain the choice of a given story, which would represent an argumentative DT, besides including, at several points of the text, descriptive DT, to present the elements of the narrative.

P(4) *Candidates to presidency* – the need to work with the letter DT leads to other DTs which appear especially in the main body of the letter. Since this proposal requires the writer to speak about what he *thinks* that the candidates *should do*, the argumentative DT also occurs, given that this *thought* must also be explained, as well as the injunctive DT, considering the possible insertion of instructions/orders/ advice to these candidates.

P(5) *Story of Little Red Riding Hood* – in this proposal, the narrative DT is clear for the writers, who can also develop descriptive DTs, to present the elements of the narrative. The request to change the end of the story creates the need to argue pointing out the reason for the change, even if it be just to fulfill a request of the proposal itself;

<sup>10</sup> The DT indicated in association with each proposal have been found as realizations in the texts which compose the *corpus* of this study.

P(6) *Shopping list* – the child would have to develop a shopping list, but also injunctions and descriptions which would guide the recipient in his task;

P(7) *Cake recipe* – the recipe DT leads the writer to develop list and injunctive DTs, since the ingredients must be listed and the actions must be organized;

P(8) *Experience report* – the report, description and narration DTs can be developed based on this proposal, given that, while focusing on reporting a lecture, the writer could also describe what had been presented and/or tell everything to someone else;

P(9) *Need glasses* – as they talk about the *tapir*, besides the description, they need the argumentative DT in order to explain/justify given characteristics, behaviors of this animal and of those related to it;

P(10) *About the painting* – the writer could realize the description and argumentation DTs in a text focusing on the description of his painting, but also on the explanation of the reason for choosing a given painting; and

P(11) *Invitation to Érica* – creating an invitation DT could also mean that the writer needs to argue so that the invitation will be accepted.

The *mixture of DTs*<sup>11</sup> shown in this list can be related (i) to the content of the proposal or (ii) to the complex nature of the requested DT. For instance: as to (i), in the case of P(6) *Shopping list*, the content of the proposal requires writing a text in which other relatively stable enunciations, beyond the shopping list itself, are necessary. The same occurs in P(11) *Invitation to Érica*, where the child, being inserted in a competitive environment, relates writing an invitation – supposed to be the best of the class – to the need of acceptance by the invited recipient, which leads to argumentation. On the other hand, as to (ii), complex DTs, such as those requested in (P4) *Candidates to presidency* and (P7) *Cake recipe*, a letter and a recipe, respectively, are inherently heterogeneous, in the sense that they are syntagmatically formed of other DTs.

In addition to (i) and (ii), one should consider that: (iii) the children oscillate between what they should write, according to the model set by school, and what they *wish* to write (SOARES, 2003); and (iv) the children oscillate in regard to the other/recipient which they perceive and represent for themselves, alternately writing to the other/recipient represented by the school institution and to the other/recipient represented

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<sup>11</sup> What I call *mixture of DTs* broadly corresponds to the concept of *ruins of discursive genres*, in the terms of Corrêa (2004), and can be understood as memories of generic enunciations found in writing (children's writing, in this work, but also others) which indicate representations made by children of those relatively stable modes by which they(we) enunciate in their(our) lives, in various social practices. The ruins show the intergenericity, far from any negative connotation and approaching their *constructive* sense, as "[...] more or less formless parts of discursive genres, which, when featured in a different genre, receive the status of historical sources – retrospective or prospective – in the constitution of a spoken or written expression" (CORRÊA, 2006, p.209, emphasis ours). The choice of *mixture of DTs* necessarily is related to the understanding of DT as speech/writing traditions which match discursive genres, but also to textual types, acts of speech, linguistic constructions, forms, styles etc. The acquisition of a DT requires at once a retrospective *and* a prospective dialog with repetitions of the "*already-said*" and a *project of saying* having the status of historical and discursive source (in what is new to each discursive event). Thus, the composition of a DT supposes the writer's movement through other DTs, since that shows the underlying (syntagmatic and paradigmatic) compositionality principle. Regarding the acquisition of the written mode of enunciation, this movement is closely related to traditions which the child already knows, evidently marked by orality, such as everyday conversations.



by the *direct participant/interlocutor of everyday conversations*, among other possible directions (CAPRISTANO; OLIVEIRA, 2014).

However, in line with Capristano e Oliveira (2014), we should consider that children's enunciations which emerge from these requests are school genres, equivalent to complex DTs written at school and marked by: (1) the *locus* of text proposal and production – the classroom in the school environment; and (2) by the didactic nature of the activity – with follow-up from the teachers responsible for the classes and, very important in this context, their intervention in the text production, through suggestions, answers to questions about *how to write* etc. It is a writing tradition which, as such, requires a more detailed approach, so that, through its complexity, other DTs can surface.

## **Mode of enunciation and meaning relations in juxtaposed constructions**

### **The relation of *Addition***

Pezatti and Longhin-Thomazi (2008) distinguish two kinds of addition among sentences: symmetric and asymmetric. Symmetric addition allows the order of its members to change without any significant change in meaning, since the members of the addition are independent, i.e. one member does not add meaning to the other. In asymmetric additions, reversibility is not allowed, since one member leads to the other and the state of truth of the following members depends on the preceding ones. Additionally, the chronological order with an iconic value also plays a role related to the asymmetry of the portions which form the complex.

Under these circumstances, I consider paratactic juxtaposed constructions expressing *addition* to be those defined as *symmetric*. On the present approach, the members of the addition are independent, according to the quoted authors, but highly dependent on the discursive context, since the development of the analyzed texts depends, to a great extent, on the addition of paratactic members. By these means, the subjects add new information or reintroduce discursively relevant given information and, through this movement, they make the text flow without establishing semantic relationships between its parts. However, it is essential to recognize the importance of pragmatic-discursive factors, such as relevance (GRICE, 1975) and argumentative scales (DUCROT, 1983), for instance, in determining precisely that order recognized in the text and no other.

The following utterance, developed from P(1), the proposal which offered the child a *preventive leaflet for Dengue*, shows the relation of symmetric addition:

(Text 01)

*Não deixe as boca das garrafas proalto Ø as  
tanpas no lixo Ø põe nos cacos de vidro no*

*lixo* si joga caco de vrid no chanão as

criança bote cortar e machucar intão

lixo si joga caco de vrid no chanão as

chão tem muito crinaça que já machuco [CALIL01-P(1)]

The subject starts the texts giving a few recommendations to his reader/recipient, in a DT which mixes a list and injunction, making use of juxtaposed paratactic clauses: (1) do not leave the mouth of the bottle turned upward; (2) leave bottle caps in the waste (3) discard glass fragments. These recommendations, which receive injunctive traces in the texts, due to the verbs used in imperative, are added to each other symmetrically. Therefore, by presenting a list of recommendations, the writer starts to develop his text by inserting new information, through juxtaposition, in each member of the paratactic construction. Although some changes may occur in the presented sequence of recommendations – which makes the construction symmetric – pragmatically, they show an increasing relevance which can only be established and inferred from the text itself. This means that the insertion of the third juxtaposed clause, *discard glass fragments*, plays a central role in the further text development based on this topic: *the children could cut themselves, if the glass fragments are thrown on the floor* [...]. This development, as should be noted, shows a context where the child oscillates between what they should write, observing the request of the proposal, and what they wish to write, meaning a warning to those who could harm the children by throwing glass fragments on the floor. This is a case where the child leaves the initial proposal and focuses on what seems most relevant to them.

The relation of addition, highlighted in (02), occurs in a text developed from P(3), a proposal which asked children to tell a sad story.

(Text 02)

Eu só sei que ese dia foi

muito muito triste, eu avia ganhado uma mari-

taca. E femia *ela gostava muito de*

*brincar muito Ø viver livre* voando pelo

ar e depois de quatro dias, fui até

lá dar comida a ela a cesi e...

ela tinha sido roubada e eu achei

a porta da gaiola aberta e pegada.

No barro foran dias e dias de triste-

za. [CALIL02-P(3)]

In (02), the subject starts the text describing the *time of the utterance* as a *very, very sad day*, thereby stressing his responsive attitude towards the content of the proposal. The narrative tradition developed by him focuses on the fact that his parrot was stolen and, of course, includes an excerpt describing the animal: *she really liked to play Ø live freely*. This description is inserted through paratactic clauses juxtaposed by symmetric addition, given that, in the context, it is important to present these characteristics, while the order is not necessarily fixed. Again, however, we see an increasing relevance of the characteristics presented by the writer in the complex in discussion. The characteristic presented afterwards, *live freely*, in the sequence completed by the juxtaposed clause *flying*, which specifies how this *free life* happened, is key to support the argumentation of the writer against *stealing the parrot*, which, if it lived freely, had no reason to fly away. As a result, the sequence of juxtaposed paratactic clauses describing the animal is presented in such a way that the sum of the characteristics is consistent with the fact presented by the writer, in the sense of adding *arguments* to support his perspective about his stolen animal.

As the occurrences of paratactic juxtaposition with an additive value show, in the texts (01) and (02), although it is not possible to establish a time sequence for these clauses, they display a discursive relationship which defines their arrangement in the text. Therefore, in the paratactic complex, these clauses have not only a function of inserting new information, making the text progress, but also, in an intrinsic association with this function, presenting the pragmatic-discursive relevance of these pieces of information.

### **The relation of *Time***

In cases where the paratactic juxtaposed sequence is asymmetric, circumstantial information can be added (see Table 1). In a temporal interpretation, one member of the complex is related to another through a chronological sequence with an iconic value, as illustrated in the excerpts (03) to (05):

(Text 03)

***Maria você vai ter que ila  
no tridico fazer augumas  
compras Ø você pega a venida  
e vai reto para cima Ø eu quero  
que você traga 4 cebolas 5 peixe  
2 quilo de açúca 12 duzia de ovos  
6 bananas 9 ameixas 2 detergente  
3 batatas eu tenho so 3 reais [CALIL01-P(6)]***

To fulfill the request of the proposal (6), the writer of the text (03) mixes injunctive and list DTs, based on a juxtaposed paratactic setting: (i) an order – *Maria, you will have to go to Tridico do some shopping*, (ii) an explanation about the way the other/recipient should follow to reach the destination – *follow the avenue and go straight up* and, finally, (iii) what should be purchased – *I want you to bring [...]*. These juxtaposed clauses display an order related to the iconic sequence of actions in the real world and their presentation in the text. In other words, since the subject is not expected to tell what should be bought before asking someone to go shopping, the relationship of precedency and posteriority between the components of the paratactic construction is crucial for the discursive development of the text.

Note that the other/recipient is represented as *Maria*, the person chosen to do what the writer is requesting as the direct interlocutor in this dialog, but, additionally, the teacher/researcher other/recipient is also represented, as can be noticed in the methodic form by which the writer fulfills what has been proposed, according to the instructions given by the teacher/researcher in the proposal 6.

In the texts in (04), below, the writer develops two recipes, one for chocolate cake and the other for rice, presenting typical action sequences with a non-prototypical mixture of list and injunctive (mode of preparation) DTs, typical for recipes. Regarding these texts, I would stress: (i) the representation of the other/recipient as the person receiving instructions to prepare the recipe, step by step and on-line, illustrated by the use of the pronoun *you*<sup>12</sup>, which indicates that this utterance is addressed to an anonymous other/recipient; (ii) the use of verbs in imperative related to the purpose of ensuring a proper reading and interpretation of the utterances in the written mode of enunciation;<sup>13</sup> (iii) the simultaneity between these utterances and the time/moment of enunciation, in the same iconic action sequence expressed by the semantics of the juxtapositions highlighted in bold:

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<sup>12</sup> The use of *you* in children's utterances found in recipes, reports, among others, apparently is related to television shows where several activities, including recipes, are taught to an anonymous audience (CAPRISTANO; OLIVEIRA, 2014; KOMESU, 2003), as well as the contact to relatives – mothers, grandmothers – who make similar utterances when doing certain tasks.

<sup>13</sup> In BP, less formal (more dialogical) speech events favor the use of imperative in association with indicative, whereas more formal (less dialogical) events favor the use of imperative in association with subjunctive (SCHERRE, 2007). Nevertheless, the dialogical nature of the children's enunciations, marked in the syntax and in constructions such as *and enjoy, that's all*, seems to indicate that the use of verbs related to subjunctive, in utterances such as (04), might be due to an attempt to ensure its most proper interpretation, as well as to the representation of the school institution other/recipient, which reinforces other forms in the child's linguistic universe.

(Text 04)

Bolo de chocolate

Uma colher de sopa de manteiga

uma chicara de açúcar

***depois coloque duas chicanas de farinha de trigo Ø***

***uma ou duas chicanas de leite***

modo de fazer

mecher todos os ingredientes que você colocou

em uma hora ***e coloque em uma açadeira***

***untada Ø espere assar e bom apetite***

arroz

coloque uma cebola picada em uma

panela com óleo em seguida coloque o

alho e deixe fritar ***depois coloque o***

***arroz escolhido Ø poe sal Ø mecer um***

***pouco e poe a agua Ø tire os grãos***

***de arroz do canto da panela***

e pegue a tampa e tampe mais

não pode fechar tudo tem que deixar

um boraco depois do ponto tampe

isso é só. [CALIL01-P(7)]

The asymmetry of the markedly time-related paratactic juxtaposed constructions is directly associated to the non-reversibility of their order. Something similar happens in the following example:

(Text 05)

Purificador de água

Vamos precisar de:

. uma garrafa descartavel de uma tesoura

pedra, areia fina e areia grossa .

***depois ah pegar a tesoura Ø corte a garrafa e***

vamos usar a parte de cima e a debaixo

a de cima e como um funil e bota primeiro

a areia fina e de pois areia grossa e pedras

pegue agua suja e bote dentro do funil e o

algodão depois usar a parte debaixo e vai co-

meçar purificar a água. [CALIL02-P(2)]

In the utterance in (05), the writer provides a report which dialogues with the recipe in terms of: (i) its formal aspects, though presented unconventionally, namely: a list of items needed to perform the experiment – *we will need a one-way bottle, a scissor, fine sand and coarse sand* – and the mode of preparation; and (ii) the instruction purpose, also found in other DTs.

The writer begins his utterance in the first person plural, thereby joining the *I*, who makes the utterance, and the other/recipient, who the *I* addresses, indicating proximity/engagement between the writer and the other/recipient represented by him. The nature of tradition, however, leads the writer, in this project of saying, to alternate between this more participative interlocution and a more injunctive one, codifying the strongly instructional content of the utterance through different forms of imperative (*pegar a tesoura, corte a garrafa, bota primeiro a areia fina*). The variation in the form of marking the imperative, as shown in this text, reinforces what I have indicated in regard to the previous text: interpreting this aspect as a sign of dialogical and typically less formal utterances, which, therefore, signal the writer's movement across various ways of conceiving his relationship with writing considering the objectives of the utterance he makes. Additionally, the heterogeneity of writing is indicated by the interjection *ah*, which can be related to the writer's concern about remembering the steps of the experience and thereby ensure that the purpose of the tradition in which his utterance is developed is fulfilled, as proposed.

The simultaneity of these utterances with the moment of enunciation, a key factor in the semantic constitution of the highlighted juxtaposed complexes, also reveals in this utterance the iconic relation between the text and the world, which is equally expressed by *and it will start to purify the water*, at the end of the text.

Paratactic constructions of the types illustrated in the texts (03) to (05) can be connected to the iconic order of their members as well as to the semantics of the verbs which express sequence in time, along with other aspects, such as the interference of twin verb tenses and verbal modes directly related to the objectives of the text writer. Analysing the parameters of explicitation, identity and animacy of the syntactic subject in these constructions can indicate its level of syntactic integration.<sup>14</sup> In the investigated data, the subjects are always animate – which stands in direct association with the narrative tradition,<sup>15</sup> recurrently found in the texts –, in most occurrences they are also identical, appear explicitly and, when elliptic, they can be clearly retrieved from the context. Therefore, the semantic-discursive interweaving of temporal juxtaposed paratactics does not equal a high integration level of the clauses forming the complex, which is thus at a less advanced stage of grammaticalization.

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<sup>14</sup> Studies suggest that, the greater the semantic integration (which means an advanced stage of grammaticalization, according to Heine, Claudi e Hünemeyer (1991)), the greater will be the use of zero anaphora to mark identical subjects and more recurrent will be the trace [-animate] (LIMA-HERNANDES, 2008, p. 6).

<sup>15</sup> The narration, as a speech/writing tradition, recurrently occurs in this data as a way of acting in the compositionality of other traditions (LONGHIN-THOMAZI, 2011a, 2011b).

Although the syntactic integration between the clauses should be defined at a low level, the discursive integration should be defined as essential for the kind of identified temporal relations. The discursive purposes of the texts are the determining factor for the sequence of the facts presented in iconic order. The relation between “before” and “afterwards” provides the text with the trace of practice which aims to fulfill a purpose.

To finish this section follows the text (06), where the relation of *simultaneous time* can be observed:

(Text 06)

a capelzinha vernelha

. Era uma vez una mulher chanado Maria. Ela tin una filha chamada Roberta nas chanavam ela de Chapelzinho vernelho porque ela tinha uma linda capa vemelha. Um belo dia dona Maria mandou Chapelsinha levár algus doses para vovó e a dona Maria falou - filha va para o caninho mais longo para o lobo não te pegar e não conversar con estranho viu.

. E lá foi apelsinho vernelho, mas no meio do caninho “rac!” ai falo a chapelsinho - quem me arranhou descupe minha menina, era o lobo desfarsado de lenhador. “uuuuu”! vejo que você está indo para a casa da vovó e pelo caninho mais longo va por ali esta ben . E ela foi mas o lobo chego prineiro e prendeu a vovó e lá está a capensinho. que boca grande é para comer vosê *socorro, socorro, socorro Ø um guarda.*

. *Que estava pasando escutou e lá foi apelsinho vernelho*, Alén de ter salvado [verso da folha]  
a vovó matou o lobo. [CALIL 02-P(5)]

The writer begins the text with a DT *Once upon a time*, recurrent in the introduction of narrative traditions identified as *tales/children stories and/or folk tales*, whose role is to undefine the time setting of what is being told. This text is a narration, with the typical insertion of descriptive parts and direct speech, including the character's cry for help after the threat of the wolf. At the same time as this sentence is spoken by the character Little Red Riding Hood, it is heard by the guard, iconically representing what would happen in the real world. However, the text dramatically expresses the cry for help and then, in a juxtaposed manner, the fact that the guard, who was passing by, went there because he heard it. Still, in the clause juxtaposition the idea of simultaneity in time is not lost, because the paratactic members are inserted in a given discursive context.

### **The relation of *Cause***

In the absence of explicit junctives, the sense of *cause* is expressed discursively, as I have shown regarding the notions of *addition* and *time*. Thus, the concept of causality adopted in this paper surpasses the logic-semantic domain and is expressed in the light of discursive relations, which are inherent to the world knowledge of the participants in the interaction (ZIV, 1993, 1997).<sup>16</sup>

Following this perspective, juxtaposed paratactic constructions, even without explicit linguistic marks, allow for a causal interpretation, thereby distancing the conceptual and linguistic representation from causality, but at the same time relating the conceptual representations to pragmatic-discursive aspects assimilated from the context.<sup>17</sup> Under these conditions, the juxtaposed paratactic constructions in the analysed texts contextually allow causal readings, within the semantic polysemy of this domain, in most causes leading to causal readings with socio-physical content (SWEETSER, 1991), of *cause-effect* or *assertion-explanation*, as shown in the examples (07) and (08), respectively.

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<sup>16</sup> This understanding aligns with a basic category for representing human knowledge which covers a semantic polysemy – *cause, consequence, reason, explanation and justification*.

<sup>17</sup> This phenomenon has also been studied by Ziv (1997) for constructions in English. The author suggests that causal interpretations can derive from principles related to relevance (GRICE, 1975) and to world knowledge, by studying juxtaposed paratactics, paratactics with *and* as well as non-finite gerund and participle constructions and relative constructions. About relative constructions with circumstantial values, see also Longhin and Lopes-Damasio (2014).



(Text 07)

Usando oculos

Anta.

A femia é maior do que o macho o filhotes e quem a mãe *a anta não enxerga direito Ø ela fica trombando nas arvores Ø ela gostade coisa salgada Ø os cassadores põem sacolas de sal* e quando chove molhaosal e as coisas que ela come ficão salgadas e também ela é muito grande ela é grande do tamanho de um elefante éla é mamifera. [CALIL01-P(9)]

(Text 08)

Mai hoje eu apredi **como**

cuida do ovido itudo mais

**é muintacoisa Ø não daprais**

**prica** porque é coisa dimais ite

uma cordinha que sobe ate

u selepru e tanbei que tetrês

ossino [CALIL01-P(8)]

In the text (07), written based on P(9) *Need glasses*, the writer addresses the researcher/professor other/recipient through the title, *Wearing glasses*, which relates his utterance to what has been told in the proposal. However, he feels the need to further define the topic of his speech, therefore indicating, through the title *Tapir*, another representation of the recipient, as a direct interlocutor who does not know the animal about which he will speak, thus explaining the description to be made. In this scene, the child represents itself as someone who holds the required knowledge to introduce a given animal to the other/recipient, represented as someone who does not know this animal, while in fact, the child has also only just been introduced to it, as the last comparison shows, *it is as large as an elephant*.

Thus, the utterances are filtered basically into descriptive traditions, in combination with argumentative ones, since some traces of the introduced animal and those who interact with it (for instance, the hunters) need to be explained. In the first highlighted binary sequence, *the tapir can't see very well Ø it keeps bumping into trees*, the fact that it can't see well is considered to be the reason why tapirs bump into trees. In the second, *it likes salty things Ø the hunters leave salt bags*, the fact that they like salty things is considered to be the reason for the hunters' behavior. In these sequences, the iconic temporal order and the verbal semantics typical for an action or event open the possibility of a causal interpretation for the utterances. At the informational level, each pair of the causal complex is responsible for presenting one piece of new information which, at the prosodic level, is codified in different intonational units. The cause-effect relationship between these pieces of new information, in intonationally independent

clauses, however, is codified in the context, according to the (newly obtained) world knowledge of the speaker/writer.

In the text (08), written according to P(8) *Experience report*, as proposed, the writer addresses the other/recipient *Mother*, represented as a direct participant-interlocutor of the dialog, in addition to an other/recipient represented by the researcher/teacher, who is the reason for the writer to argue that he does not feel able to *report/explain* the experience. The dialog with this other/recipient apparently is also reflected in the excerpt *and it has a little string that goes up to the brain and also three little bones*, information which might have been *remembered* by the teacher/professor during the student's text production.

More particularly, in the binary sequence – *it's so much*  $\emptyset$  *I can't explain* –, the assertion *it's so much*, which appears at the beginning of the text, when the writer tells the interlocutor how he learned to take care of his ears and everything else, is the basis for the additional explanation *I can't explain*, in other words, *I can't explain everything I've learned because it's so much/it's too much*. In this context, at the discursive level, we find an addendum which is the result of the writer's judgment about his own discourse and thus supports his initial statement, his position. As in the previous example, at the informational level, each pair of the causal complex is responsible for presenting one piece of new information which is codified prosodically in a different intonational unit. Again, it is the writer's world knowledge that sustains the causality relation inferred from the context. In other words, based on a personal evaluation about the conditions of his discourse, the writer makes a statement and an addendum, establishing a cause relation of the type *assertion-explanation*.

Hence, according to Ziv (1993), the causal sense in paratactic juxtaposed constructions is legitimated in context by discursive principles. The idea of time, in certain instances, favors the causal reading, since the temporal order of events in the world is linguistically translated into the order of asymmetric clauses, linked by an iconic order, which makes the world and language converge. In this iconic order, interpreting what comes before as a cause, as in the occurrences highlighted in the text (08), and assertion, as in text (09), and what comes afterwards as effect/explanation, respectively, is natural: it is reasonable for the tapir to bump into trees because it can't see; for the hunters to leave salt bags because the tapirs like them and they want to attract them; for someone to be unable to explain something because it seems too complex (*too much*).

However, beyond the temporal relation, which is basic to the constructions in discussion, the cause relation depends on the context, which can legitimate or not the implied cause-effect, based on the speaker's/writer's knowledge and their beliefs about the world. The idea of cause in paratactic juxtaposed constructions is therefore strongly discursive, relying not only on traces of the linguistic context, such as the iconic order of clauses and the verb meaning, but also, and above all, on enunciative-discursive schemes of models and world expectations. These schemes are particularly relevant and therefore recurrent in contexts marked by the tradition of presenting a given point of view, the writer's one, conventionally called argumentative.

## The relation of *Contrast*

In this paper, I understand the configuration of contrast along the lines of Pekarek-Doehler et al. (2010), not as a logical operation or merely a semantic relation between two predicative constructions joined paratactically, but as an activity performed by the subject, in which the structures, despite not being marked morphosyntactically, have the function of acting as resources for an intended purpose. This relationship can be supported by several other syntactic, lexical-semantic and prosodic means, which help create parallels to define differences, refutations which add argumentative functions to the utterances based on world knowledge and the speaker's/writer's expectations.

Some of these functions are driven, more specifically, by linguistic correlatives, such as those highlighted in (09) and (10), whereas others have a more global composition, discursive-contextually dependent, as I show in (11).

(Text 09)

*Eu fiz no meu quadro o sitio do  
pica-pau amarelo, Ø eu só de-  
nhei a quilo porque eu não  
tinha nada para fazer.*

Meu dezenho tem: a emilia,  
a narinho e o Pedrinho,  
arvores e o sol e as nu-  
vem.[CALIL02-P(10)]

In (09) the binary sequence in a rigid order – *I painted the yellow woodpecker farm on my canvas Ø I only painted it because I had nothing to do* – shows an argumentative strategy to mark the contrast by using *only* associated to *had nothing to do*, as part of the causal relation which, in turn, forms the second paratactic member. Considering the suggestion of P(10), painting a canvas and afterwards describing it, the writer, despite some lack of inspiration, does the activity, but allows us to retrieve the contrast when he discusses his choice. In this utterance, the writer simulates a dialog between two characters, the child, which represents himself, and another character representing the other/recipient who, at the same time, corresponds to a direct participant/interlocutor of the dialog and the teacher/researcher. In face of this representation and the assignment, in a formal school context, the child fulfills their task, highlighting the contrast.

The explicit negative along with syntactic parallelism to mark a contrast can also be noticed in the utterance in (10), based on P(4) *Letter to the president*, in which the writer, using injunctive and argumentative traditions, has a direct conversation with his other/recipient, *José Serra*.

(Text 10)

José serra

. Ce você ganhar terá de mostrar agilidade você terá que fazer para tirar as pessoas da rua *dar comida para que eles não passe fome* *Ø você não fas isso seu fosse você ia fazer isso* *Ø você não mostra vergonha* ajude nos pense naqueles que estão sofrendo agora você não pensa sua bola de futebol ajuden eles fazer isso você estará colaborando.[CALIL02-P(4)]

This strongly dialogic utterance<sup>18</sup> includes two paratactic juxtaposed sequences in the pairs, as follows: (i) *dar comida para que eles não passem fome* *Ø você não faz isso* [give food so they won't starve *Ø* you don't do that]e (ii) *se eu fosse você ia fazer isso* *Ø você não mostra vergonha* [If I were you I would do that *Ø* you don't care]. In (i), the writer creates the contrast between what the writer *should do*, but *fails to do*, in his opinion, being represented as the *I* who addresses the identified other. In (ii), immediately afterwards, the first pair, composed of a conditional clause, recursively contrasts this *I* which imagines itself in the position of the other with the other (*you*) featured in the second clause of the complex. Two different attitudes underlie this pair in a discursive integration: *you don't do that because you don't care and that makes you different than me, who would do so* [meaning that *I* care]. The negatives (*to do vs not to do*), in addition to personal points of view judged and qualified distinctively by the writer (*I vs you*) mark different perspectives, from the perspective of the writer, which, legitimated by real-world principles – in this case, related to several attitudes expected from politicians – allow a contrastive interpretation.

In the following text, the contrast is also marked by an opposition between *me* and *you*. However, the discursive direction in (11) is different than in (10):

(Text 11)

Para Érica

Como você vai, *mesmo não*  
*conhecendo você já poso saber*  
*como você é jornalista e*  
*eu conheço jorna lista como*  
*a palma da minha mão.*

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<sup>18</sup> As opposed to relatively stable utterances, such as recipes, according to previous remarks in this paper, the representation of the other addressed by the utterance is no longer anonymous. In this sense, it shows a direct participant/interlocutor, identified in the utterance and, therefore, acting as reference for the pronoun *you*.

. Você gosta de desenhar  
porque **eu adoro desenhar, Ø você  
deve gostar de escrever** olhe um  
dos meus desenhos  
[desenho]

. Queria convidar você para  
vim aqui na chase abraços de  
João [CALIL02-P(11)]

The utterance in (11), based on P(11) *Invitation to Érica*, shows typical features of written invitations, such as the addressing *To Érica* and the explicit purpose of the act *I would like to invite you to come to my class*. However, some aspects of this utterance are related to the tradition of inviting people orally, resembling a dialog which often is informal and starts with an attempt to approach the interlocutor, as observed in *Como você vai?* [*How are you?*] and throughout the development of the text, in which the writer makes of point of following this approach, even in an unfavorable context.

Thus, the contrastive relation is marked throughout the development of (11), being codified by different means. At the beginning, the writer states that *although I don't know you, I can already know what you are like: a journalist*. Specifically, by representing his other/recipient participant/interlocutor, based on his world knowledge about what and how a journalist is – claiming to know them *like the back of his hand* – the writer, despite not knowing the journalist “person”, can create expectations about her and shape his discursive purpose of trying to approach this other/recipient, as opposed to the previous text.

Another evidence of this attempt to approach her appears in the question *Você gosta de desenhar?* [*Do you like to draw?*]. The insertion of this question is supported by the causal paratactic construction *porque eu adoro desenhar* [*because I like to draw*] (which, in turn, is shown by a drawing in the text). However, recursively, this clause functions in the juxtaposed pair *because I like to draw Ø you must like to draw*, which, through its binary order, again creates a contrast, marked lexically (*draw x write*), but primarily marked in the discourse. If the writer knows the journalists like the back of his hand, he is supposed to know that journalists like to write. In any case, this contrast does not overshadow the wish to approach the other, as marked and reinforced by this subject. The whole discursive strategy expressing the attempt of the *I* to approach the other/recipient, even in a context marked by contrasts, is justified by the intention to utter an invitation to this other/recipient and make it be accepted. For the writer, the best invitation of the class would be the one with the greatest chance of being accepted.

## Final remarks

In this paper, the view on predicative constructions paratactically connected by juxtaposition, using data from acquisition of the written enunciation mode, has allowed us to confirm the hypothesis that the connection between the members of this kind of construction, as well as the meaning relation emerging from it, result from their discursive context. In this respect, in order to properly understand this kind of construction, considering inherent aspects of DTs is just as important as considering their morphosyntactic, lexical-semantic and prosodic properties.

In the discursive environment of a given speaking/writing tradition, *frames/schemas/scripts* are evidenced and in order to fulfill the expectations arising from them, some meaning relations, though not explicitly marked, are more expected than others. The texts resulting from the proposals *Cake recipe* and *Experience description*, for instance, predominantly express temporal relations in the recipe and description DTs, since the order of facts in time is priority, in an iconic relationship between the text and the world. In texts written based on proposals where the list DT was evident – such as *Shopping list, Dengue* –, the idea of symmetric addition could also be observed. In these texts, even though the order of the paratactic members with an additive value could be changed, displaying them as codified has an argumentative relevance. The cause and contrast relations also surpass the logic-semantic domain and are expressed in the light of discursive relations, which are inherent to the world knowledge and the set of beliefs of the participants in the interaction, in particular the writer's, in some relatively stable utterances. These relations could be observed in several texts, whenever the recurrent trace was argumentation, whether to establish the cause-effect or assertion-explanation relation through socio-physical content or to mark incompatibility between two entities.

This work has also suggested that directing the text production proposal towards a given DT, as in the proposal *Sad story*, for instance, which calls for a narrative DT, does not prevent the occurrence of a *mixture of DTs*. As such, this study can show various examples of a DT composed of other DTs, according to its criterion of syntagmatic compositionality, and show how this mixture is related to different factors, such as the kind of DT, the kind of proposal guiding the text production and the kind of relation between the subject and the tradition and/or the way he enunciates this tradition.

In this sense, even though some meaning relations are more recurrent in certain traditions, as shown by the examples – such as the proposal *Candidates to presidency*, focusing on the production of essentially argumentative enunciations, in which cause and contrast relations are expected – these relations are also constitutive of other traditions, such as predominantly narrative, *Sad story*, descriptive, *Need glasses, Experience description, Cake recipe*, injunctive ones, as *Candidates to presidency* etc.

One discursive issue which is relevant for this work and aligns with the results presented by Capristano and Oliveira (2014) is the representation made by the writer of the other/recipient of the utterance, which emerges in the texts simultaneously referring to: (i) the school institution other who must be acknowledged, since all texts belong

to an educational macro DT, as a writing tradition set exclusively in the *formal school context*;<sup>19</sup> (ii) the professor/researcher other; and (iii) the direct participant/interlocutor other in the dialog.

Regarding (ii) and (iii), I relate the dependency of utterances to the enunciation context, in which the writer and the reader share the same enunciation situation, which allows the writer to point towards it in the configuration of text meanings. In this setting, the use of juxtapositions is a gesture of the child/writer indicating the fact that they rely on this knowledge shared with their other/recipient/reader at the moment of enunciation. In line with Capristano and Oliveira (2014) and Corrêa (2004), I propose that, based on the belief that the context in which the utterance has been made is *moulded in their writing*, children join clauses by juxtaposition without using tactic junction mechanisms to express the codification of the various meaning relations, just as they follow other strategies, e.g. using definite nominal expressions and pronouns without referents (CAPRISTANO; OLIVEIRA, 2014).

However, this gesture of the writer in acquisition stage of a new (written) mode of enunciation has a specific trace, as a gesture made in relatively stable enunciations: at the same time as it points towards the context, it also provides evidence in the co-text, i.e. linguistic marks which guide the other/recipient to the meaning relation which can only be truly understood in the discursive environment. This indicates that the subject is inserted in writing by moving across the fixed, but also the incomplete aspects of traditions, and therefore chooses parataxis by juxtaposition, since it is a strong indicator for traditions already known by the subject; traditions found in orality.

The gesture represented by the tactic mechanism of clause juxtaposition cannot be completely defined as a *fissure*, meaning gaps which can only be filled by the other/recipient present at the moment of enunciation, but could be considered a *fissure* as long as it is understood as a gap which can be filled by the other/recipient who considers a sum of linguistic – in the sense of what is traditional and thus fixed in texts – and discursive cues.

In sum, I point out at least three important considerations arising from this work: (i) in the syntagmatic composition of a given tradition, other traditions are dynamically involved – what I call *mixture of DTs*; (ii) the factor which rules this compositionality principle of DTs is strongly discursive, in the sense that the discursive purposes of the subject, according to his representations of a given moment, space of interlocution and other/recipient of his utterance define which traditions serve as material for producing a tradition; and, finally (iii) in data from acquisition of the written mode of enunciation, the mixture of DTs, as well as the junctions which occur in a tradition, are recurrently made through juxtaposition, as a gesture which graphically points to the actual situation of enunciation, since the subject imprints his experiences with the traditions of orality, especially dialog, in the construction of writing traditions.

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<sup>19</sup> Capristano and Oliveira (2014), in the analysis of text from the same corpus as researched here, provide evidence which also supports this position, such as the existence of school headers.

LOPES-DAMASIO, L. Para uma abordagem linguístico-discursiva da justaposição oracional: oral e escrito em práticas de letramento. *Alfa*, São Paulo, v.60, n.2, p.289-319, 2016.

- *RESUMO: Para refletir sobre a relação entre os componentes de construções paratáticas justapostas, a partir da hipótese de que esses componentes devam ser analisados em seu contexto discursivo, em associação com suas propriedades prosódicas, morfossintáticas e semânticas, assumo um modelo funcionalista de junção (RAIBLE, 2001); um entendimento da escrita como constitutivamente heterogênea e como modo de enunciação (CORRÊA, 2004); e uma concepção de aquisição de escrita que considera as tradições discursivas (KABATEK, 2006), com o intuito de lançar um olhar linguístico-discursivo para essas construções, em dados de aquisição de escrita. A partir de análises qualitativa e quantitativa, o trabalho confirmou a hipótese acima e mostrou que: (i) na composição sintagmática de uma dada tradição, atuam outras tradições, de forma dinâmica; (ii) são os propósitos discursivos do sujeito, segundo suas representações de um momento, do espaço de interlocução e do(s) outro(s)/destinatário(s), que determinam quais tradições atuam como matéria para a produção de uma tradição; (iii) nos dados investigados, a mescla de TDs e as junções que ocorrem numa mesma tradição são recorrentemente empreendidas por justaposição, enquanto gesto que aponta, no espaço gráfico, para a situação concreta de enunciação.*
- *PALAVRAS-CHAVE: Tradição discursiva. Justaposição. Aquisição da escrita. Oralidade. Letramento.*

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# INTENSIFIER ADJECTIVES IN BRAZILIAN PORTUGUESE: PROPERTIES, DISTRIBUTION AND MORPHOLOGICAL REFLEXES

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- **ABSTRACT:** In this article we analyze the morphosyntactic, syntactic, and semantic properties of intensifier adjectives in Brazilian Portuguese. To map their distribution, we have applied tests of word order, definiteness, and types of phrases and sentences in which they occur. As a result, we found the following main patterns: (i) they are used exclusively preposed to the modified element, (ii) they appear in definite and indefinite noun phrases, (iii) they can be used in exclamative sentences, and (iv) they can occur in noun phrases with multiple instantiation of indefinite determiners. Regarding the lexical categories they modify, we observed two major groups: those which modify only nouns (viz., *baita* ‘≈ great’, *bruta* ‘brute’, *senhor(a)* ‘sir, lady’, *puta* ‘whore’), and those which modify nouns and items of other lexical categories (viz., *mega* ‘mega’, *hiper* ‘hyper’, *super* ‘super’). The aforementioned properties shed light on the controversial morphological status of *mega*, *hiper*, and *super*. Although these modifiers are assumed to be prefixes, we claim they are independent adjectives. This assumption allows us to readily explain data such as *supermercado* ‘supermarket’, *mega-feirão* ‘big sale’, and *hipercorreção* ‘hypercorrection’, analyzing them as A-N compounds, oppositely to what the literature has been claiming.
- **KEYWORDS:** Noun Phrase. Modification. Intensifier Adjectives.

## Introduction

Intensification is associated with any device capable of grading a particular quality, for maximum, minimum, and average degrees, and natural languages express this mechanism in different ways. It is possible to intensify by means of idioms (1a, 1b), exclamative expressions (1c), lexical items (1d, 1e), degree words (1f), degree morphemes (1g), among other lexical and syntactic strategies.

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- (1) a. *Estou morto de fome.*  
 be.1.SG.PRES dead of hunger  
 ‘I’m starving.’
- b. *Ele é um idiota com “i” maiúsculo.*  
 he is an idiot with “i” upper case  
 ‘He is a capital I idiot.’
- c. *Que filme!*  
 what movie  
 ‘What a movie!’
- d. *Ele é um perfeito idiota.*  
 he is a perfect idiot  
 ‘He is such an idiot.’
- e. *Esse aluno é muito dedicado.*  
 this student is very dedicated  
 ‘This student is very dedicated.’
- f. *Ela é mais competente do que seu irmão.*  
 she is more competent than your brother  
 ‘She is more competent than your brother’
- g. *Ela é inteligente-íssima.*  
 she is intelligent-INTENS  
 ‘She is very intelligent.’

In this article we analyze the properties and distribution of lexical items identified as intensifier adjectives in Brazilian Portuguese (BP). In order to achieve this, we have established the following taxonomy of intensifier modifiers, which allowed us to circumscribe our domain of investigation:

- I. **Innovative adjectival intensifiers:**<sup>1</sup> postposed adjectives which are currently used before the modified element, projecting an evaluative scale (e.g., *tremendo(a)* ‘tremendous’, *bruto(a)* ‘great’, from the postposed adjective *bruto(a)* ‘brute, violent’).
- II. **Denominal intensifiers:** intensifiers which have a homophonous nominal counterpart (e.g., *puta* – from the noun *puta* ‘whore’, *senhor(a)* – from the treatment pronoun *senhor(a)* ‘sir/lady’, *baita* ‘great’<sup>2</sup>).
- III. **Borrowed intensifiers:** intensifiers of classical or Germanic origins (e.g., *mega* ‘mega’, *super* ‘super’, *hiper* ‘hyper’, *big* ‘great’).

<sup>1</sup> Innovative forms reveal latent processes in a particular language. These forms indicate that an adjective, or any lexical category, can be used in a different linear position from its canonical counterpart, triggering different semantic effects. We are aware, however, that the assumption of canonical positions is not a trivial matter.

<sup>2</sup> *Baita* cannot easily be inserted in any of our six major classes. It cannot be considered innovative, since there is no adjective *baita* occurring postposed to a modified noun, and, on the other hand, *baita* does not have classical origins. We suspect that *baita* is a denominal adjective whose nominal counterpart is no longer available.

- IV. **Prototypical intensifiers:** adverbs which no longer modify verbs, but intensify adjectives and adverbs (e.g., *muito* ‘very’, *extremamente* ‘extremely’, *extraordinariamente* ‘extraordinarily’, *completamente* ‘completely’, etc.).
- V. **Adnominal degree modifiers:** modifiers which only take degree nouns (e.g., *verdadeiro(a)* ‘true’, *total* ‘total’, *grande* ‘big’, *completo(a)* ‘complete’, *perfeito(a)* ‘perfect’; Cf. MORZYCKI, 2012).
- VI. **Prefixed intensifiers:** prefixed intensifiers, usually of classical origins (e.g., *ultra-*, *extra-*, and *tri-*).<sup>3</sup>

Intensifier or degree properties are usually linked to adverbs whose main semantic function is to intensify adjectives or other adverbs – i.e., the prototypical intensifiers in IV –, modifying them without triggering agreement, as exemplified in (2):

- (2) a. *muito inteligente/ pouco animado*  
 very intelligent little excited  
 ‘very intelligent’ ‘little excited’
- b. *mais calmo/ menos intenso*  
 more calm less intense  
 ‘calmer’ ‘less intense’

In our discussion, we will concentrate on the intensifiers in I, II, and III, despite being aware that their category status is still a point of contention, which deserves a careful investigation. For general purposes, we admit that II- and III-intensifiers are adjectives since they share distributional properties with I-intensifiers. What we consider to be intensifier adjectives in BP modify mainly nouns, as we can observe in (3).

- (3) a. *uma tremenda briga*  
 a tremendous fight  
 ‘a tremendous fight’
- b. *uma bãita chuva*  
 a great rain  
 ‘a heavy rain’
- c. *um puta emprego*  
 a whore job  
 ‘a great job’
- d. *uma mega oferta*  
 a mega offer  
 ‘a big offer’

<sup>3</sup> Gonçalves (2002) and Alves (2009) list a set of suffixed intensifiers in BP, such as *-aço*, *-érrimo*, *-íssimo*, etc. We have set them aside, since our main purpose is to analyze intensification made by adjectives, and discuss the morphological status of intensifier adjectives of classical origins, like *mega*, *hiper*, and *super*, which are argued to be prefixed intensifiers (Cf. ALVES, 1980, 2000, 2006, 2009, 2011, for all forms; and SCHWINDT, 2001, for *hiper*).

It is important to distinguish the intensifier adjectives in (3) from the so-called adnominal degree modifiers in (4).

- (4) a. *um verdadeiro desastre*  
a true disaster  
'a true disaster'
- b. *um total domínio*  
a total domain  
'a complete knowledge'
- c. *um grande idiota*  
a great idiot  
'a great idiot'
- d. *um completo imbecil*  
a complete jerk  
'a complete jerk'

For Morzycki (2012), adnominal degree modifiers are not adjectives, even though they contain adjectival homophones, which occur postposed to the modified element in BP. Unlike their adjectival homophones, adnominal degree modifiers do not display a predicative use. For instance, in (4a), *verdadeiro* 'true' does not have an intensifier reading when it is used postposed to a noun or in a predicative context. In these cases, (4a) would be interpreted as "a disaster that is not false." Although adnominal degree modifiers are relevant for the study of intensification, they will be discussed peripherally in this work.

We also consider eminently important to establish a taxonomy of degree words, which implies the forfeit of the traditional distinction between adjectives and adverbs. Consequently, we would have to include an additional major class in our current taxonomy in order to cover the intensifiers in (5):

- (5) a. *Ele é verdadeiramente um idiota.*  
he is truly an idiot  
'He is truly a fool.'
- b. *Ele está completamente enganado.*  
he is completely mistaken  
'He is completely mistaken.'
- c. *Isso é incrivelmente gigantesco.*  
this is incredibly gigantic  
'This is incredibly huge.'
- d. *Ele é meramente um serviçal.*  
he is merely a servant  
'He is merely a servant.'



Thus our main goal in this article is to provide an account for the distribution of intensifier modifiers in BP, especially the adjectives in I, II, and III, based on a set of morphosyntactic, syntactic, and semantic tests. We also advance the discussion of the morphological status of borrowed intensifiers, claiming they cannot be analyzed as prefixes. The article is laid out as follows: (i) we present the morphosyntactic and syntactic properties of intensifier adjectives, defining their linear position, the lexical categories they modify, their agreement patterns, the phrases and sentences in which they appear, and noun phrases with multiple indefinite determiners; (ii) we assess the prefixed nature of class III-intensifiers.

In sum, we argue that intensifier modifiers constitute an internally complex class of modifiers, which requires a typological classification capable of distinguishing true adjectives from adnominal degree modifiers, and possibly from degree nouns (BOLINGER, 1972). In addition, we claim that borrowed intensifiers are not prefixes, but compounds made up of an adjective plus a noun.

### **Morphosyntactic and syntactic properties of intensifier adjectives**

In this section, we present the distribution of intensifier adjectives in BP regarding their morphosyntactic and syntactic properties: (a) linear order, (b) lexical categories they modify, (c) agreement relations in their minimal domain, and (d) types of phrases and sentences in which they occur. Our primary aim is to assess whether the above-mentioned intensifier modifiers can integrate a uniform class of modifiers in BP.

#### **Linear Order**

Regarding linear order, intensifier adjectives occur exclusively preposed to a modified element. It is worth pointing out that some adjectives, mainly the innovative adjectives, have a homophonous counterpart that occurs postposed to the modified element without triggering an intensification reading (e.g., *uma bruta leoa* lit. a brute lioness ‘a big lioness’ vs. *uma leoa bruta* lit. a lioness brute ‘a violent lioness’).

- | (6) Pre-nominal position   | Post-nominal position  |
|--|--|
| a. <i>um <b>baita</b> homem</i><br>a great man<br>'a big/great man'                    | a'. * <i>um homem <b>baita</b></i><br>a man great<br>Intended: 'a big/great man'               |
| b. <i>uma <b>bruta</b> chuva</i><br>a brute rain<br>'a heavy rain'                     | b'. * <i>uma chuva <b>bruta</b></i><br>a rain brute<br>Intended: 'a heavy rain'                |
| c. <i>um <b>tremendo</b> vendaval</i><br>a tremendous windstorm<br>'a heavy windstorm' | c'. <i>um vendaval <b>tremendo</b></i><br>a windstorm tremendous<br>'a heavy windstorm'        |
| d. <i>um <b>puta</b> livro</i><br>a whore book<br>'a great book'                       | d'. * <i>um livro <b>puta</b></i><br>a book whore<br>Intended: 'a great book'                  |
| e. <i>uma <b>senhora</b> festa</i><br>a lady party<br>'a great party'                  | e'. * <i>uma festa <b>senhora</b></i><br>a party lady<br>Intended: 'a great party'             |
| f. <i>uma <b>mega</b> promoção</i><br>a mega sale<br>'a big sale'                      | f'. ? <i>uma promoção <b>mega</b></i><br>a sale mega<br>Intended: 'a big sale'                 |
| g. <i>uma <b>hiper</b> declaração</i><br>a hyper statement<br>'a great statement'      | g'. * <i>uma declaração <b>hiper</b></i><br>a statement hyper<br>Intended: 'a great statement' |
| h. <i>uma <b>super</b> festa</i><br>a super party<br>'a super party'                   | h'. * <i>uma festa <b>super</b></i><br>a party super<br>Intended: 'a super party'              |

Example (6c), in particular, diverges from the others. It made us to reconsider the characterization of *tremendo* 'tremendous' as an intensifier adjective. However, its behavior in other tests favors the option to include it in the intensifier modifier class, as we shall see below.

#### Lexical category of the modified elements

Intensifier adjectives are not uniform with respect to the lexical categories they modify. Intensifier adjectives such as *bruto(a)* 'brute', *senhor(a)* 'sir, lady' and *big* 'great' modify only nouns (7). The rest of the intensifier adjectives can modify elements of other lexical categories, such as adjectives, as in (8). Nevertheless, when intensifier adjectives modify verbs, they denote a certainty with respect to the verbal action, rather than an intensification interpretation, as we can observe in (9).

- (7) a. *Eles tomaram um **bruto** susto.*  
they took a brute fright  
'They got a huge fright.'
- a'. \**Ele é um menino **bruto** bonito.*  
he is a boy brute beautiful  
Intended: 'He is a very beautiful boy.'
- b. *Ela comprou um **senhor** aspirador-de-pó.*  
she bought a sir vacuum-cleaner  
'She bought a great vacuum-cleaner.'
- b'. \**Ela é sempre **senhora** simpática.*  
she is always lady nice  
Intended: 'She is always very nice.'
- c. *Eles tiveram uma **big** surpresa.*  
they had a great surprise  
'They had a great surprise.'
- c'. \**Eles foram n-uma apresentação **big** interessante.*  
they went in-a presentation great interesting  
Intended: 'They went to a very interesting presentation.'
- (8) a. *Eu achei esses caras uns **baita** sacanas com a pobre menina.*  
I thought these guys a great bastard with the poor girl  
'I think these guys were a hell bastard with the poor girl.'
- b. *Ele é fofo e **tremendo** simpático.*  
he is cute and tremendous nice  
'He is cute and very nice.'
- c. *Ela está **mega** empolgada com a festa.*  
she is mega excited with the party  
'She is very excited with the party.'
- d. *Eles estão **hiper** animados para viajar na sexta.*  
they are hyper excited-PL to travel on-the Friday  
'They very excited to travel on Friday.'
- e. *Ela está **super** feliz com o prêmio que ganhou.*  
she is super happy with the prize that won  
'She is very happy with the prize she won.'
- f. *Dá pra perceber que ele é um cara **puta** nojento.*  
give to perceive that he is a guy whore disgusting  
'You can see that he's a fucking disgusting guy.'

- (9) a. *Eu **super** falo isso.*  
 I super speak it  
 ‘I certainly speak it/this way.’
- b. *Sinceramente, eu **hiper** gostaria de saber a opinião de vocês.*  
 sincerely I hyper would-like of know the opinion of you  
 ‘I do want to know your opinion.’
- c. *Eu **mega** iria no show da Madonna.*  
 I mega would-go in-the concert of Madonna  
 ‘I would certainly go to Madonna’s concert.’
- d. *Eu **super hiper** quero esse celular.*  
 I super hyper want this cellphone  
 ‘I do want this cellphone.’

It is worth mentioning that intensifier adjectives which modify nouns can also intensify modified nouns, such as those in (10), a characteristic pointed out for *puta* ‘whore’, by Guimarães (2011) and Oliveira (2013). Furthermore, intensifier adjectives capable of modifying other adjectives can also intensify attributive adjectives in post-nominal position, as exemplified in (11):

- (10) a. *Um **baita** homem musculoso.*  
 a great man muscular  
 ‘A big muscled man’
- b. *Uma **bruta** chuva forte.*  
 a brute rain strong  
 ‘A huge heavy rain’
- c. *Um **tremendo** cara feio.*  
 a tremendous guy ugly  
 ‘A big ugly guy’
- d. *Um **puta** cara lindo.*  
 a whore guy handsome  
 ‘A very handsome guy’
- e. *Uma **senhora** cara feia.*  
 a lady face ugly  
 ‘A big ugly face’
- f. *Um **mega** carro esportivo*  
 a mega car sporting  
 ‘A great sporting car’
- g. *Uma **super** ideia louca.*  
 a super idea crazy  
 ‘A big crazy idea’

- h. *Um hiper desconto repentino.*  
 a hyper discount sudden  
 ‘A big sudden discount’
- i. *Uma big festa animada.*  
 a big party excited  
 ‘A huge cool party’
- (11) a. *Um marido baita sacana.*  
 a husband great bastard  
 ‘A very idiot husband’
- b. *Um cara tremendo idiota.*  
 a guy tremendous idiot.  
 ‘A very idiot guy’
- c. *Uma moça mega inteligente.*  
 a girl mega intelligent  
 ‘A very intelligent girl’
- d. *Um menino hiper animado.*  
 a boy hyper excited  
 ‘A very excited boy’
- e. *Um filme super interessante.*  
 a movie super interesting  
 ‘A very interesting movie’
- f. *Uma cerveja puta gelada.*  
 a beer whore cold  
 ‘A very cold beer’

In (10), the preferred interpretation is the one in which [*homem musculoso*] ‘muscle man’ is intensified as a whole, rather than separately. Once the intensification reading is preferably assigned to the primary element to the right, only adjectives can be the modified elements in (11). Additionally, intensifier modifiers do not allow double modification, i.e. contexts in which an intensifier adjective modifies a noun already modified by an intensifier adjective, without any pause between the modifiers. Double modification, whether possible (considering pauses), would induce an ascending scale of intensity (e.g., *super*; *hiper festa* ‘a hell of a party’).

- (12) a. \**Eu sempre tenho uma puta mega cólica.*  
 I always have a whore mega colic  
 Intended: ‘I always have a very painful colic.’
- b. *?Ele tem um senhor tremendo emprego.*  
 he has a sir tremendous job  
 Intended: ‘He has a very good job.’

- c. \**Eles compraram um mega baita* avião.  
they bought a mega great airplane  
Intended: ‘They bought a very big airplane.’
- d. \**Ela deu uma super bruta* festa.  
she gave a super brute party  
Intended: ‘She threw a very big party.’

#### Agreement relations local to the modified element

The behavior of intensifier adjectives in agreement relations varies considerably. These adjectives are preferably used with no agreement markers, such as number and gender, as we can see in number agreement examples in (13).

- (13) a. *Ele trabalha com un-s baita/ ?baita-s* homen-s.  
he works with a-PL great great-PL man-PL  
‘He works with very big men.’
- b. *Ela sempre tem uma-s bruta/ ?bruta-s* dor(es) de cabeça.  
she always have a-PL brute brute-PL pain-PL of head  
‘She always has very painful headaches.’
- c. *Sempre acontece un-s tremendo/ tremendo-s* vendaval-(is) aqui.  
always happen a-PL tremendous tremendous-PL windstorm-PL here  
‘There are always very heavy windstorms here.’
- d. *Eles importaram un-s puta/ \*puta-s* aviõ-es.  
they imported a-PL whore whore-PL airplane-PL  
‘They’ve imported very big airplanes.’
- e. *Ela comprou un-s senhor/\*senhor-es* tapete-s.  
she bought a-PL sir sir-PL carpet-PL  
‘She bought some very big carpets.’
- f. *Ele adora uma-s mega/ ?mega-s* promoçõ-es.  
he loves a-PL mega mega-PL sale-PL  
‘He loves some big sales.’
- g. *Nós compramos un-s hiper/ \*hiper-(e)s* apartamento-s.  
we bought a-PL hyper hyper-PL apartment-PL  
‘We bought very some good apartments.’
- h. *Elas sempre vão a uma-s super/ \*super(e)s* festas.  
they always go to a-PL super super-PL party-PL  
‘They always go to some terrific parties.’

In (13), while some adjectives do not display number marking (e.g., *puta* ‘whore’, *hiper* ‘hyper’, and *super* ‘super’), others seem to allow number agreement with the modified noun (e.g., *baita* ‘great’, *bruta* ‘brute’, *tremendo* ‘tremendous’, *senhor(a)*

‘sir, lady’, and *mega* ‘mega’). A quick search on Google, however, showed cases in which number agreement is allowed with all the adjectives (14). Our hypothesis is that, once these cases were found in a written modality, number agreement emerges as a hypercorrection strategy, since in spoken language it is optional.

- (14) a. *Boas ideias. **Baitas** negócio-s.*<sup>4</sup>  
 good ideas great-PL business-PL  
 ‘Good ideas. Great business.’
- b. *Apenas uma jogada de risco e depois **tremendo-s** susto-s que  
 just a move of risk and later tremendous-PL fright-PL that  
 minaram a tranquilidade brasileira.*<sup>5</sup>  
 undermined the stability Brazilian  
 ‘Just a risk play and then big frights that undermined Brazilian stability.’
- c. *Eu conheci o Petrucci, o Mustaine e o Kerry King e troquei  
 I met the Petrucci the Mustaine and the Kerry King and exchange  
 uma-s **puta-s** ideia-s sobre aparelhagem com os três.*<sup>6</sup>  
 a-PL whore-PL idea-PL about equipment with the three  
 ‘I’ve met Petrucci, Mustaine, and Kerry King, and I’ve talked about equipments with them.’
- d. *Eu não fiquei traumatizada, mas levei **senhor-es** susto-s!*<sup>7</sup>  
 I not stayed traumatized but took sir-PL fright-PL  
 ‘I was not traumatized, but I got huge frights!’
- e. *(...) e quer-o dar un-s **mega-s** tabefe-s no meu irmão.*<sup>8</sup>  
 and want-1.SG give a-PL mega-PL slap-PL in-the my brother  
 ‘(...) and I want to slap my brother.’
- f. *Tive alguns contratempos com o teste de matemática e un-s  
 had-1.SG some setbacks with the test of math and a-PL  
**mega-s** trabalho-s, mas resolvi tudo.*<sup>9</sup>  
 mega-PL work-PL but solved-1.SG everything  
 ‘I had some setbacks with the math test and some big troubles, but I’ve solved it all.’

<sup>4</sup> Available in: <<http://www.diarinho.com.br/materias.cfm?caderno=25&materia=73671>>, collected in August 31, 2014.

<sup>5</sup> Available in: <<http://migre.me/qmISM>>, collected in September 02, 2014.

<sup>6</sup> Available in: <<http://www.hardmob.com.br/boteco-hardmob/55386-genios-da-guitarra-ql-vcprefere-2.html>>, collected in September 02, 2014.

<sup>7</sup> Available in: <<https://br.answers.yahoo.com/question/index?qid=20130917173328AA0enBZ>>, collected in August 31, 2014.

<sup>8</sup> Available in: <<http://www.amordoce.com/forum/t21312,2-castiel-acalme-se-o-bullying-ja-vai-acabar.htm>>, collected in August 31, 2014.

<sup>9</sup> Available in: <<http://socialspirit.com.br/fanfics/naruto>>, collected in August 31, 2014.

Regarding gender, some intensifier adjectives display gender agreement, such as *senhor(a)* ‘sir/lady’, *bruto(a)* ‘brute’, and *tremendo(a)* ‘tremendous’.

- (15) a. *Fez du-a-s senhor-a-s apresentaçõ-es no Carnegie Hall.*  
 did-3.SG two-FEM-PL sir-FEM-PL presentation-PL in-the Carnegie Hall  
 ‘S/he made two great presentations at Carnegie Hall.’
- b. *Conseguiu doi-s senhor-es cargo-s no senado.*  
 got-3.SG two.MASC-PL sir-PL position-PL in-the senate  
 ‘S/he got two great positions in the senate.’
- c. *Deu um tremend-o vexame.*  
 gave-3.SG a tremendous-MASC embarrassment  
 ‘S/he embarrassed her/himself greatly.’
- d. *Conseguiu algum-a-s tremend-a-s vantagens.*  
 got-3.SG some-FEM-PL tremendous-FEM-PL advantages  
 ‘They got some great advantages.’
- e. *Eles fizeram um brut-o investment-o.*  
 they made a brute-MASC investment-MASC  
 ‘They’ve made a great investment’
- f. *Ele levou um-a brut-a pancad-a.*  
 he took a-FEM brute-FEM punch-FEM  
 ‘He took a swipe.’

*Bruto(a)* displays a particular behavior. In (15e) and (15f), for instance, this adjective can modify a masculine noun when it is in both masculine and feminine form (e.g., *um brut-a investment-o* lit. a brute-FEM investment-MASC). Nevertheless, when the modified noun has feminine gender, the adjective only displays feminine agreement (e.g., *um-a brut-a chuv-a* lit. a-FEM brute-FEM rain-FEM vs. *\*um-a brut-o chuv-a* lit. a-FEM brute-MASC rain-FEM/ *\*um brut-o chuv-a* lit. a-MASC brute-MASC rain-FEM ‘a heavy rain’).

Such gender asymmetry suggests a direct relationship between the ending vowel *-a* – corresponding to feminine gender in adjectives – and intensification. This is evidenced by the fact that intensifier adjectives which could potentially inflect in gender display only the ending vowel *-a*, namely: *puta* ‘whore’, *baita* ‘great’, and *mega* ‘mega’. Additionally, the optionality in gender marking with masculine nouns is not categorical. Depending on the modified noun, gender marking alternation leads to a double interpretation, in which the intensification interpretation is preserved only when the adjective has a feminine gender marker:



- (16) a. *Um brut-a marido*  
 a.MASC brute-FEM husband  
 ‘A very good husband’
- b. *Um brut-o marido*  
 a.MASC brute-MASC husband  
 ‘An aggressive husband’
- c. *Um brut-a soco*  
 a.MASC brute-FEM punch  
 ‘A very strong punch’
- d. *Um brut-o soco*  
 a.MASC brute-MASC punch  
 ‘A violent punch’

In contrast, *hiper* ‘hyper’, *super* ‘super’, and *big* ‘great’ do not display any number or gender marking:

- (17) a. *hiper ofert-a*  
 hyper offer-FEM  
 ‘big offer’
- b. *hiper ofert-a-s*  
 hyper offer-FEM-PL  
 ‘big offers’
- c. *super promoção*  
 super sale.FEM  
 ‘big sale’
- d. *super promoçõ-es*  
 super sale.FEM-SG  
 ‘big sales’
- e. *big fest-a*  
 big party-FEM  
 ‘great party’
- f. *big fest-a-s*  
 big party-FEM-PL  
 ‘great parties’

We will return to agreement relations with intensifier adjectives after describing noun phrases with multiple agreement makers in the next section.

#### Types of phrases and sentences

We have verified the distribution of intensifier adjectives in the following syntactic environments: (a) definite *vs* indefinite noun phrases, (b) predicative sentences, (c)

exclamative sentences, and in (c) noun phrases with multiple instantiation of indefinite determiners (e.g., “*um x de um y*” lit. a *x* of a *y*, in which *x* stands for an intensifier adjective and *y* for a noun).

Regarding intensifier adjectives and definiteness, we noted that they can easily appear both in definite and indefinite contexts, even though its use in indefinite noun phrases seems to be the preferred option at first sight.

- (18) a. *Falta um dia para a **baita** festa d-o CTG.*  
 lack.3.SG one day for the great party of-the CTG  
 ‘There is one day left for the great party of CTG.’
- b. *A **bruta** força d-os sentidos.*  
 the brute force of-the senses  
 ‘The great force of senses.’
- c. *O **puta** salário pago a-os diretores é de dar inveja.*  
 the whore salary payed to-the directors is of give jealousy  
 ‘The big salary paid to the directors is to die for.’
- d. *A **senhora** apresentação que ele fez em Brasília mudou  
 minha ideia.*  
 the lady presentation that he made in Brasilia changed  
 my idea  
 ‘The great presentation he made in Brasilia changed my mind.’
- e. *O **tremendo** vexame a que fomos expostos.*  
 the tremendous embarrassment to that be.1.PL exposed  
 ‘The tremendous humiliation we were exposed to.’
- f. *O **mega** xodozão d-o Pará.*  
 the mega hit of-the Pará  
 ‘The great hit from Pará.’
- g. *O **hiper** atentado terrorista repercutiu n-o mundo todo.*  
 the hyper attack terrorist reverberated in-the world entire  
 ‘The great terrorist attack reverberated worldwide.’
- h. *A **super** oferta divulgada n-as redes sociais.*  
 the super offer announced in-the net social  
 ‘The super offer announced on social networks.’

In predicative contexts their use is more restricted, since many intensifier adjectives are blocked in predicative position. It is worth investigating whether borrowed intensifiers can indeed appear in predicative position, as signaled in (19), and whether their acceptability is governed by age factors (i.e., whether they are more acceptable among young speakers).

- (19) a. \**A confusão foi **baita**.*  
 the mess was great  
 Intended: ‘It was a great mess.’
- b. \**O cargo é **puta**.*  
 the job is whore  
 Intended: ‘It is a great job.’
- c. \**A força é **bruta**.*  
 the force is brute  
 Intended: ‘It is a great force.’
- d. \**A apresentação foi **senhora**.*  
 the presentation was lady  
 Intended: ‘It was a great presentation.’
- e. *O vexame foi **tremendo**.*  
 the embarrassment was tremendous  
 Intended: ‘It was a tremendous humiliation.’
- f. ?*A festa foi **mega**.*  
 the party was mega  
 Intended: ‘It was a great party.’
- g. ?*O mercado é **super**.*  
 the market is super  
 Intended: ‘It is a very good market.’
- h. ??*A oferta é **hiper**.*  
 the offer is hyper  
 Intended: ‘It is a great offer.’

Again, *tremendo* ‘tremendous’ diverges from other intensifier adjectives, but we still insist that it should be characterized as such. More arguments in favor of this position will be presented when we analyze noun phrases with multiple indefinite determiners.

Exclamative sentences are another strategy for denoting intensification. Interestingly, all intensifier adjectives can be used in exclamative constructions, as we can see in (20).

- (20) a. *Que **baita** falta de caráter!*  
 what great absence of character  
 ‘What a huge lack of character!’
- b. *Que **bruta** vontade de vencer!*  
 what brute wish of win  
 ‘What a great will to win!’
- c. *Que **tremenda** cara-de-pau!*  
 what tremendous poker face  
 ‘What a tremendous poker face!’

- d. *Que puta dor-de-cabeça!*  
 what whore headache  
 ‘What a terrible headache!’
- e. *Que senhora apresentação!*  
 what lady presentation  
 ‘What a great presentation!’
- f. *Que mega surpresa!*  
 what mega surprise  
 ‘What a great surprise!’
- g. *Que hiper apartamento!*  
 what hyper apartment  
 ‘What a great apartment!’
- h. *Que super abraço!*  
 what super hug  
 ‘What a big hug!’
- i. *Que big festa!*  
 what great party  
 ‘What a terrific party!’

#### Noun phrases with multiple instantiation of indefinite determiners

A specific construction that employs intensifier adjectives are noun phrases with multiple instantiation of indefinite determiners (viz., “*um x de um y*” lit. a *x* of a *y*), in which *x* stands for an intensifier adjective. Multiple determiners in noun phrases are a common phenomenon in the realm of intensification and, in general, it is found in modification contexts. This phenomenon is attested in a handful of languages (ALEXIADOU, 2014)<sup>10</sup>, differing on the grammatical nature of *x*, whether it is a degree word (e.g., adverbs or quantifiers) (21), or an adjective (22), as in BP:

- (21) a. *a no a grißa Bua* (Bavarian German)  
 a such a big boy  
 (KALLULLI; ROTHMAYR, 2008)
- b. *en ganz en guete Wi* (Swiss German)  
 a totally a good wine  
 (LINDAUER, 1991 apud ALEXIADOU, 2014)

<sup>10</sup> We thank Janayna Carvalho for indicating the reference.

(22) a. *en stor en kar* (Northern Swedish)

a big a man

(DELSING, 1993 apud ALEXIADOU, 2014)

b. *en stygg en stor en fyr* (Norwegian)

a ugly a big a guy

(ALEXIADOU, 2014)

A second difference for BP is the presence of a preposition *de* ‘of’ between the adjective and the modified noun. All intensifier adjectives under analysis can be used in these complex noun phrases, as we can see in (23).

(23) a. *Um baita de um animal.*

a great of an animal

‘A very big animal’

b. *Uma bruta de uma sacanagem.*

a brute of a mean thing

‘A hell of a mean thing’

c. *Um puta de um carro.*

a whore of a car

‘A hell of a car’

d. *Um senhor de um cargo.*

a sir of a job

‘A great job’

e. *Um tremendo de um vexame.*

a tremendous of an embarrassment

‘A tremendous humiliation’

f. *Um mega de um show.*

a mega of a concert

‘A great concert’

g. *Um hiper de um apartamento.*

a hyper of an apartment

‘A great apartment’

h. *Uma super de uma oferta.*

a super of an offer

‘A super offer’

i. *Uma big de uma festa.*

a great of a party

‘A great party’

In an attempt to assess the acceptability of intensifier adjectives in noun phrases with multiple indefinite determiners, we applied an online test in the platform *Online Pesquisa* (<https://www.onlinepesquisa.com/>). Both intensifier adjectives and adnominal degree modifiers were tested, as well as agreement marking distribution within these complex noun phrases. These constructions allowed us to distinguish intensifier adjectives from adnominal degree modifiers, as we shall see below. The participants had to judge the grammaticality of the sentences listed in Table 1 as (a) acceptable, (b) unacceptable, or (c) uncertain. Our preliminary results are the following:

**Table 1** – Result of the grammaticality reading test for the presence of intensifier modifiers in complex noun phrases with indefinite determiners

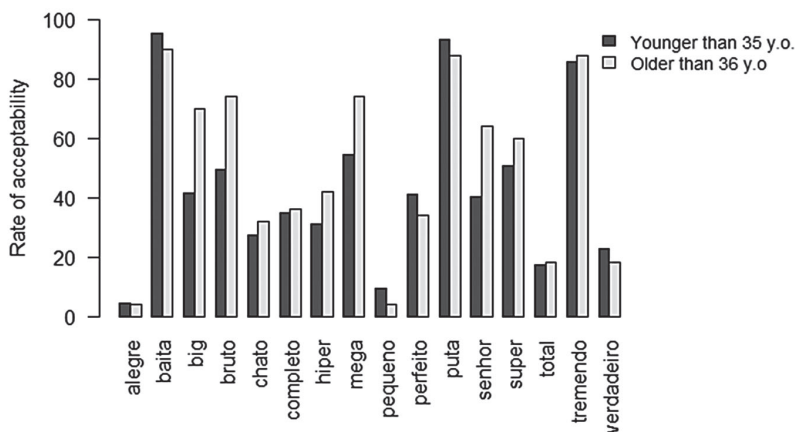
Grammaticality reading test applied online between February 10, 2015 ~ February 12, 2015 Number of participants: 144				
		Accept.	Unaccept.	Uncert.
Baita 'great'	(m) Ele me deu um <u>baita</u> de um susto he me gave a great of a fright 'He gave me a huge fright.'	97.2%	2.1%	0.7%
	(f) Estou com uma <u>baita</u> de uma dor de cabeça be.1.SG with a great of a headache 'I got a super headache'	91.5%	7.4%	1.4%
Bruto 'brute'	(m) Eles fizeram um <u>bruto</u> de um investimento they made a brute of an investment 'They've made a big investment'	56.9%	28.4%	14.5%
	(f) Foi uma <u>bruta</u> de uma confusão be.3.SG a brute of a mess 'It was a big mess.'	51.7%	32.8%	15.3%
	(m) Ele está com um <u>bruta</u> de um problema he is with a brute of a problem 'He is facing a serious problem.'	43.3%	44.0%	12.5%
Tremendo 'tremendous'	(m) Foi um <u>tremendo</u> de um vexame be.3.SG a tremendous of a embarrassment 'It was a tremendous humiliation.'	89.5%	9.0%	1.3%
	(f) Eles caíram em uma <u>tremenda</u> de uma cilada they felt in a tremendous of a trap 'They felt into a huge trap.'	83.2%	13.9%	2.8%
Putá 'whore'	(m) Ele comprou um <u>puta</u> de um carro he bought a whore of a car 'He bought such a good car.'	93.0%	5.5%	1.4%
	(f) Ele deu uma <u>puta</u> de uma festa he gave a whore of a party 'He gave a hell of a party'	91.5%	6.3%	2.1%
Senhor(a) 'sir/lady'	(f) É uma <u>senhora</u> de uma promoção be.3.SG a lady of a sale 'It is a big sale.'	57.3%	27.2%	15.3%
	(m) Ela me deu um <u>senhor</u> de um abraço she me gave a sir of a hug 'She gave me a big hug.'	30.7%	57.3%	11.8%

		Accept.	Unaccept.	Uncert.
Big 'great'	(f) Foi uma <u>big</u> de uma festa be.3.SG a great of a party 'It was a hell of a party.'	56.2%	32.6%	11.1%
	(m) Ele me deu um <u>big</u> de um presente he me gave a great of a gift 'He gave me such a good gift.'	37.3%	46.4%	16.2%
Mega 'mega'	(f) Ele deu uma <u>mega</u> de uma festa he gave a mega of a party 'He gave a hell of a party.'	59.4%	27.2%	13.2%
	(m) Ele me deu um <u>mega</u> de um beijo he me gave a mega of a kiss 'He gave me such a big kiss.'	56.2%	28.4%	15.2%
Super 'super'	(m) Eu ganhei um <u>super</u> de um desconto I won a super of a discount 'I've got a great discount.'	65.6%	22.9%	11.1%
	(f) Eles alugaram uma <u>super</u> de uma casa they rented a super of a house 'They've rented such a great house.'	39.8%	44.0%	16.0%
Hiper 'hyper'	(m) Eles compraram um <u>hiper</u> de um apartamento they bought a hyper of a apartment 'They bought such a great apartment.'	37.0%	51.0%	11.8%
	(f) Ela tem uma <u>hiper</u> de uma piscina she has a hyper of a pool 'She has a very good pool.'	28.6%	54.5%	16.7%
Total 'total'	(f) Foi uma <u>total</u> de uma falta de respeito be.3.SG a total of an lack of respect 'It was a great insolence.'	20.9%	67.8%	11.1%
	(m) Foi um <u>total</u> de um disparate be.3.SG a total of a nonsense 'It was a total nonsense.'	14.6%	68.5%	16.7%
Perfeito 'perfect'	(m) Fui um <u>perfeito</u> de um idiota be.1.SG a perfect of an idiot 'I was such an idiot.'	43.3%	46.1%	10.4%
	(f) Foi uma <u>perfeita</u> de uma emboscada be.3.SG a perfect of a trap 'It was such a perfect trap.'	36.3%	45.4%	18.1%
Verdadeiro 'true'	(f) Foi uma <u>verdadeira</u> de uma falta de respeito be.3.SG a true of a lack of respect 'It was a complete insolence.'	23.7%	68.5%	7.6%
	(m) Ele é um <u>verdadeiro</u> de um cafajeste he is a true of a jerk 'He is a complete idiot.'	20.8%	66.5%	12.5%
Completo 'complete'	(m) Fui um <u>completo</u> de um imbecil be.1.SG a complete of an idiot 'I was a complete idiot.'	39.8%	48.9%	11.1%
	(f) Ela foi uma <u>completa</u> de uma ingênua. she was a complete of a naïve 'She was such a naïve girl.'	30.9%	51.4%	17.6%

Source: Author's elaboration.

As we can see, adnominal degree modifiers such as *total* ‘total’, *perfeito* ‘perfect’, *verdadeiro* ‘true’, *completo* ‘complete’ are hardly ever acceptable in these complex noun phrases. Prototypical adjectives such as *alegre* ‘happy’, *chato* ‘boring’, and *pequeno* ‘small’ present the same restrictions. Further, gender agreement seems to play a role in the acceptability of some intensifier adjectives, as in *big* ‘great’, *bruto* ‘brute’, *senhor(a)* ‘sir, lady’, and *super* ‘super’ examples. It is also worth mentioning that the latter presents greater acceptability among older participants (i.e., above 36 years old), as depicted in Graphic 1.<sup>11</sup>

**Graphic 1** – Distribution of acceptability by adjective and age



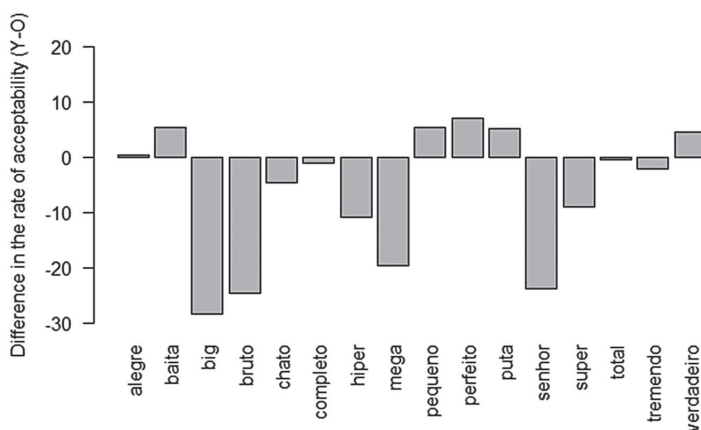
**Source:** Author’s elaboration.

In Graphic 2, the distribution considering acceptability vs age becomes more evident by subtracting the degree of acceptability of each adjective for older and younger participants ( $%Y - %O$ ). Bars with negative values indicate greater acceptability among older participants ( $%Y < %O$ ), while bars with positive values indicate greater acceptability among younger participants ( $%Y > %O$ ). Bars close to zero indicate little difference in acceptability among ages ( $%Y \approx %O$ ). In addition to *super*, *mega*, *hiper*, and *big* (of classical and Germanic origins), other adjectives display greater acceptability among older participants, namely: *bruto* ‘brute’, *senhor(a)* ‘sir, lady’ (and *tremendo* ‘tremendous’, *chato* ‘boring’, in a much smaller degree).

<sup>11</sup> We thank Livia Oushiro for statistical evaluation of part of this work.



**Graphic 2** – Difference in the rate of acceptability between younger (35 years old or less) and older (36 years old or more) participants



**Source:** Author's elaboration.

Regarding the presence or absence of number marking, the grammaticality test shows some interesting facts. We observed that in complex DPs with multiple determiners, the most accepted agreement patterns are  $[D_{PL} \text{ Adj } D_{PL} \text{ N}]$  and  $[D_{PL} \text{ Adj}_{PL} D_{PL} \text{ N}]$ . It can be inferred that although the modified noun and the intensifier adjective can remain with no agreement markers, the indefinite determiners indispensably requires number marking.

**Table 2** – Result of the grammaticality reading test for the distribution of agreement makers within complex noun phrases with multiple determiners

Grammaticality reading test applied online between January 20, 2015 ~ January 30, 2015 Number of participants: 96				
		Accept.	Unaccept.	Uncert.
$D_{PL} \text{ Adj}_{PL} D_{PL} \text{ N}$	Ele comprou un-s puta-s de un-s carro he bought a-PL whore-PL of a-PL car 'He bought such great cars'	44.7%	41.6%	13.5%
	Eles eram un-s bruto-s de un-s homem they were a-PL brute-PL of a-PL men 'They were such big men.'	34.3%	51.0%	14.8%
$D_{PL} \text{ Adj}_{PL} \text{ D N}$	Ela tem un-s puta-s de um livro she has a-PL whore-PL of a book 'She has some great books.'	11.4%	83.3%	5.2%
	Ela trabalha com un-s bruto-s de um homem she works with a-PL brute-PL of a men 'She works with some big men.'	2.0%	88.5%	9.3%

		Accept.	Unaccept.	Uncert.
D <sub>PL</sub> Adj D N	Eles recebem un- <u>s</u> puta de um salário they received a-PL whore of a salary 'They receive such great salaries.'	40.6%	46.8%	12.5%
	Ele comeu uma- <u>s</u> bruta de uma banana he ate a-PL brute of a banana 'He ate some huge bananas.'	8.3%	82.2%	9.3%
D <sub>PL</sub> Adj <sub>PL</sub> D N <sub>PL</sub>	Ele comprou un- <u>s</u> puta- <u>s</u> de um iate- <u>s</u> he bought a-PL whore-PL of a yate-PL 'They've bought some huge yates.'	20.8%	71.8%	7.2%
	Eles compraram un- <u>s</u> bruto- <u>s</u> de um aviã- <u>es</u> they bought a-PL brute-PL of an airplane-PL 'They've bought some huge airplanes.'	13.5%	79.1%	7.2%
D <sub>PL</sub> Adj D N <sub>PL</sub>	Ela tem un- <u>s</u> puta de um livro- <u>s</u> she has a-PL whore of a book-PL 'She has some great books.'	15.6%	81.2%	3.1%
	Eles leiloaram un- <u>s</u> bruto de um touro- <u>s</u> they auctioned a-PL brute of a bull-s 'They've auctioned some big bulls.'	4.1%	89.5%	6.2%
D <sub>PL</sub> Adj D <sub>PL</sub> N	Eles recebem un- <u>s</u> puta de un- <u>s</u> salário they receive a-PL whore of a-PL salary 'They receive such great salaries.'	59.3%	33.3%	7.2%
	Eles importaram un- <u>s</u> bruta de un- <u>s</u> avião they imported a-PL brute of a-PL airplane 'They've imported some huge airplanes.'	64.5%	28.1%	7.2%
D Adj D <sub>PL</sub> N	Ela comprou um puta de un- <u>s</u> livro she bought a whore of a-PL book 'She bought some great books.'	19.7%	65.6%	14.5%
	Eles criam um bruto de un- <u>s</u> touro they raise a brute of a-PL bull 'They raise some huge bulls.'	14.5%	69.7%	15.6%

Source: Author's elaboration.

As for the inferential interpretation of intensifier adjectives, they can be characterized as non-intersective adjectives, i.e. intensifier adjectives do not create sets capable of intersecting with the set of things denoted by their modified noun.

- (24) a. *baita* homem:  $x$  is *homem* [✓];  $x$  is *baita* [X]  
great man  
'big man'
- b. *bruta* chuva:  $x$  is *chuva* [✓];  $x$  is *bruta* [X]  
brute rain  
'heavy rain'
- c. *tremendo* vendaval:  $x$  is *vendaval* [✓]; (?)  $x$  is *tremendo* [X]  
tremendous windstorm  
'tremendous windstorm'

- d. *puta* livro: *x is livro* [✓]; *x is puta* [X]  
 whore book  
 ‘great book’
- e. *senhora* festa: *x is festa* [✓]; *x is senhora* [X]  
 lady party  
 ‘great party’
- f. *mega* promoção: *x is promoção* [✓]; (?) *x is mega* [X]  
 mega sale  
 ‘big sale’
- g. *hiper* declaração: *x is declaração* [✓]; (?) *x is hiper* [X]  
 hyper statement  
 ‘great statement’
- h. *super* festa: *x is festa* [✓]; (?) *x is super* [X]  
 super party  
 ‘great party’
- i. *big* surpresa: *x is surpresa* [✓]; *x is big* [X]  
 great surprise  
 ‘great surprise’

It is also important to distinguish the above complex noun phrases from predicate inversion within noun phrases, in which common nouns function as modifiers internally to a DP. In the latter cases, predicate inversion can be found both in indefinite and definite noun phrases (25). According to den Dikken (1998, 2006), the preposition functions as a nominal copula.

- (25) a. *Um merda de um par de meias.*  
 a shit of a pair of socks  
 ‘A crappy pair of socks.’
- b. *Um safado de um deputado.*  
 a naughty of a deputy  
 ‘A corrupt of a deputy.’
- c. *Um bosta de um soldado.*  
 a shit of a soldier  
 ‘A lame soldier.’
- d. *Um idiota de um publicitário.*  
 an idiot of an adman  
 ‘An idiot of an adman.’
- e. *A vaca da minha prima.*  
 the cow of my cousin  
 ‘My cousin, that bitch.’

- f. *O burro do meu cunhado.*  
 the jerk of my brother-in-law  
 ‘My brother-in-law, that idiot.’
- g. *O safado do meu tio.*  
 the bastard of my uncle  
 ‘My uncle, that bastard.’

The difference in interpretation is clear: in (25), there is an evaluation (e.g., *este par de meias é uma merda* ‘this pair of socks sucks’), oppositely to the modification made by intensifier adjectives in (23) (e.g., *\*este animal é um baita* ‘this animal is big’). Drawing a distinction between these two sets of noun phrases is a goal for future research, in which we also want to check: (i) the similarities between these constructions as opposed to noun phrases with multiple indefinite determiners in BP, and (ii) the syntactic nature of the preposition emerging in all complex noun phrases discussed above. The sentences in (25) are, therefore, outside the scope of this article.

In sum, intensifier adjectives occur exclusively postposed to a modified element, in definite and indefinite noun phrases. They can also be found, with no exception, in exclamative sentences and in complex noun phrases with multiple indefinite determiners. As for agreement relations, intensifier adjectives display a variable behavior, as well as for the lexical categories they can modify.

One question that remains to be answered is the morphological status of borrowed intensifiers. We will address this issue in the next section.

### **Morphological nature of borrowed intensifiers**

Now we will address the issue concerning the morphological status of borrowed intensifiers, *hiper*, *mega*, and *super*, assessing whether they could be analyzed either as prefixes, as suggested by Alves (1980, 2000, 2006, 2009, 2011), for the three forms, and Schwindt (2001), for *hiper*, or as independent adjectives. To provide an answer for this question, we will contrast their morphological behavior with the behavior of other bound intensifiers characterized as prefixes, namely, *ultra-*, *extra-* and *tri-*.

Rocha (1999) and Silva and Miotto (2009) list some criteria to identify a prefix, to wit:

#### *(26) Criteria for identifying prefixes*

- a. are always to the left (as opposed to suffixes);
- b. are not a N, V or A stem (as opposed to compounds);
- c. are recurrent;
- d. have phonetic, semantic, and functional identity;
- e. are bound.

Criterion (26a) is satisfied by both groups: *mega*, *hiper* and *super*, and *ultra-*, *extra-* and *tri-*. For the former, evidence is the result of the linear order test presented earlier in example (6). The latter are ungrammatical when used postposed to a modified element: \**moderno ultra* lit. modern-ultra ‘ultra-modern’, \**conservador ultra* lit. conservative-ultra ‘ultra-conservative’, \**grande extra* lit. big-extra ‘extra big’, \**macia extra* lit. soft-extra ‘extra soft’, \**legal tri* lit. cool-very ‘very cool’, \**curioso tri* lit. curious-tri ‘very curious’.

*Extra*, however, displays more than one interpretation. Alves (1980) noticed that the intensification reading emerges only when *extra* modifies adjectives, but when it modifies nouns, *extra* means “out of”, “besides”, “beyond” (e.g., *extratexto* lit. extra-text ‘out of the text’, *extraclasse* lit. extra-class ‘after class’). Additionally, we have noticed that *extra* can appear to the right of a modified element without triggering an intensification reading, for instance: “*pedindo com jeito as atendentes liberam um queijinho extra*” ‘by asking politely the attendants can give us some extra cheese’ and “*ele vem com um sabor extra de frutas, como framboesa e pêssego*” ‘it has an additional flavor of fruits, such as raspberry and peach’. Thus it seems that there are at least three different “*extras*”, but only the first two display a prefix-like behavior.

Criterion (26b) requires a case by case analysis. None of these items can be considered a noun since they cannot be directly combined to determiners (\**o/a/um hiper* lit. the.MASC/the.FEM/a *hyper*, \**o/a/um super*, \**o/a/um ultra*, \**o/a/extra*, \**o/a/um tri*). “*A mega*” and “*um mega*”, however, do not correspond straightforwardly to *mega*, but they are clipped forms<sup>12</sup> from *a mega-sena* ‘the mega-sena lottery’ and *um mega-byte* ‘a megabyte’, respectively. Likewise, none of them are used as verbs. All these items have a modification function, but this characteristic by itself is not enough to set their morphological status.

Criterion (26c), regarding productivity, is irrelevant if it is considered separately from criterion (26e), since recurrence of an item must be unvarying when related to its morphological form, whether bound or free.

Criterion (26d) is not entirely acceptable. Phonetic identity is not a good criterion, since many affixed forms can display allomorphy. On the other hand, semantic and functional identity is relevant and it is satisfied by all the above items. The former suggests that the prefix adds the same meaning to a stem (at first, compositional), and, from a functional point of view, the prefix must trigger the same functional properties when attached to a stem, maintaining or changing its lexical category.

Criterion (26e) highlights the bound nature of prefixes, which precludes the presence of any intervening element between the prefix and the stem, as we can see in (27). Nevertheless, *mega*, *hiper* and *super* allow the intervention of a preposition and of an indefinite article between them and the modified element, as we have observed in the

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<sup>12</sup> *Clipping* occurs when the shortening of a word gives rise to a shortened unit semantically identical to its longer version. The shortening can subtract an affix, a sequence of segments, or a constituent member of a compound (Cf. ROCHA, 1999; SCHER 2013).

complex noun phrases in (23). This evidences that *mega*, *hiper* and *super* cannot be analyzed as prefixes. *Ultra-*, *extra-* and *tri-*, on the other hand, behave like the canonical prefixes in (27), which signals their prefixed status.

- (27) a. \*re- *de um fazer*.  
re- of a make  
b. \*in- *de um feliz*.  
un- of a happy  
c. \*des *de um humano*.  
de- of a human
- (28) a. \*ultra *de um conservador*.  
ultra- of a conservative  
b. \*extra *de um macio*.  
extra of a soft  
c. \*tri- *de um legal*.  
very of a cool

Thus while *ultra-*, *extra-* and *tri-* can be analyzed as prefixed intensifiers, *mega*, *hiper*<sup>13</sup> and *super* are intensifier adjectives. As a result, any formation with *mega*, *hiper* and *super* which points out to a single referent, or behaves like a single morphosyntactic unit, should be analyzed as compounds in which *mega*, *hiper* and *super* are an adjectival constituent member, as in the examples in (29):

- (29) a. A-N Compounds: *supermercado* ‘supermarket’, *superstar* ‘superstar’, *hiperinflação* ‘hyperinflation’, *super-saldão* ‘big sale’, *mega-feirão* ‘big sale’, *super-herói* ‘superhero’, *hipermercado* ‘hypermarket’, *megainvestidor* ‘mega investor’.  
b. A-V Compounds: *superestimar* ‘superestimate’, *superproteger* ‘overprotect’, *megafavorecer* ‘over favor’, *hiperinflacionar* ‘hyperinflationate’.

Schwindt (2001) admits that *hiper* and all other compositional prefixes (viz., *contra-*, *extra-*, *intra-*, *infra-*, *macro-*, *micro-*, etc.) are potentially separable, or in a given context they can be instantiated independently, realizing nouns, adjectives, or adverbs. However, contrary to the author, we claim that *hiper* should be exclusively viewed as an independent adjective, which can make up compounds.

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<sup>13</sup> *Hiper* deserves special attention. In Table 1, *hiper* do not show greater acceptance in complex noun phrases with multiple indefinite determiners, neutralizing our argument that it could not be analyzed as a prefix. However, in a previous grammaticality test, *hiper* showed considerable acceptability among the participants within these constructions. In light of this fact, we think that *hiper* cannot be considered a morphological form strictly bound. We will return to this issue in a future work.

A test to differentiate a noun phrase from a compound is the impossibility of “double modification” with intensifier adjectives, as discussed in (30). The grammaticality of (31) evidences that *super*, *mega* and *hiper* make up a single syntactic unit with the word to the right.

- (30) a. \**Uma puta super festa*  
 a whore super party  
 Intended: ‘A terrific party’  
 b. \**Um baita hiper apartamento*  
 a great hyper apartment  
 Intended: ‘A very good apartment’  
 \**Uma tremenda mega burrice*  
 a tremendous mega stupidity  
 Intended: ‘A tremendous stupidity’

- (31) a. *Um puta supermercado*  
 a whore supermarket  
 ‘A great supermarket’  
 b. *Uma tremenda hipercorreção*  
 a tremendous hypercorrection  
 ‘A tremendous hypercorrection’  
 c. *Um baita mega-feirão*  
 a great sale  
 ‘A big sale’

An additional observation is needed. Intensifier items of classical origins correspond to dissyllabic units bearing a primary stress. We could hypothesize that it is the presence of a primary stress which licenses the use of these items in complex noun phrases with multiple indefinite determiners. However, other stressed dissyllabic prefixes listed by Schwindt (2001) cannot be employed in complex noun phrases (32), suggesting this is a morphological rather than phonological restriction.

- (32) a. \**Ele é um recém de um nascido.*  
 he is a new of a born  
 Intended: ‘He is a very new newborn’  
 b. \**Ele é um neo de um nazista.*  
 he is a new of a nazi  
 Intended: ‘He is a very new nazi’  
 c. \**Ele é um vice de um reitor.*  
 he is a vice of a president  
 Intended: ‘He is a vice-president very subordinated’

Based on the above-mentioned facts, we conclude that *mega*, *super* and *hiper* are not prefixes, but intensifier adjectives that can be used as a constituent member of a compound.

## Conclusion

In this article, we sought to advance the understanding of intensification structures, concentrating on intensification triggered by adjectives. We have identified a major class of intensifier adjectives in BP composed of *baita* ‘great’, *bruta* ‘brute’, *tremendo* ‘tremendous’, *puta* ‘whore’, *senhor(a)* ‘sir, lady’, *mega* ‘mega’, *hiper* ‘hyper’, *super* ‘super’ and *big* ‘great’. Despite characterizing them as intensifier adjectives, we recognize that their category status is still a point of contention,<sup>14</sup> since these intensifiers display a variable behavior with respect to the category nature of the elements they modify. They share, however, a handful of properties, such as their preposed linear position, and the preference for materializing with no gender and number markers.

Their presence in complex noun phrases with multiple determiners evidences that the intensifier modifier class is different from the other classes of modifiers and adjectives, especially from the adnominal degree modifiers (MORZYCKI, 2012) which are blocked in these constructions. Complex noun phrases also evidence that *super*, *mega*, and *hiper* cannot be analyzed as prefixes, since they allow a considerable amount of intervening elements between them and the modified noun.

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<sup>14</sup> Evidence that the lexical category of denominal adjectives is dubious can be seen with suffixation in *-mente*. The suffix *-mente* is one of the most productive suffixes in BP, and it attaches to any adjective to derive an adverb. However, this suffix does not attach to nominal bases, as exemplified in (i), as well as to denominal and borrowed intensifiers.

- |         |                     |   |                        |
|---------|---------------------|---|------------------------|
| (i) a.  | <i>caderno</i>      | → | * <i>cadernamente</i>  |
|         | notebook            |   | ≈ notebookly           |
|         | b. <i>feliz</i>     | → | <i>felizmente</i>      |
|         | happy               |   | happily                |
| (ii) a. | <i>tremendo</i>     | → | <i>tremendamente</i>   |
|         | tremendous          |   | tremendously           |
|         | b. <i>bruto</i>     | → | <i>brutamente</i>      |
|         | violent             |   | violently              |
|         | c. <i>puta</i>      | → | * <i>putamente</i>     |
|         | whore               |   | ≈ whorely              |
|         | d. <i>senhor(a)</i> | → | * <i>senhoramente</i>  |
|         | sir, lady           |   | ≈ sirly, ladyly        |
|         | e. <i>baita</i>     | → | * <i>baitamente</i>    |
|         | great               |   | greatly                |
|         | f. <i>super</i>     | → | * <i>supermente</i>    |
|         | super               |   | ≈ superly              |
|         | g. <i>mega</i>      | → | * <i>megamente</i>     |
|         | mega                |   | ≈ megaly               |
|         | h. <i>hiper</i>     | → | * <i>hiper(a)mente</i> |
|         | hyper               |   | ≈ hyperly              |
|         | i. <i>big</i>       | → | * <i>bigmente</i>      |
|         | big                 |   | ≈ bigly                |



Although the empirical facts discussed in this article contribute to the study of intensification and modification, we are aware that much remains to be explained. Our goal is to continue this research (i) applying other tests concerning the structure of complex noun phrases, (ii) compare the structure of complex noun phrases with multiple determiners (e.g., *uma puta de uma festa* lit. a whore of a party ‘a great party’) with cases of predicate inversion in the nominal domain (e.g., *o burro do meu cunhado* lit. the donkey of my brother-in-law ‘my brother-in-law, that idiot’), and verify to what extent these constructions are similar and distinct to each other. Finally, we would like (iii) to provide a typology of intensifying words, taking a closer look at the category status of denominal intensifiers, such as *puta* ‘whore’ and *senhor(a)* ‘sir, lady’, in order to reassess their category nature, since they behave like non-head nouns in N-N compounds (e.g., *ano-luz* lit. year-light ‘light-year’, *banana-maça* lit. banana-apple ‘apple banana’, *peixe-espada* lit. fish-sword ‘sword fish’).

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FOLTRAN, M.; NÓBREGA, V. Adjetivos intensificadores no português brasileiro: propriedades, distribuição e reflexos morfológicos. *Alfa*, São Paulo, v.60, n.2, p.321-351, 2016.

- *RESUMO: Este artigo tem por meta analisar as propriedades e a distribuição dos adjetivos intensificadores no português brasileiro, tendo em vista suas propriedades morfosintáticas, sintáticas e semânticas. Submetemos os dados a testes com o propósito de verificar seu comportamento em relação à ordem, definitude, e tipo de sentenças e sintagmas em que ocorrem. A partir disso, propomos algumas generalizações com relação à sua distribuição: (i) são exclusivamente prepostos, (ii) ocorrem em sintagmas definidos e indefinidos, (iii) ocorrem em sentenças exclamativas e (iv) podem ser empregados em contextos de duplicação do determinante em sintagmas nominais indefinidos. No que concerne à categoria lexical que modificam, observamos a formação de dois subgrupos: aqueles que modificam apenas nomes (viz., *baíta, bruta, senhor(a), puta*) e aqueles que modificam nomes e palavras de outra natureza categorial (viz., *mega, hiper, super*). Essas considerações nos fornecem um conjunto de informações sobre a natureza morfológica de *mega, hiper e super*. Embora sejam tratados como prefixos, argumentamos que essa análise não é plausível. Em contrapartida, sugerimos que tais formas sejam consideradas adjetivos autônomos. Essa assunção, por sua vez, permite-nos explicar facilmente formações como *supermercado, mega-feirão e**

*hipercorreção, analisando-as como compostos de combinação categorial A-N, contrariamente ao que a literatura vem assumindo.*

- **PALAVRAS-CHAVE:** *Sintagma Nominal. Modificação. Adjetivos Intensificadores.*

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# THE INVENTORY AND THE UNDERLYING DISTRIBUTION OF THEME VOWELS IN THE PORTUGUESE NOUN CLASS

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- **ABSTRACT:** This paper discusses the underlying distribution and inventory of theme vowels in the Portuguese noun class. Since it deals with the underlying distribution of theme vowels in both word constitution and derivation, the study not only considers the possibility of attaching suffixes to roots or to stems but also adopts the “stem-driven derivation”, admitting that the stem is stored in the permanent lexicon. Therefore, the theme vowel is in the basis of the derivation process of the nouns in the language since its subjacency. The observation of Portuguese grammar phenomena has shown that three types of criteria support this position: morphophonological, morphological and semantic ones. Regarding the inventory of nominal theme vowels in Portuguese, the study recognizes the singular behavior, in the nouns of the language, of final unstressed vowel /e/, by comparison with vowels /o, a/. Vowel /e/ plays two roles; it is an epenthetic vowel and, in a restricted way, a theme vowel with no correlation with the gender, whereas vowels /o, a/ are always theme vowels and agree with the gender of the words<sup>1</sup>.
- **KEYWORDS:** Theme vowel. Noun class. Underlying distribution. Derivation and its basis. Portuguese Morphophonology.

## Introduction

The focus of this paper is the theme vowel (morpheme of formal class or theme index), in the morphophonology of the Portuguese noun class. As a contribution to the scarce number of studies on the subject, this paper aims to discuss the inventory and the underlying distribution of this morphological unit in the constitution and derivation of words identified as non-verbs in Brazilian Portuguese (BP) and the interface established with the phonology of the language. The starting points of the analysis proposed by

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this study are especially Câmara Jr. (1970), Basílio (2001), Alcântara (2003, 2010), Harris (1999) and Bermúdez-Otero (2007, 2013).

Regarding the inventory of nominal theme vowels, the study recognizes the singular behavior of vowel /e/ as legitimizing loans (ex.: *club* > *clube*) and support to the plural morpheme (ex.: *mar* > *mares*), functions it assumes by occupying the theme vowel position, together with the cases in which it plays the role of theme vowel (ex.: *vale*); it occurs in a restricted number of words in the language. Only vowels /o, a/ play the role of legitimate theme vowels, which are in correlation with the grammatical gender of words, although sometimes arbitrarily, as in *a tribo, o cometa*. However, vowel /o/ predominates in masculine nouns and vowel /a/ prevails in feminine ones.

It should be pointed out that, in this study, regarding the treatment of the inventory of theme vowels, *underlying structure* means *input* of the base word, without inflection. Vowels /o, a/ are always in the *input* of the base word while vowel /e/ is found neither in words ending in liquids nor in acronyms, but it emerges in both pluralization and lexicalized loans; in these cases, it is recognized as epenthesis. Vowel /e/ has these specific functions and there are also cases in which it is a simple theme vowel.

### **Theme vowel and grammatical derivation**

The unpredictability of the theme vowel to fulfill the role of categorization in grammar is in the substrate of the discussion on the grammatical derivation and implies necessary relationship between morphology and phonology, as it will be shown in this paper.

The theme vowel is identified by Câmara Jr. (1970) as classificatory index that assigns a morphological class to the nouns and verbs of the language. By dividing nouns in thematic and athematic ones, he proposes three thematic vowels: /a, o, e/. In the class of BP verbs, vowels /a, e, i/ fulfill this classificatory function.

Basílio (2001) explains the theme vowel by opposing it to the root of a word and by identifying it as an element of flexional definition: added to the word root, the theme vowel forms the stem, which is the morphological basis for the inflection. Therefore, the stem, which contains the theme vowel, is formed by the word without any inflectional marks.

In studies of formal classes of Portuguese in the constitution of non-verbs ending in unstressed vowels /o/, /a/, /e/, Alcântara (2003, 2010) identifies their different functions and advocates that the first two vowels are formal class morphemes. Besides, he attributes two roles to final unstressed vowel /e/: formal class morpheme or epenthetic vowel. The author presents the distribution of the three thematic vowels in four classes. The first and more general class, includes nouns ending in /o/ whereas the second class comprises nouns ending in /a/. In the first class, masculine nouns are predominant (*o livro, o gato*), although there are some feminine words (*a tribo, a libido*). In the second class, feminine nouns are prevalent (*a pedra, a gata*), but

masculine nouns can also be found (*o cometa, o idioma*). The third class integrates nouns to which vowel /e/ in the singular form (*esporte, lebre*) is assigned or in the inflected form (*mar-mares, algoz-algozes*); there is the presence of the morpheme expressed by vowel /e/ in words whose phonological structure could dispense with it, since the preceding consonant could occupy the coda of the syllable (*pele, folclore*), as well as in phonological structures which require a theme vowel (*parque, alegre*) – in this case, vowel /e/ licenses the entrance of words into the lexicon. In this class, there is no correlation between the vowel and the gender of the words. The fourth class brings together the athematic nouns, ending in the vowel of the stem (*café, sofá*), in consonant segment (*joveN, pincel*) and diphthongs (*pai, museu*). This characterization of the theme vowel, as capable of forming classes, evidences direct relation with grammatical derivation.

Regarding the insertion process or the presence of the theme vowel in the lexicon, there are two options: in the first, with a purely morphological basis, the root is the starting point of the derivational process (root-driven) (HALLE; MARANTZ, 1993; MORENO, 1997; SCHWINDT, 2013a). In the second, with a morphophonological basis, the stem is the starting point of the derivational process (stem-driven), which implies that, in the lexicon, there is entrance into stems (root + theme vowel) (BERMÚDEZ-OTERO, 2013; ALCÂNTARA, 2003). In the first, the derivational affix is connected directly to the root (root-based), whereas in the second the derivational affix is connected to the stem (stem-based).

By adopting the derivation based on the *stem* in this study, it is understood that the theme vowel integrates the forms stored as lexical entries of the language. The justification of this position is shown below.

### Distribution of theme vowel: stem-based derivation

Considering that the combination of suffixes may occur with roots or stems, Bermúdez-Otero (2013) presents empirical evidence from contemporary Spanish in order to defend the superiority of the *stem-based derivation* over the *root-based derivation*. As part of this discussion and its results, the underlying distribution of the theme vowels is also dealt with. Thus, for the author, the stem is stored in the deep lexicon, that is, the theme vowel, since its underlying representation, is found in the basis of the derivation process. In this view, the lexical entry, for example, for the form *menino*, in Portuguese, is  $[[_{N}menin-o]]^2$ . As a result, the deletion process of the theme vowel must be considered in many cases of derivation<sup>3</sup>, such as the deletion of the theme vowel -o in the form *meninada*: *meninada*  $[[[menin-o]ada]] \rightarrow [[meninada]]$ .

<sup>2</sup> In formal notation, brackets are used for phonetic transcriptions and hollow brackets, for morphological constituents.

<sup>3</sup> The deletion of the final unstressed theme vowel before the suffix starting with a vowel is a morphologically conditioned phonological process.

The deletion of the theme vowel, however, interposes a problem because it masks the underlying morphological structure of the noun stems and allows two interpretations: (a) the theme vowel is an independent unit in the underlying representation [[[[menin]] o]], derivation from the root; (b) the theme vowel is integrated in the lexicon [[menin-o]], derivation from the stem. Representations in (1) below exemplify the forms of input and output, in a phonological mapping, in the two types of derivation.

(1a) – root-based derivation - phonological mapping

<i>Input</i>	[[[[menin]]o]]	[[[[[[menin]]ad]]a]]
<i>Output</i>	[me.ní.no]	[me.ni.ná.da]

(1b) – stem-based derivation - phonological mapping

<i>Input</i>	[[menin-o]]	[[[[menin-o]]ad-a]]
<i>Output</i>	[me.ní.no]	[me.ni.ná.da]

A *stem-based derivation* needs to be justified, as Bermúdez-Otero (2013) highlights, because it does not usually manifest itself in the surface forms of words. In words derived nouns [me.ni.ná.da], it is pertinent to question if the base is [[menin]] or [[menin-o]]; the latter requires the deletion of the theme vowel in derivational processes, as mentioned before, and is adopted by *stem-based derivation*.

Concerning the relationship between root and stem, it is worth emphasizing the specificity of the terms *stem-based* and *stem-level*: the former refers to morphological subcategorization requirements while the latter concerns phonological properties. The author explains that the grammars are organized to respect these correspondences between grammatical constructions and phonological domains:

- a. *Roots do not define phonological domains.*
- b. *A phonological domain associated with an operation of root-to-stem derivation must be stem-level.*
- c. *Every morphological word defines a word-level domain.*
- d. *The highest phrasal category in the linguistic expression defines a phrase level domain.*

(BERMÚDEZ-OTERO, 2007, p.283).

Therefore, an affix will be stem-level if it defines domains that call stem-level constraints, while it will be stem-based if it is added to the stem of a word. As a result, says the author, an affix may be, for example, root-based and stem-level, stem-based and stem-level, stem-based and word-level, but cannot be root-based and word-level, because, as explained before, one of the principles governing the correspondence that may be found between grammatical constructions and phonological domains is that “a phonological domain associated with a root-to-stem operation must be stem-level”.



Firstly, it should be noted that understanding that the underlying distribution of theme vowel is linked to the stem of the nouns leads to the fact that this vowel will never manifest itself, in the forms of surface, in the middle of derivational suffixes added to stems, that is, the theme vowel must only report to the right edge of words in the singular or preceding the number mark /-S/ in plural words – and this is a fact that effectively integrates the grammar of Portuguese, as well as the Spanish system, according to Bermúdez-Otero (2013). It should be pointed out that the final vowel of the preserved base within certain derivatives is deprived of the theme vowel function, peculiar to the word final position.

The presentation of arguments in favor of *stem-based derivation* for the derivational phenomenon in Portuguese follows Bermúdez-Otero's proposal (2013) regarding three types of criteria: (a) morphophonological criterion; (b) morphological criterion; and (c) semantic criterion. From these three perspectives, phenomena in Portuguese are able to provide elements for the *stem-based derivation* to explain the derivational process in the language, leaving aside the *root-based derivation*.

### **(a) Morphophonological criterion for the stem-based derivation**

The first criterion has a morphophonological nature, since it considers the operation of a morphologically conditioned phonological process. Data on Portuguese are analyzed in the light of this criterion.

To defend the *stem-based derivation* in the derivation process in Portuguese, there is an argument of morphophonological nature in the nominal metaphony operating in the language. The nominal metaphony is characterized by Miranda (2000) as a phonological process applied to the level of word that causes the alternation of labial mid vowel of the word root when the trigger – a labial theme vowel - is on the edge of the word. The quality of the labial high mid vowel in the stressed syllable of the sequence /o/ ... /o/, according to the author, results from a phonotactic constraint, which serves a morphological condition. Examples are: *p[o]rco* (considering *p[ɔ]rca*, *p[ɔ]rcos*); *[o]sso*, (considering *[ɔ]ssos*); *n[o]vo*, (considering *n[ɔ]va*, *n[ɔ]vos*).

From the point of view of the phonology of the language, the derived form with the high mid vowel in stressed position proves that it is a word-level phenomenon. As mentioned before, one word-level derivation cannot be based on the root, or may not be root-based. Therefore, the basis of this derivation must be stem-based, that is, must be based on the stem. It is understood, therefore, that the phenomenon of nominal metaphony in Portuguese is stem-based and word-level, a favorable argument for the *stem-based derivation*.

Besides metaphony, root vowel alternation can be included (ex. *b[ɛ]lo - b[e]ldade*; *l[ɔ]ja - l[o]jista*), since it results from a neutralization process which Portuguese mid vowels present in pretonic position. It is a legitimate case of stem-based derivation, because this vowel alternation depends on the stress and roots do not carry stress;

roots can only have stress on athematic nouns without a theme vowel. There is a stem-based phenomenon when a derivation is operating in nouns whose roots have low mid vowels that become high mid vowels because of the neutralization that results from the shift of the stress position. This is another example of “stem-based derivation” of morphophonological nature.

## (b) Morphological criterion for the stem-based derivation

With the support of the morphological criterion, there are phenomena in Portuguese that show evidence of *stem-based derivation*.

One of the arguments, whose basis is morphology, is the behavior of the gender of derived nouns, considering that theme vowels /o/ and /a/ constitute categories that contain mostly nouns of masculine and feminine genders. The relevance of this statement is supported by the Portuguese suffixes which inherit the gender of the base, such as diminutive suffixes *-inho/a*: *o livro, o livrinho; a casa, a casinha; -ico/a*: *o verão, o veranico; a barba, a barbica; -ejo*: *o lugar, o lugarejo* and augmentative suffixes, such as *-aço/a*: *a água, a águaça* and *-arra/orra*: *a boca, a bocarra; a cabeça, a cabeçorra*. This occurrence requires the derivation to always be stem-based in place of root-based, since it requires the presence of the theme vowel involved with the gender at the basis of the derivation; thus, it reclaims the stems.

The preservation of the gender of the basis, however, is not true of all suffixes forming nouns in Portuguese, since there are those who impose their own gender, for example, the augmentative suffix *-ão*: *a mulher, o mulherão*<sup>4</sup>, and others such as *-ada*: *o pêssego, a pêssegada; -aria*: *o livro, a livraria*. Whether the genre in the broad meaning is given by the word or by the suffix, in such cases, the basis of derivation is the stem.

Portuguese has examples in which the final vowel of the base is maintained, without theme vowel function within certain derivatives. The following cases are examples:

a) derivation with the suffix *-oso*. In base with theme vowel -o, this vowel is preserved, manifested as [u] ~ [w]; examples: *afeto* > *afet[u]oso~afet[w]oso; defeito* > *defeit[u]oso~defet[w]oso; ímpeto* > *impet[u]oso~impet[w]oso; luto* > *lut[u]oso~lut[w]oso; preconceito* > *preconceit[u]oso~preconceit[w]oso; luxo* > *lux[u]oso~lux[w]oso; monstro* > *monstr[u]oso~monstr[w]oso;*

b) derivation with the sequence *-ão*. In base with theme vowel -o, this vowel is preserved, manifested as [o] ~ [w]; examples: *feijão* > *feij[o]ada~feij[w]ada; ferrão* > *ferr[o]ada~ferr[w]ada; trovão* > *trov[o]ada~trov[w]ada; ladrão* > *ladr[o]agem~ladr[w]agem > ladr[o]eira~ladr[w]eira > ladr[o]aço~ladr[w]aço;*

c) derivation of nouns from verbs (deverbal nouns). In this derivation, the theme vowel of the verb remains. The preservation of the theme vowel in this case is justified because

<sup>4</sup> The suffix *-ão* has recently started copying the gender of the base (*mulherona*) or of the referent (*sapatona*), especially when there is a lexicalized concurrent form (*caixão - caixona*) (we thank a referee for making this observation).

the suffixes deriving nouns from verbs begin with a consonant, such as *-mento* (ex.: *alinh-a-mento*, *abaix-a-mento*, *chave-a-mento*, *esquec-i-mento*, *acolh-i-mento*, *aferr-i-mento*)<sup>5</sup>. This fact makes the following view to be considered economic: the theme vowel, present in the nouns derived from verbs, is also in the basis of the derivation when nouns are considered the basis for derivation.

### (c) Semantic criterion for the stem-based derivation

The semantic criterion for stem-based derivation is anchored in an implicational relationship: considering that the meaning of a derivative is compositional, then it is more likely that its base is a stem, rather than a root. In Portuguese, there are examples in diminutives, such as *animalzinho*, *cafezinho*, and endings, such as *-mente*, in *calmamente* or *logicamente*, which maintain a vowel remaining of the theme vowel of the base words, without their peculiar function.

Words ending in *-mente* and *-zinho*, such as *calmamente* and *cafezinho*, have received different interpretations. For Câmara Jr. (1970), they are words derived by juxtaposition. For Menuzzi (1993) and Schwindt (2013b), prosodic words are formed by composition. Bisol (2010), regarding the diminutive, emphasizes the role of /z/ as epenthesis, a case of surface structure, constituting the formation of the diminutive, *-inho* or *-zinho*, a derivational process from *-inho*. The details of this discussion will not be described in this paper because they would take up much space, but seeing them as derivation would be a stem-based case.

A fact that has been observed in Portuguese reinforces the arguments in favor of *stem-based derivation*, linked to the semantic criterion: it is the existence of lexical items which have, as their only formal specificity, theme vowels, but which have different meanings, although, in broader terms, are related, such as *pingo/pinga*, *saco/saca* and *fruto/fruta*<sup>6</sup>.

The specificities of meaning can be observed in: *pingo* (theme vowel -o) – common use<sup>7</sup>: “small portion of liquid; when it spills, it takes the form of a globule; drop”; *pinga* (theme vowel -a) – common use: “beverage portion swallowed at once; sip, gulp; alcohol, white rum”. As for the morphological behavior, it is observed that both bases can be adjoined by the suffix *-ado*, but there is the specificity that, only to the base with terminal vowel -o, the following suffixes can be added: *-ar*, *-ada*, *-oso*

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<sup>5</sup> In this type of derivation, the representation of theme vowel -e, from the class of verbs, shows alternation with vowel [i] ([e] ~ [i]) (example: *esquecer* > *esquecimento*), as well as the representation, so, theme vowel -i, from the class of verbs, shows alternation with vowel [e] ([i] ~ [e]) (ex.: *adimplir* > *adimplemento*).

<sup>6</sup> The language contains different examples of the same nature. Some are the following: *barco/barca*; *horto/horta*; *poço/poça*; *manto/manta*; *banco/banca*; *lombo/lomba*; *sapato/sapata*; *plano/plana*, *cinto/cinta*, *ramo/rama*.

<sup>7</sup> The meanings were taken from the Houaiss Dictionary Electronic (FUNDAÇÃO DORINA NOWILL PARA CEGOS, 2009) – among all the listed meanings, the most commonly used ones are mentioned (hence, the use of the expression “common use”).

(*pingo* → *pingar*, *pingada*, *pingoso*). The suffixes *-uço*, *-eiro* are added to the base *pinga* (theme vowel -a) (*pinga* → *pinguço*, *pingueiro*) – the meaning of each base licenses different morphological behavior.

A similar phenomenon occurs in the case of *saco/saca* and *fruto/fruta*. It can be observed that, in the first case, there are differences in meaning: *saco* (theme vowel -o) – common use: “paper, cloth, leather, or plastic container, oblong, open at the top and closed at the bottom and sides”; *saca* (theme vowel -a) – common use: “large tote, large and long container, small suitcase; suitcase”. There is also a difference in morphological behavior when considering both bases since the suffixes *-aria*, *-inho/a* can be attached both to the base with -o, and to that with -a, but the suffixes *-ola*, *-ete* can only be added to the base with -o (the *sacola* and *saquete* forms only derive from *saco*).

In the case of *fruto/fruta*, the most common meanings of *fruto* (theme vowel -o) are: “consequence, the end result of anything (previously planned or unplanned); advantageous product; advantage; child, offspring”; for *fruta* (theme vowel -a), the most common use is “edible fruit or inflorescence”. The specialization of meaning, considering the difference of the theme vowel also has morphological implications: the form with theme vowel -o licenses the suffixes *-ar*, *-ear*, *-escer*, *-ário*, *-oso* (the forms *frutar*, *frutear*, *frutescer*, *frutário*, *frutuoso* derive from *fruto*), while the form with theme vowel -a licenses the suffixes *-aria*, *-eira*, *-eiro*, *-ose* (the forms *frutaria*, *fruteira*, *fruteiro*, *frutose* derive only from *fruta*), in a true complementary distribution. Thus, in this case, it means that the theme vowels attributes, to the lexical items, formal and semantic specificity, which reflects in the derivational process – the theme vowel in such cases must be based on derivation and the phenomenon is stem-based and word-level.

With the subsidies of the three criteria of morphophonological, morphological and semantic nature discussed before, it seems that the stem, that is, the way the theme vowel is defined, is the basis of derivation in Portuguese, assuming therefore that the theme vowel is inserted into the lexicon.

It should also be emphasizing that understanding that the derivational affix is stem-based equalizes the derivation process in the language, since, when considering bases with theme vowel and athematic ones, the affix will always be adjoined to a unit of the language of the same nature.

## Inventory of nominal theme vowels

The inventory of theme vowels in the class of Portuguese nouns, according to the authors cited in the introduction of this paper, comprises the set of three final unstressed segments: /o/, /a/, /e/, which carry out a classificatory function in the language morphology.

However, in the literature (HARRIS, 1999; VILLALVA, 1994; ALCÂNTARA, 2003, 2010; BERMÚDEZ-OTERO, 2013), a differentiated behavior of the vowel /e/ is recognized in the set of segments that draw up this inventory. Villalva (1994) considers

that only vowels /o/, /a/ are thematic indexes; vowel /e/ is discarded, considering its absence at the end of unstressed phonetic forms in European Portuguese (EP).

Alcântara (2003, 2010) only assigns, to vowels /o/, /a/, the unique categorization of formal class morphemes, since the unstressed final vowel /e/ may fulfill the roles of both formal class morpheme and epenthetic vowel. According to the author, vowel /e/ is configured as a formal class morpheme when the root ends in a consonant licensed to the coda position by the phonology of Portuguese (ex.: *mole*, *vale*, *pele*); it is epenthetic when it is required by phonology to save malformed structures, with segments on coda not licensed by the grammar (ex.: *dente*, *neve*, *parede*).

Harris (1999), in his studies of Spanish, describes the presence of final unstressed /e/ in a complementary distribution with its absence: in opposition to the context in which it occurs  $\emptyset$ , wherein the sequences at the end of the root are phonological admissible in words of the language (ex.: *mil*, *común*, *red*), vowel /e/ is introduced into other contexts (ex.: *nube*, *arte*, *triple*). Similarly, Portuguese has correlate forms in examples such as *mar*; *mal*, *paz* and *clube*, *parque*, *ave*, respectively.

As opposed to theme vowels /o, a/, therefore, vowel /e/ shows a peculiarity in the theme vowel condition (class marker or thematic index), both in Portuguese and in Spanish. Concerning words in Portuguese ending in final unstressed /e/, a search in the lexicon shows a result that can be revealing: there is a significantly small number of words whose roots end in sequences licensed by the language that present final unstressed vowel /e/, such as items *mole*, *vale*, *pele*<sup>8</sup>.

Considering the singular behavior of final unstressed vowel /e/, it opens up the possibility of questioning its function as a legitimate thematic vowel, present in the underlay of the language nouns. As part of this discussion, some aspects found in nouns ending in unstressed /e/ must be observed. Besides, facts related to this vowel must be examined. Four points are presented:

1st) final unstressed vowel /e/ is attributed, in the epenthetic element condition, to the loans accepted by BP in cases in which a final sequence of the radical is not licensed by the language (ex.: *basquete*, *bife*, *boxe*, *clube*, *chefe*, *iode*), as well as in contexts in which this final sequence is licensed (ex.: *console*, *quermesse*, *escor*, *xale*, *folclore*).  
2nd) final unstressed vowel /e/ shows alternations:

- a) with  $\emptyset$ , in roots whose consonants would be licensed as a coda by language phonology (ex.: *caractere* ~ *caráter*; *belvedere* ~ *belveder* ~ *belver*; *prócere* ~ *prócer*)<sup>9</sup>, including PB variants with less prestige (ex.: *mole* ~ *mol*; *pele* ~ *pel*; *gole* ~ *gol*);

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<sup>8</sup> This is the group that, in Alcântara's proposal (2003), is Formal Class IV, and that counts the total of only 61 words (ALCÂNTARA, 2003, attachments), according to a search in the Houaiss Dictionary of the Portuguese Language (HOUAISS; VILLAR; FRANCO, 2001). Only in those few cases, vowel /e/ is in the *input* and is recognized as a theme vowel.

<sup>9</sup> Unusual words also show the movement of the language towards the deletion of final /e/.

- b) with theme vowels /o, a/ (ex.: *gole* ~ *golo*; *triple* ~ *triplo*; *chilre* ~ *chilro*; *aderece* ~ *adereço*; *biopse* ~ *biópsia*; *avalanche* ~ *avalancha*; *asteque* ~ *asteca*; *enfarte* ~ *enfarto*; *cale* ~ *calha*; *manicure* ~ *manicura*; *cabine* ~ *cabina*; *clone* ~ *clono*; *dengue* ~ *dengo*);
- c) with forms resulting from metathesis (ex.: *ambre* ~ *âmbar*; *acétre* ~ *acéter*; *açucré* ~ *açúcar*);
- d) with athematic forms (ex.: *arse* ~ *arsis*; *cânabe* ~ *cânabis*; *aurífice* ~ *ourives*; *isóscele* ~ *isósceles*).

The alternations experimented by vowel /e/ show its unstable behavior, subject to deletion, to metathesis and to substitution by legitimate theme vowels /o, a/.

3rd) final unstressed vowel /e/ shows alternations with theme vowels /o, a/ in the process of language acquisition by Brazilian children (ex.: *controle* ~ *controlo*); in children's data, vowels /o, a/ can even be assigned to athematic nouns (example: *capuz* ~ *capuzo*)<sup>10</sup>, while a final coronal unstressed vowel is only attributed to surface shapes in the developmental stage in which the CVC syllable structure is not yet licensed for children's outputs (ex.: *nariz* → [na'lizi]; *flor* → ['foli]). In the acquisition process, there is evidence that /o, a/ are considered the real theme vowels in the language.

4th) final unstressed vowel /e/ does not behave as a trigger of nominal metaphony, as occurs in language nouns with final unstressed /o/ and /a/ (ex.: *br/ε/ve* \**br/e/ve*; *l/ε/ bre* \**l/e/br*; *l/ε/ve* \**l/e/ve*; *t/ε/se* \**t/e/se*).

The examples show words in which the vowel in Latin was ě (short e), from which the low mid vowels have been derived in Portuguese; if metaphony motivated by the final unstressed vowel /e/ were applied, the resulting form should present high mid vowel, but it does not happen. Thus, this vowel does not seem to behave as a theme vowel, because, if it did, the behavior should be expected to be a trigger of metaphony, in agreement with the behavior of theme vowels /o/, /a/.

These arguments add to another which shows the difference in behavior of final unstressed /e/ by comparison with vowels /o, a/: underlying theme vowels /o, a/ are involved with basic phenomena of morphophonology in Portuguese, such as neutralization (bElo>beleza) and nominal metaphony, as mentioned in this paper, whereas vowel /e/ is involved with surface phenomena, such as metathesis or filling the void of a vowel theme, a discussion that has also been presented in this study. Moreover, it must be acknowledged that the number of words of the language in which final unstressed /e/ is attributed to roots ending in sequences licensed by the language is very limited, a fact that was also previously mentioned.

On this basis, it is assumed that vowel /e/ is called to occupy, in the surface structure, the space that the morphology of Portuguese earmarks to theme vowel.

<sup>10</sup> This assignment of theme vowel to athematic nouns is found in a stage of the acquisition process in which the phonology of children already integrates syllabic structure with coda, a fact that shows that this vowel epenthesis cannot be interpreted as a result of the complex structure of the syllable.

Therefore, the status of legitimate theme vowels, integrating the underlying structure of the language, should be assigned only to both vowels /o, a/. Although three vowels manifest themselves in theme vowel position, /o, a, e/, vowels /o, a/ are naturally in the *input* of most of the words in Portuguese. The occurrence of /e/ is only noticed in limited cases, such as *mole, vale, pele*. They appear in all other cases in theme vowel position as epenthesis and as licensors of structures which are not allowed by the language, an explicit fact in syllabification.

## Final remarks

Focusing on theme vowel of the class of nouns of Portuguese, this paper discussed two points: the underlying distribution and the inventory of nominal theme vowels. When dealing with the underlying distribution of theme vowel in the constitution and in the derivation of words, in the derivation process, the possibility of suffixes joining roots or themes was considered. It was assumed that there is evidence to adopt a *stem-based derivation*, supported by three different phenomena in Portuguese, organized according to three types of criteria: (a) morphophonological criterion; (b) morphological criterion; and (c) semantic criterion. It is understood that the stem is stored in the deep lexicon, and that the theme vowel, since the underlay, is found in the basis of the derivation process of the nouns of the language.

As part of the central object of the study, the paper also considered the issue of the inventory of nominal theme vowels in Portuguese, assuming that, for the nouns of the language, there are two genuine theme vowels: /o, a/. With evidence from the singular behavior, in Portuguese nouns, of the final unstressed vowel /e/ by comparison with the vowels /o, a/, it is assumed that vowel /e/ plays the role of theme vowel in a restricted number of words; this vowel is mostly called just to occupy, in the surface structure, the space that the morphology of Portuguese reserved for the theme vowel. Therefore, the status of legitimate theme vowels is attributed to vowels /o, a/, naturally integrating the *input* of most words in the language, besides carrying the grammatical gender of the word, unlike what happens with vowel /e/.

MATZENAUER, C.; BISOL, L. O inventário e a distribuição subjacente das vogais temáticas na classe dos nomes do português. *Alfa*, São Paulo, v.60, n.2, p.353-365, 2016.

- *RESUMO: O artigo discute a distribuição subjacente e o inventário das vogais temáticas da classe dos nomes do português. Ao tratar da distribuição subjacente da vogal temática na constituição e na derivação das palavras, o estudo considera a possibilidade de a combinação de sufixos ocorrer com raízes ou com temas e adota a “derivação com base no tema”, admitindo que o tema está armazenado no léxico profundo; assim sendo, a vogal temática está na base do processo de derivação dos nomes da língua desde a subjacência. Na*

*observação de fenômenos da gramática do português, três tipos de critérios dão suporte a essa posição: critério morfofonológico, critério morfológico e critério semântico. Com relação ao inventário das vogais temáticas nominais no português, o estudo reconhece o comportamento singular; nos nomes da língua, que mostra a vogal /e/ ao ser comparada com as vogais /o, a/. Enquanto a vogal /e/ mescla dois papéis: vogal epentética e, de forma restrita, vogal temática, sem correlação com o gênero, as vogais /o, a/ legitimam-se sempre como vogais temáticas e compactam com o gênero das palavras.*

- **PALAVRAS-CHAVE:** Vogal temática. Classe dos nomes. Distribuição subjacente. Derivação e sua base. Morfofonologia do português

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# THE PAST-EVENT MEMORY AND THE EVENT MEMORY: A SEMIOTIC STUDY OF AUTOBIOGRAPHICAL GENRES<sup>1</sup>

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- **ABSTRACT:** Based on the notions of *field of presence* and *event*, developed by Tensive Grammar, this study proposes two discursive types of memory as an analytical category: the *past-event memory* and the *event memory*. These discursive memory organizations determine different ways the enunciatee adheres the discourses. Being more intelligible, the former captures the enunciatee through strategies that highlight the legibility of the text, whereas the latter promotes an essentially sensitive experience. Taking such instability into account, the aim of this paper is to analyze, on the theoretical framework of discursive semiotics, the interaction between enunciator and enunciatee in different autobiographical genres. The genres studied are the literary autobiographies in prose, autobiographical poems and academic autobiographies. Each of them promotes a particular combination between the *past-event memory* and the *event memory*. It is precisely the tension between these two types of memory, these two ways of knowing the world and producing it, which seems to be the foundation of the autobiographical discourses.
- **KEYWORDS:** Memory. Autobiographical genres. Semiotics. Tensive grammar. Enunciation. Event.

I invented a brat to be me.  
He had a fine taste for the floor  
From his gaze it flooded tree-like nobility.  
He had a lack of hunger to obey the ordering of things<sup>2</sup>.

Manoel de Barros (2008, p.II).

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<sup>1</sup> This paper builds on some of the conclusions which we arrived at our PhD thesis, *The discourse of memory: between the sensitive and the intelligible* (BARROS, Mariana, 2011), reviewed from our post-doctoral research. Both works were directed by professor Norma Discini de Campos. The research conducted during our PhD was financed by CNPq [140032/2008-8], and the post-doctoral was financed by CAPES [33002010103P3]. The publication of the thesis can be found at <<http://spap.flch.usp.br/node/68>>.

<sup>2</sup> In this paper, all the literary excerpts have been translated freely, unless otherwise indicated. Original text: “*Inventei um menino levado da breca para me ser. / Ele tinha um gosto elevado para chão / De seu olhar vazava uma nobreza de árvore. / Tinha desapatite para obedecer a arrumação das coisas*”, from the book *Memórias Inventadas*, by Manoel de Barros (2008, p.II).

*Memórias inventadas: a terceira infância* (2008, p.1) by Manoel de Barros presents as the “donors of his fountains”: the “birds”, the “drifters” and the “child”. “Everything I invent is false”, said the epigraph of Manoel de Barros’ book, in which the subject that remembers the past says he prefers not to put “a date in his existence”, rather he “fills the time”: “Our greatest date was the *when* [...] There are times in which I am *when* a rock” (BARROS, Manoel, 2007, p.XV). *Memórias inventadas* has an autobiographical tone, its conducting line is the imagination and in which, at every moment, we see the search for the settlement of new and outstanding relations in language.

While in Manoel de Barros the small things are in focus – the “sparrows”, the “frog” – in Humberto Campos’ (1947) book *Memórias* the reader is invited to learn the stories of the great deeds of a man who overcomes all things to take a “seat at the Academy and a chair at the Parliament” (CAMPOS, 1947, p.8). Throughout the pages of the book, each filled with certainties and eloquence, we find a narrator who says he prefers “confessing his ignorance to resorting to fantasy” (CAMPOS, 1947, p.11). This narrator constructs himself in opposition to imagination and he justifies the gaps in his text with uttermost sincerity.

I write the story of my life not because it is about me; but because it is about a lesson of courage to the wicked, of boldness to the poor, of hope to the discouraged, and, therefore, a useful map to the youth to follow. The vices that make it ugly, the mistakes that particularize it and which I proclaim with great tranquility, the rocks against which I have crashed, even those I made it work to my advantage, and so will those who read them. In knowing them, those who come after me will avoid them, running away from the dangers I have faced, and, then, seeking for more straight and safer ways to travel. (CAMPOS, 1947, p.8-9)<sup>3</sup>.

The memory itself is conceived differently in these two books, separated by over half a century. If, in Manoel de Barros, memory is associated to “invention”, “imagination” and “discovery”, highly characterized by inchoativity, in Humberto de Campos, memory seems to be the “trunk” where finished events are found, events that do not undergo any transformation in the moment when they are being remembered or narrated. There are only rare moments when the narrator of *Memórias* (1947) confesses it might be possible that his forgetfulness may have altered facts remembered, however, in circumscribing these moments of doubt, the narrator confers a greater degree of credibility to his words, by separating these doubtful moments from the rest of the text.

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<sup>3</sup> Original text: “Escrevo a história da minha vida não porque se trate de mim; mas porque constitui uma lição de coragem aos tímidos, de audácia aos pobres, de esperança aos desenganados, e, dessa maneira, um roteiro útil à mocidade que a manuseie. Os vícios que a afeiam, os erros que a singularizam e que proclamo com inteira tranquilidade de alma, os rochedos, em suma, em que bati, mesmo esses me foram proveitosos, e sê-lo-ão, talvez, aos que lerem. Conhecendo-os, saberão aqueles que vierem depois de mim, que devem evitá-los, fugindo aos perigos que enfrentei, e, conseqüentemente, procurando na viagem, caminhos mais limpos e seguros.” (CAMPOS, 1947, p.8-9).

Having before us these two different conceptualizations of memory brought forth in each of the aforementioned texts, a pertinent question may be raised: what quality of truth does each of these texts construe? As we have seen, memory can be presented as a faithful portray of the past or as an invention. The exam of the relations between memory and truth is, therefore, a pertinent guide to the studies of autobiographical genres.

It should be noted that, in this paper, truth will not be considered to have referential value, but rather it will be considered to be a result of a veridiction contract established between enunciator and enunciatee, as proposed by the discursive semiotics. According to this theory, enunciation is always presupposed. Such a conception of enunciation excludes the author in the flesh and does not characterize the discourses according to their external referents, but according to a fiduciary contract engaged in by the interlocutors, enunciator and enunciatee. It is this fiduciary contract that determines the veredictorial status of a given discourse and the stance assumed by interactants is anchored in the understanding that the “[...] role of language in construing the world of objects, and the relativity, correspondent to the diversity of human sciences” (GREIMAS, 1970, p.51, our translation)<sup>4</sup>. Thus the definition of a discourse as being autobiographical undergoes the exam of meaningful effects or simulacra created in the discursive immanence itself. These effects are connected to the genres, which establish relatively stable forms to the production of discourse, inserted in a given culture and in a given historical moment.

Given this line of investigation, the goals of this paper will not be to define whether created autobiographical scenarios are real of fictional, but will be to examine the truth effects proposed by the discourses and their enunciatees – readers projected by the discourse –, verifying how memorial architecture of discourse affects these enunciatees.

The corpus of analysis is composed of texts, produced in Brazil, of different autobiographic genres, such as academic memorial, literary autobiography in prose and poetry of autobiographic character. Academic memorial come from two areas of knowledge: Languages and Biology<sup>5</sup>. What is more, the demand of such texts is restricted to those written for public professorship tenure of University of São Paulo (USP), between 1970 and 2010. The literary autobiography in prose has in *Infância* [*Childhood*]<sup>6</sup>, written by Graciliano Ramos (2003), its main territory of investigation. Regarding poetry, for this study, we selected the poems *Infância*, by Manuel Bandeira (1993), which is part of the book *Belo Belo*; other poems by this author, such as *Evocação do Recife* and *Profundamente*, both from the book *Libertinagem*, should be used whenever they allow for comparison with our main texts. Poems were incorporated

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<sup>4</sup> “[...] participation de la langue à la construction du monde des objets, et de la relativité, correspondant à la diversité des sociétés humaines, du découpage du monde des significations”.

<sup>5</sup> The present article does not make use of all the academic memorials analyzed for the larger PhD study.

<sup>6</sup> For the present article, we chose to analyze just one literary text in prose, nonetheless in previous works, such as Mariana Barros (2011), we examine a large body of literary texts in prose, especially the ones written by Pedro Nava. Many of the generalization presented here, thus, are confirmed by our analyses presented in previous work.

to our research mainly because they allow for a comparison between autobiographic writing in prose and in poetry. What is more, considered with literary prose, they allow for a broader analysis of autobiographic literary discourse and also for a contrast with academic memorials. The type of corpus gathered for this research enhances the study of the relations between enunciative contracts and autobiographic genres, as well as the relations between genres from different circulation spheres, in this case, academic and literary.

The texts of this corpus, though from a variety of genres, have some characteristics in common: firstly, the effect of identity, emerging from different resources<sup>7</sup>, between enunciator, narrator and protagonist (main actor of what is narrated); secondly, the presence of a narrator in the present (time of narration), who tells retrospectively the life of the protagonist in the past (time of the narrated action); thirdly, the theme around “my life”.

The theoretical and methodological framework is Greimasian semiotics. Among the possibilities presented by this theory, we highlight the semiotic studies of enunciation and other tensive semiotic studies, with special attention to notions such as *event* and *exercise* (ZILBERBERG, 2007), and *field of presence* (FONTANILLE; ZILBERBERG, 2001). The notion of *field of presence*, such as developed from a tensive viewpoint, shall be one the epistemological guidelines on which the exam of the ways in which enunciatee adheres to autobiographic discourse is based, given that for each genre and each text the enunciator, in presenting their life in retrospective, regulates in specific ways the entrance of values in the *field of presence* of the enunciatee. We hope, therefore, to investigate the ways in which the enunciatee is affected sensibly in the different autobiographic genres and how this *sensitizing* from the enunciator interferes in the fiduciary relationship established between communicative partners.

## The levels of autobiographic discourse

Literary autobiographies in prose, poems with an autobiographic tone and academic memorial rebuild, in language, a past time. Such past, even in the interior of each work, cannot be seen as whole, for it is perceived by the different “I’s” to whom this past is related: the enunciator, the narrator and the protagonist. Each of these instances is, therefore, a producer of perceptions and evaluations of the world, which may converge or diverge, and may even build themselves with a deictic center, which defines temporal and spatial relations. In order to treat with more precision each of these matters, it is necessary to distinguish the various levels in the organization of the autobiographic discourse.

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<sup>7</sup> The mechanisms for constructing identity effects between narrator, enunciator and protagonist were discussed in Mariana Barros (2011).

We can set as the first level the one that involves both the protagonist (the actor of what is narrated) and the world, both seen from the perspective of their interaction with each other. This first level has to do, therefore, with the simulacrum of the life being told. We can formulate this synthesis concerning the first interaction: *protagonist (the actor of what is narrated) and the world*.

It must not be forgotten, however, that life situations are presented in autobiographic works as someone's memory: there is a narrator who remembers and tells the life of an *I* in the past. Hence it is important to observe how the narrator, situated in the *here* and the *now* of the narration, is related to his narrated memory. The distance between the narrator and his memory may be shown as being greater or smaller, just as the separation between the subject of the present and the subject of the past: in one extreme of the scale is total immersion in the memory; in the other, complete caesura. We have then another synthesizer pair: narrator and memory<sup>8</sup>.

The enunciatee perceives these strategies as being orchestrated by the enunciator. What is more, the effect in autobiographic works is that the life being told is the life of the enunciator; something built with innumerable resources, onomastics among them. Language *be-making*, in the present, the image of the past. Therefore, memory comes about, to those who remember, as an image-simulacrum of the past; it cannot be ignored, nonetheless, that memory is a present-time experience. Memory is activated, filtered, selected and recreated from present-time experience and still felt in the present-time. More than just showing how life was lived, the autobiographic genres unveil the enunciator's views of the life narrated, part of which is his expectation toward the enunciatee. It must be emphasized that, be it in autobiographic discourse or not, the enunciatee partakes in the construction of the uttered-discourse meaning, with the implication that the subject of enunciation – producer of the utterance – is understood, in semiotic theory, to be formed by the enunciator and the enunciatee:

[...] the enunciatee is not merely the addressee of the communication, but also the subject responsible for producing the discourse, for the act of “reading” is, too, an act of language (a meaningful act) in the same way that the production of the discourse is. The term “subject of enunciation” frequently employed as a synonym for enunciator, covers in fact the two acting positions of enunciator and enunciate. (GREIMAS; COURTÉS, 2008, p.171)<sup>9</sup>.

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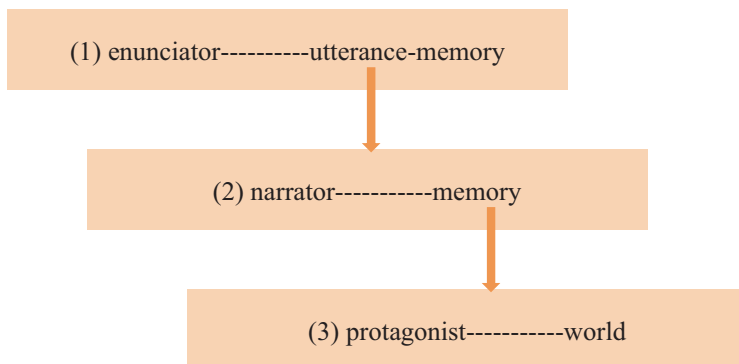
<sup>8</sup> The narrator, in semiotics, is understood as an actant of uttered enunciation delegated by the enunciator, present explicit or implicitly in every enunciated-discourse (GREIMAS; COURTÉS, 2008, p.327). Thus even when we are dealing with poems, we will have a “narrator”, which does not mean we are disregarding what is specific to poetry.

<sup>9</sup> Original text: “[...] o enunciatário não é apenas destinatário da comunicação, mas também sujeito produtor do discurso, por ser a “leitura” um ato de linguagem (ato de significar) da mesma maneira que a produção do discurso propriamente dito. O termo “sujeito da enunciação”, empregado frequentemente como sinônimo de enunciator, cobre de fato as duas posições actanciais de enunciator e de enunciatário.” (GREIMAS; COURTÉS, 2008, p.171).

In order to account for stance taking, it is necessary to consider, then, how memory is construed in the text, because it is the text that gives us clues about the autobiographic enunciation<sup>10</sup>. We propose, therefore, a third synthesizer pair: *enunciator and utterance-memory*.

The following schema represents the pertinent levels for analyzing autobiographic discourse<sup>11</sup>:

**Figure 1** – The levels of analysis of autobiographic discourse



**Source:** Author’s elaboration.

It must be said that level (3) could be unfolded in (3’), not represented in the schema, since the narrator may recall a past moment when he remembers an even more remote moment. This is what happens with the narrator of *Baú de ossos*, by Pedro Nava (2000). In an instant coincident to the point “Not that long ago” – therefore, not concomitant, syntactically, to the *now* of narration –, the narrator sees the turret in the police station and remembers Luís Felipe Vieira Souto. This unexpected recall drives him towards a reconstruction of the path taken by his memory:

Sometimes disturbed in their chaining, idea association hurts – like a metal sounding lead ill conducted making its *fausse route* in the body. Not that long ago I experienced it. The other day, arriving to the corner of Pedro Américo, via Catete Street, I looked at the precinct turret (now demolished). It was standing out over the white wall of the sky scraper, in the back. Looking at the wall, the representation of the white wall stood out with difficulty, in tumbling throbs, in a zooning agony, the memory of the deceased figure of Luís Felipe Vieira Souto. To myself

<sup>10</sup> Marked with intentionality, enunciation is understood as “[...] a view of the world, a transitive-oriented relationship, by which the subject constructs the world an object while he construes himself” (GREIMAS; COURTÉS, 2008, p.168).

<sup>11</sup> The dotted lines represent the relations held at the same level; and the arrow indicates the change from one level to another.



the association was shocking, it figured to me as weird. It wasn't. I was following a train of reasoning that, being so repetitive, made me take in itself the short way and I skipped the wall, immediately, to the shadow, where I would arrive according to the chaining conducted by the habit. (NAVA, 2000, p. 293-294)<sup>12</sup>.

The organization of autobiographic discourse in levels will be used throughout the analysis of the corpus, since it has an important role in the exam of the relations between enunciator and enunciatee in autobiographic works.

### Event memory and past-event memory

As mentioned in the beginning of this paper, two notions developed by the tensive grammar are of paramount importance to this study: *field of presence* and *event*. In this section, we briefly introduce these notions.

Semiotic theory has been dealing with the matter of existence by considering the category of presence, given that this theory has no interest in issuing ontological judgments about the nature of the objects under analysis:

The semiotic theory deals with the presence, that is, the “reality” of perceivable objects, a common problem, it is true, to scientific epistemology. At this level, epistemology can focus on an operation definition that does not take any sides, in saying that semiotics is a value of any kind and is determined by the transitive relation that, taking it as a knowledgeable object, is connected to the cognitive subject. (GREIMAS; COURTÉS, 2008, p.194-195)<sup>13</sup>.

According to Fontanille and Zillberberg, it would be necessary to take a step further regarding the notion of existence as presented in Greimas and Courtés' *Dictionary of semiotics*, and it would also be necessary to recognize, in such cognitive relationship, the perceptual basis of all signification (FONTANILLE; ZILBERBERG, 2001, p.

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<sup>12</sup> Original text: “Às vezes perturbada nos seus encadeamentos, a associação de idéias dói – como sonda metálica mal conduzida fazendo *fausseroute* nos canais do corpo. Há bem pouco tempo tive essa experiência. Chegando, um dia, pela Rua do Catete, à esquina de Pedro Américo, olhei o torreão (hoje derrubado) da Delegacia de Polícia. Ele se destacava sobre a parede clara do arranha-céu, no fundo. Olhando a parede, da representação da parede branca destacou-se com dificuldade, num retubar de palpitações, numa agonia de tonteira, a lembrança da figura defunta de Luís Felipe Vieira Souto. A mim mesmo espantou a associação que se me afigurou estapafúrdia. Não era. Eu estava seguindo um curso de pensamento que, de tanto repetido, fez-me tomar nele o caminho mais curto e pulei da parede, imediatamente, à sombra, ao vulto, a que deveria chegar imediatamente segundo encadeamento regido pelo hábito.” (NAVA, 2000, p.293-294).

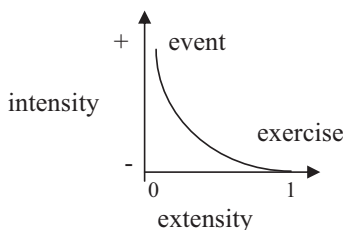
<sup>13</sup> Original text: “À teoria semiótica se coloca o problema da presença, isto é, da “realidade” dos objetos cognoscíveis, problema comum – à verdade – à epistemologia científica no conjunto. Nesse nível, ela pode contentar-se com uma definição operatória que não a compromete em nada, dizendo que a existência semiótica de uma grandeza qualquer é determinada pela relação transitiva que, tomando-a como objeto de saber, a liga ao sujeito cognitivo.” (GREIMAS; COURTÉS, 2008, p.194-195).

124). Hence they propose that semiotics should inherit from phenomenology, and, more specifically, from Merleau-Ponty, the notion of “field of presence”. Following the tenets of tensive grammar, field of presence may be understood, on the one hand, as the “[...] spatial-temporal domain in which perception is exerted, and, on the other hand, the entrances, the remainders, the exits and the returns that, at the same time, to which are owed its value and embodiment [...]” (FONTANILLE; ZILBERBERG, 2001, p. 125). Every value that penetrates in the field is evaluated by its extensity and of the intensity of the perception of the subject. Therefore, intensity has to do with the force with which we are affected by the values that penetrate our *field of presence*, and extensity has to do with, in first place, temporal extensity, and also spatial controlled by intensity.

The dimension of extensity, which subsumes the subdimension of temporality and spatiality, is formed of “states of affairs”, analogous to that which is intelligible. The subdimension of temporality has the basic opposition of *abbreviation versus stretch*, while the subdimension of spatiality, *concentration versus expansion* (ZILBERBERG, 2006b, p.230 e.p.237). The dimension of intensity, which has tonicity and *tempo* as sub dimensions, corresponds to the measure of affect that touches us in our relationship with the world, that is, to the “states of the soul”, to that which is sensible. Tonicity provides the basic opposition *tonic versus atonic*, and the *tempo*, the opposition *fast versus slow* (ZILBERBERG, 2006b, p.236 e.p.239).

From this perspective, it is relevant to retrieve the notion of *event*, such as conceived by Zilberberg (2007). Understood to be the syncretism between tonicity and *tempo*, which composes the axis of intensity, *event* is anything that surprises the subject, that saturates the subject’s *field of present*, and that, at first, is unintelligible. An *event* may be merely felt by the subject. The event corresponds to an increase of *tempo* and of tonicity, but it is not a slow increase, rather, it is abrupt, like a leap. There is acceleration, perceived as being the sudden entrance of a given value in the *field of presence*, long before one could predict its arrival. Tonicity is also revealed at its highest degree, since the subject is taken over in its integrality by the *event*, thus feeling its impact. The correlate term to *event* is *exercise* (ZILBERBERG, 2007), which is configured as that which opposes all. The following representation in Figure 2 shows a graph, which depicts slowness and minimal impact.

**Figure 2** – The event and the exercise



**Source:** Adapted from Zilberberg (2007, p.19).

The subject, who lives the event, an affectionate experience, is not the subject of action, but the one who endures and suffers the effects of the *event*. With respect to what Zilberberg (2007) calls *mode of efficiency*, the manner in which a value is installed in a *field of presence*, the event corresponds to the modality of *survenir* (supervene, sudden accomplishment), which means that the value appeared in the field of presence unexpectedly, and the *exercice* corresponds to the modality of *parvenir* (achieve, reach, stepwise accomplishment), which is attained when the process is carried out according to the will of the subject<sup>14</sup>. *Survenir* and *parvenir* are conducted by the *tempo*.

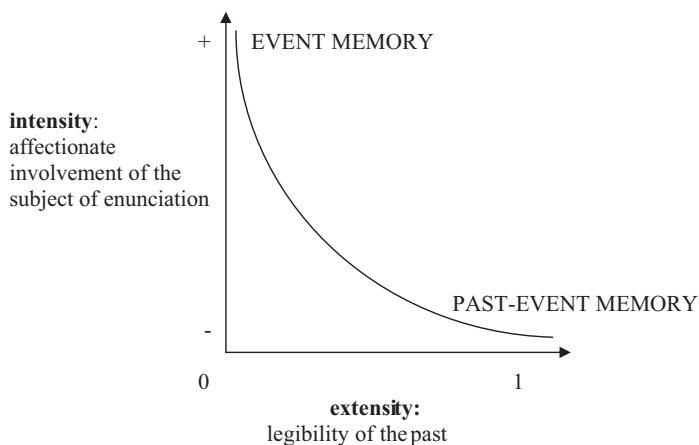
With respect to what the author calls mode of junction, that is, the condition of cohesion by which specific information is or is not affirmed, the *event*, which institutes the unexpected, would function according to the mode of concession (although *a*, however *b*), since it subverts the causality postulated by the implication (if *a*, then *b*), which is the logic of the exercise. The *event* performs integration between *survenir* and the concession, while the *exercice* unites *parvenir* and the implication.

Building upon the notions of *field of presence* and *event*, we propose two discursive forms for construing *memory* as an analytic category of autobiographic discourses: the *past-event memory* and the *event memory*. *Past-event memory* may be compared to the image of an archive, because it is discursively formed as something which seems to be ready even before the writing of the text; as previously given data. Past event memory provides legibility to the past, which is elaborated with the effect of exhaustion of information. It makes the remembered past, and the text, an object that must be analyzed and explicated from distance, and whose scaffolding is provided by the effect of reference. *Event memory*, on the other hand, comes about as a construction of what is performed throughout the text. It captures in its *becoming*, in its action of bringing about the remembered past and making it disappear. It is dynamic, unstable. It does not create the illusion of conclusion, but every piece of the past attaches to the subject's affectionate engagement, and it is this subject that produces the text and is produced by it. *Event memory* displays the minimum with the highest degree of force. We propose thus these two categories of "memory" in order to analyze the relations between enunciator and enunciatee.

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<sup>14</sup> The pair *survenir* and *parvenir* do not find a perfect translation in English - especially not one that reflects the similar etymological root. The meaning and etymology of *survenir* are found in the word *supervene*, but *parvenir* would most likely be translated by *achieve*. Therefore, we have chosen to maintain the French terms throughout the text.

**Figure 3** – Event memory and past-event memory



**Source:** Author's elaboration.

The event, in its tensive meaning, may appear in all the levels of autobiographic memory. In Level 3, in which the interaction between the protagonist and the world is held, surprises, such as birth and death, may be comprehended as accelerated and shocking. In the level of narration (Level 2), memories, in some moments, may abruptly invade the narrator's *field of presence*. It must be emphasized, however, that event memory and past-event memory concern the enunciation, and, thus reverberate differently in the situations of interaction between enunciator and enunciatee occurring in autobiographic genres (Level 1).

We turn now to a brief exposition of the analyses of academic memorial and of the selected poems by Manuel Bandeira, in order to show the tension between *event memory* and *past-event memory*, resulting in the predominance of *event memory* in academic memorials and of *past-event memory* in poems.

In academic memorials, the life remembered is elaborated in such a way that it displays a coherence that confirms the competence of the enunciator, who is capable of organizing these memories in a text. All events are dated. The actors are always presented with their name and surname. The places of paper presentations, conferences and courses ministered are anchored in a specific address that can easily be recognized by the enunciatee. In academic memorials, it is as if the facts narrated did not originate in the subject's memory – always subjective, with gaps and uncertainties – but in a previous discourse already established as reality. Thus, the effect of referential illusion is created<sup>15</sup>.

<sup>15</sup> In academic memorials, toponyms and chrononyms are frequent, because they have an anchoring function. The use of these anchoring expressions has to do with the construction of the simulacrum of the external referent and the production of the effect of reality (GREIMAS; COURTÉS, 2008, p.30). To these spatiotemporal indexes are

Around midyear 1993, SENAC invited me to give a lecture in Salvador, at the release of the book *Africa: moda, cultura e tradição*, which gathered texts by Fábio Ávila and Fábio Leite (and some excerpts from my dissertation (219), about photos by Maureen Bisilliat of African clothing in Abijan (PETTER, 2008, p.24)<sup>16</sup>.

The dates and important facts order activities chronologically, producing the effect of a “natural” transition of time, without failing before the expectations of the enunciatee: this type of sequential organization generates the comfort of knowing what is coming next, a *knowledge* which is reassured when the enunciatee advances in the text.

The frequency of toponyms, anthroponyms, chrononyms, and the chronologically organized textual sequence provide clarity to the past; such clarity is also attained by the dominance of implicative logic, proper to the *exercise*. The actor of what is narrated is presented as someone who planned his steps, followed the stipulated stages and attained the expected result; this brings about a relationship with the world in which the intelligible predominates. This manner of elaborating past experiences reassures the reading competences of the enunciatee, because he is capable of predicting with ease what will happen to the actor of what is narrated. The narration of a life in which *events* are emphasized could construct a path filled with surprises to those reading the text.

This way of organizing the narrative displays the protagonist (in autobiographic discourses identical to the narrator and the enunciator) as someone who managed to live their life harmoniously, with minor deviations from their main search program, which had already started in childhood. Because of the underlying implicative logic, each step is seen as a “natural” consequence of what preceded: “My Master’s in Botanic, advised by professor Estela Meria Plastino, was a *natural* continuation of the process initiated in my undergraduate internship” (URSI, 2007, p.2, added emphasis)<sup>17</sup>.

It is necessary to add at this point that, even in the case of academic memorials, life is presented as something absolutely planned, as we may see in the following excerpt of Ursi’s memorial, in which she sees herself “paralyzed” in finding out that, although it were expected basic level knowledge of Biology from the students, they believed water to be a living being:

Biology I, too, was a *great challenge*. [...] At the beginning of the course, I did a ludic activity about the main characteristics of life and my surprise was to see that about 80% of my students (a class with 72

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added anthroponyms, which, in dominating the actors with proper names, individualizing them, take part in the figurativization and also contribute to the effect of reality.

<sup>16</sup> Original text: “Em meados de 1993, o SENAC me convidou para fazer uma palestra em Salvador, no lançamento do livro *África: moda, cultura e tradição*, que reunia textos de Fábio Ávila e Fábio Leite (e algumas citações de minha tese) (219), sobre fotos do vestuário africano feitas por Maureen Bisilliat em Abijan.” (PETTER, 2008, p.24).

<sup>17</sup> Original text: “O Mestrado na área de Botânica, com a orientação da Dra. Estela Meria Plastino, foi uma *continuação natural* do processo iniciado no estágio da graduação”. (URSI, 2007, p.2, added emphasis).

officially enrolled students) thought that water was a living being. [...] I was *paralyzed* for a few seconds and I decided, at that moment, that I would not be a professor like the many others that had passed by those students' lives, who were focused on what was taught not on what was learnt (URSI, 2007, p.19-20, added emphasis)<sup>18</sup>.

Therefore, the unpredictable, too, conducted by concession, has its place in the academic genre. The *events* that shake the actor of the narrated reveal, on the one side, their heroism, because they overcome the “obstacles” and the challenges”; on the other side, they create the effect of reality proper to the genre: life does not allow for full predictions.

In spite of the presence of the unexpected, it is important to notice that much of that occurs as *event* to the actor of the narrated, under the attentive and distanced look of the narrator, may be presented as implicative, and thus being proximate to the *exercise*. The narrator presents, then, the competent researcher she/he seems to be. In the following excerpt from Negrão's memorial, we observe that, in the narration, a “great failure” is acknowledged by the actor of the narrated as one of the “causalities” that enabled new accomplishments.

Not being able to reach my first option was a *great failure* to me at that moment. Today, however, I see my acceptance for that second option as one of the *causalities* that changed my path (NEGRÃO, 2004, p.8, added emphasis)<sup>19</sup>.

In these cases, the event is restricted to the narrated (Level 3), which has to do with the relations between the protagonist and the world, because in the narration (Level 2), in which we have the relation between narrator and memory, the *exercise* predominates. This confirms that the memory in the academic genre is guided, predominately, by the *obligation* to explain everything, making the past intelligible for the reader.

As we will see, while in the autobiographic poems the narrator and the protagonists can, in diverse moments, experiment the same sensations, identifying them even more, in academic memorials it is almost always possible the occurrence of very few presentifications of the past, via the substitution of the present tense for a past tense,

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<sup>18</sup> Original text: Biologia I também foi um *grande desafio*. [...] No início da disciplina, fiz uma atividade lúdica sobre características da vida e qual não foi a minha *surpresa* ao perceber que cerca de 80% de meus alunos (uma classe com 72 matriculado) achavam que a água era um ser vivo. [...] Fiquei *paralisada* por alguns instantes e decidi, naquele momento, que não seria mais uma professora como muitas que deveriam ter passado na vida daqueles alunos, que estavam focadas no que era ensinado e não no que era aprendido. (URSI, 2007, p.19-20, added emphasis).

<sup>19</sup> Original text: “Não conseguir minha primeira opção foi um grande fracasso para mim naquele momento. Hoje, no entanto, vejo meu ingresso na segunda opção como uma das *causalidades* que mudaram o meu percurso”. (NEGRÃO, 2004, p.8, added emphasis).

for example<sup>20</sup>. Besides that, there is the predominance of enuncive tenses – “then” – that are anchored in a preterit moment, and not the enunciative tenses – “now” – that are anchored concomitantly to the enunciation (FIORIN, 1996)<sup>21</sup>. The construction of the space produces a similar effect, since the spaces are enuncive – “there” – and not enunciative – “here” – that predominates in academic memorials. All these resources make the past to be told as a spatiotemporal experience with no continuity to the *here* and *now* of the narration.

In metalinguistic reflections, when the narrator talks about the genre or about the writing of the text, taking them as a type of language to be examined, it is emphasized with greater stress the distance between the narrator and the actor of the narrated: “The writing of a memorial may be compared to the creation of a scrapbook”<sup>22</sup> (NEGRÃO, 2004, p.4). This separation between the levels of autobiographic discourse strengthens the intelligibility of the utterance to the enunciatee, because, on the one side, it maintains the stability of time, space and persons of the discourse, and, on the other, it maintains the distance of the enunciatee with respect to the other levels of autobiographic discourse. Thus, the enunciatee is not involved kinesthetically and affectionately in the narrated past.

There are, however, moments in which the narrator of the memorials presents her/himself as being surprised by a past memory, losing control of remembrance:

The first memory I can register with respect to my interest towards Biology dates back to 1961, when I was four and I was witnessing the suffering of my (maternal) grandmother Kasemira due to final stage cancer. I solemnly swore to her that I would become a doctor to cure her. *Since then innumerable memories come to mind related to this same interest.* Some of the most significant memories are the experiments conducted with armadillo bugs and ants, some of them sadistic in their nature, normal to many kids, but others were of a ludic-scientific nature, such as the construction of labyrinths (with building-block games my father, who worked with civil construction, liked to give me) in order to see the poor little animals try to use the walls to their detachments. (MATIOLI, 2001, p.2, added emphasis)<sup>23</sup>.

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<sup>20</sup> *Presentification* is understood as a type of shifting in or neutralization in semiotics: “Contrary to the shifting out, which is the expulsion of the instantiation of enunciation, shifting in is the effect of returning to the enunciation, produced by the suspension of the opposition between terms of the categories of person and/or space and/or time, as well as by the denegation of the whole enunciation instance. Every shifting in presupposes, therefore, an operation of shifting out, which is logically prior to shifting in.” (GREIMAS; COURTÈS, 2008, p.159-160).

<sup>21</sup> These observations about the discursive syntax of tense, space and person, presented in this paper, are aligned with the views presented in Fiorin (1996).

<sup>22</sup> Original text: “O fazer um memorial pode ser comparado à montagem de um álbum de fotografias”. (NEGRÃO, 2004, p.4).

<sup>23</sup> Original text: “A primeira lembrança que eu posso registrar com relação ao meu interesse pela área biológica data de 1961, aos quatro anos de idade, ao acompanhar o sofrimento de minha avó Kasemira (materna) que estava com câncer

In this case the event takes place only at the level of narration (Level 2), in which there is the interaction between the narrator and the narrated memory. The discursive organization of this memorial does not, however, reach the point in which the work may be considered the work of an *event* to the enunciator or to the enunciatee (Level 1). The past memories are organized in the narration. There are no gaps to be filled by the reader. The narrator explains, with a certain number of details, the experiences with insects, using subordinate clauses, without fragmenting the syntax or the semantics of the text. This contributes to the creation of the effect of a world previously made, even before the act of narration itself. The narrator would have the role of narrating what is already given and confirmed by the documentation attached to the text, as shown in indications such as “doc 1”, “doc 2”, “doc 3”, common to the exemplars of this genre. Even when the narrator informs what was modified by the experience of the autobiographic writing, this, in the majority of the cases, is not confirmed by what is “said”.

The textualization confirms our assertions. The inconstant presence of a lexicon that expresses emotions and interjections, as well as punctuation and syntax employed with poetic effects instantiate a narrator whose simulacrum is that of one who does not allow oneself to be involved by the memories. The subject of the past experience, who experienced sensations and emotions, is well circumscribed in a preterit time.

These facts allow us to talk about the favoring of *past-event memory* in the academic memorials under exam: the enunciator “proves” his competences to do research and to the professorship when they carefully and from far “auscultate” their past. In the memories are laid out the chosen regularities under the apparent chaos. The enunciatee is thus manipulated by these strategies of the order of the intelligible. *Past-event memory* reinforces the limits that separate and distinguish the internal levels of autobiographic discourse, enabling unfolding (in opposition to the given condoning in *event memory*). To the subject of enunciation, it is built as continuity, it does not cause any discomfort or estrangement.

Let us turn now to the initial verses of *Profundamente*, by Manuel Bandeira (1993, p. 139):

Yesterday when I fell asleep  
It was night of Saint John's  
There was joy and rumor  
Booms of light bombs of Bengala  
Voices, songs and laughter  
At the foot of bonfires.<sup>24</sup>

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terminal. Prometi solenemente a ela que torna-me-ia um médico para poder curá-la. Desde então *ocorre-me uma série de outras memórias relacionadas a esse interesse*. Algumas mais marcantes são os experimentos realizados com tatus-bolinha e formigas, sendo alguns deles de natureza sádica como ocorre naturalmente em várias crianças, mas outros de natureza lúdico-científicas, tais como a construção de labirintos (com jogos infantis de construção que meu pai, que sempre trabalhou com construção civil, gostava de me presentear) para os pobres bichinhos que teimavam em usar as paredes para seu desvencilhamento.” (MATIOLI, 2001, p.2, added emphasis).

<sup>24</sup> Original text: “Quando ontem adormeci / Na noite de São João / Havia alegria e rumor / Estrondos de bombas luzes de Bengala / Vozes, cantigas e risos / Ao pé das fogueiras acesas.” (BANDEIRA, 1993).



In this first stanza, a party emerges from a collection of kinesthetic traces: “booms”, “rumors”, “lights”, “voices, song and laughter, “bonfires”. These traits only allow for the enunciatee to rebuild a sensitive “night of Saint John’s”. To the enunciatee it is not available the precise information of the where and the when the party took place.

This is a fragmentary way of presenting the past, which we also find in *Evocação do Recife* (Evocation of Recife) and *Infância* (*Childhood*), (BANDEIRA, 1989, p.193-197). Especially in these two poems, a sequence of images is built in which they seem to be narrated while coming to the memory of the subject. Let us now turn to the poem *Infância* in order to see how this happens:

### **Childhood**

Bicycle race.

I remember nothing but a bamboo curved over the stream.

Was I three years old?

This was in Petrópolis.

I forage deeper amidst memories.

How I would like to remember the black teat of my wet nurse...

... but my eyes can't pierce the perennial fog of time.

Still in Petrópolis... a hotel courtyard... toys strewn about the floor...

Later the house in São Paulo.

Miguel Guimarães, lighthearted, myopic, devilish,

suddenly pulling out a tin watch from my ear.

A buzzards, perched there on the garden wall.

I make a paper trumpet,

sound a command...

The buzzard obeys.

And I scurry off in fright at my first magic sign.

Later... Santos beach...

Races in circles traced in the sand...

Again Miguel Guimarães, finish line judge, with his little prizes.

The huge rat in the trap.

Another bamboo grove...

inspiration for my brother's one and only poem:

“I was going down the road

when I saw the Carnival brass.

The players marched straight through the bamboo

before falling on their...”

High tides of the equinox.  
The flooded garden...  
Uncle Cláudio picking up the tip of a shattered mast.

Poetry shipwrecks!

Later, once more in Petrópolis,  
myself besides the wash tank, a string looped about a baby tooth  
but lacking the heart to pull.

Christmas Eve... The little slippers behind the door...  
And next morning, in bed, dazzled by the toys left by the fairy.

An the country house in Gávea?  
The house on Don'Ana Street–  
Our first dog, Boy.  
(There would never be a dog of another name.  
In our house even the female dogs would be “Boy”.)

Fear of thieves.  
For me, they were men with wooden faces.

The return to Pernambuco!  
Discovery of the mansions with their red tile roofs.  
My mother's father – a saint...  
My grandmother, a born fighter.

The house on Union Street.  
The courtyard – nucleus of poetry.  
The bath – nucleus of poetry.  
The outhouse – nucleus of poetry (“la fraîcheur des latrines!”)

The music room – nucleus of mystery.  
Little animal skin rugs.  
No one ever entered there... Silence... Darkness...  
The upright piano with its keys grown yellow and out of tune.

Discovery of the street!  
The door-to-door peddlers  
Oh that world of paper kites, of spinning tops, of hopscotch!

One night the little girl pulled me away from the circle  
of children playing Rabbit Run. Imperious and panting, she  
took me to a corner of Dona Aninha Viega's house,  
then raised her little skirt and said, “Stick it here!”

Later my grandfather... Discovery of death!

At the age of ten I returned to Rio.  
I had become familiar with life's most essential truths.  
I was ripe for suffering  
and for poetry.

The characteristics of spoken language, the varied size of verses relating to a particularized image of the past, the lack of order are some of the resources that contribute to the creation of the impression that the memories are narrated as they emerge, taking over the field of presence of the narrator in an unexpected way. The memory is structured, in this poem, on the field of the *event*, which is the combination of accelerated *tempo* and exacerbated tonicity, as mentioned earlier in this paper. Each fragment of memory stands as fracture in the present of the subject.

However, it is not only at the level in which the narrator is that memory is approximated to the notion of *event*. The reduced use of connectives conjoining the number of memories, and the abundance of verbless sentences or sentences with nominalizations – such as in “*Races in circles traced in the sand*” –, and the lack of an explicit order that would bring foreseeability to the discourse make enunciator and enunciatee also experience the abrupt transition from one memory to another (Level 1). The reading is fast paced and shocking.

Another strategy observed is the partiality with which the scenes are set, since there is an emphasis on kinesthetic and affectionate traits from the past. There is, in the poem, a close relation between the memory and the senses, among which vision stands out. It is as if the narrator looked at those scenes from his childhood again, side by side the young boy he once was. The narrator looks at what the child looked at; or the child looks at things through the eyes of the adult: the hotel courtyard with toys strewn about the floor, Uncle Cláudio picking up the tip of a shattered mast, the upright piano with its keys grown yellow and out of tune. The centrality of vision explains the reason why the past is retrieved via spatial means. The images recreated verbally seem to be connected to the spaces, and these images come about as the narrator, using language, passes by the places where the child passed by. It is necessary to stress, nonetheless, that the other senses are also evoked, for example, when he sees himself playing the paper trumpet (hearing), when he mentions the rugs made of animal skin (tactile), the “silence” and the out of tune piano (hearing).

Because of the strong kinesthetic appeal, a momentary fusion of the levels of the actor of the narrated and of the narrator is created (Levels 2 and 3), since the narrator is “moved” by the experiences of the past. And what is more, these two levels are approximated to the one in which holds the relation between the subject of the enunciation and the utterance (Level 1), which generates important consequences to the construction of the truth in the text. The sensation, recreated in figurativity and shared by verbal means, becomes the access to this powerful truth. Enunciator and enunciatee believe in the truth of the sensations they experience in the text, with no need of an external referent that corroborates them.

The discursive syntax can augment the interrelation between the levels of autobiographic works, although with different resources than those used by the discursive semantics. The use of present tense instead of the perfect preterit or of the imperfect neutralizes the oppositions of tenses, creating thus an effect of temporal proximity of the actor of the narrated with respect to the temporality of the narrator and of the enunciation itself. This is revealed in the following verses of the poem:

I make a paper trumpet,  
sound a command...  
The buzzard obeys.  
And I scurry off in fright at my first magic sign.

It is as if the center of the field of presence of the subject, invaded by the adult narrator, were punctually dislocated to the center wherein the child perceives the world. The adult identifies himself with the child – another *I*. Not only the sensations and the impression are lived with affinities by the adult and by the boy, but also the deictic center, from which spatiotemporal references are built, is invaded by both. If we think of the enunciatee, this is an element that causes instability in the reading of the text, because the time in which each instance is anchored is less evident, as well as who is living each scene.

The impact on the enunciatee caused by this paratactic organization, by the emphasis on sensations, by the presentification of the past, among other resources, is only partially attenuated by the chronologic reading in the end of the poem *Childhood*, a characteristic also present on *Evocação do Recife*. However, there are few clues available to retrieve this order, such as the mention to age in “Childhood” (the poem starts with the memories from when the boy was three years old and it ends with his coming to Rio, when he was ten). It is necessary to stress that the recreation of spatial and temporal settings, in all three poems by Bandeira mentioned in this paper, is achieved above all from the connection with the biographic actor, which weakens the referential illusion and maintains the instability of the past in face of the subject of the enunciation. We do not find in these poems mentions to historic moments or dates, or historic places, touristic places, but we do find mentions to places and moments tied to what the narrator (identified as the enunciator) incorporates as being his own. This explains the sequence of negations that “peels” Recife of its own predicates:

Recife  
Not the American Venice  
Not the Mauritsstad of the ship-owners of East Indies lovers of eastern  
India  
Not the Recife of Mascates  
Not the Recife that I learned to love later –

Recife of libetary revolutions  
But the Recife with no story nor literature

Recife with nothing else  
Recife from my childhood<sup>25</sup>

These reified forms are presented, in the poem, as something that, having originated in an almost institutionalized knowledge about the city Recife, whether it is scientific or literary, was dessemantized due to discursive “bleaching”, the opposite of what happens with fixed forms that refer to popular knowledge about the city, found in catchphrases such as “Coelho sai!/Não sai!”. While reified forms show a weaker assumption of the subject of enunciation, fixed forms, treated as regenerative, are held more intensely<sup>26</sup>.

In showing the memory in act, by guarding and revealing the past, autobiographic poems therefore propitiate the dominance of *event memory*. The same preterit experiences seem not to affect sensitively just the boy who is remembered but also the narrator who reports these experiences, as well as the subject of enunciation, who, in semiotics, is formed of the enunciator and the enunciatee. In this sense, we can speak of a compression of the autobiographic levels, in which times, spaces and subjects of the narrated, of the narration and of the enunciation seem to overlap. This is the domain of the sensible experience. *Event memory* is installed thus as a fracture of the *field of the presence* of the enunciatee, detaching itself from what is routine and predictable.

Up to this moment, we have seen that *past-event memory* is characteristic of academic memorials, and that *event memory* defines autobiographic poems. It is important to highlight, nonetheless, that this does not mean that event memory cannot be found in academic memorials. Arrigucci Jr (1990), with great conciseness, rebuilds in his academic memorial the relationship he had with rural fields and two big cities, São Paulo and Rio de Janeiro, when he was a little boy:

Rio was the sea and the big city, the astonishment of light, in contrast to São Paulo, grey and threatening, barely seen through the windows of the hotel rooms – especially from the City Hotel at that time – or in the scary hubbub of the streets. These images alternated in my life as a boy with the images of the farm, of the grass and of the rivers, of Campo Triste, of hunting and fishing, of the colonists’ farms that I visited many times with my dad, in assisting the ill. (ARRIGUCCI JR., p.1)<sup>27</sup>.

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<sup>25</sup> Original text: “Recife / Não a Veneza Americana / Não a Mauritsstad dos armadores das Índias Ocidentais / Não o Recife dos Mascates / Nem mesmo o Recife que aprendi a amar depois — / Recife das revoluções libertárias / Mas o Recife sem história nem literature // Recife sem mais nada / Recife da minha infância”

<sup>26</sup> The incorporation of these variant linguistic forms considered, in Brazil, to belong to low registers are taken in Modernism literary school to be the “more Brazilian-like” way of speaking. When these poems were published these forms caused astonishment among the readers.

<sup>27</sup> Original text: “O Rio era então o mar e a cidade grande, o maravilhamento da luz, em contraste com uma São Paulo cinzenta e meio ameaçadora, mal percebida de passagem pelos quartos de hotel – sobretudo do City Hotel daquele tempo – ou no rebuliço assustador das ruas. Essas imagens se alternavam, em minha vida de menino, com as da roça,

In this excerpt there is a strong investment in semantic density, due to the figurativization. The reader is directed kinesthetically, especially via the exploration of visual elements. São Paulo, the “grey” and threatening city, contrasts with Rio, whose luminosity astonishes the little boy. The discovery of these two metropolises is an intense experience to the child, but not only to the child, since the remembrance and the recreation of those memories in the text reveal a narrator and a subject of enunciation deeply impacted. It is possible to see this in the manner of presentation of the cities. Each city receives a synthetic description, in which their kinesthetic aspects are highlighted. “Rio was the sea”, says the narrator, who, in using metonymy, intensifies the shock, by means of the use of non-conventional language and also of the condensed presentation of the city. In order to achieve full comprehension, the enunciatee needs to unfold the senses concentrated in this and in other figures of speech employed in Arrigucci’s memorial, decelerating the sensible impact. Many elements proper to the literary language can thus be easily recognized in this memorial. This indicates that not only the autobiographic actor can experience these frugal aesthetic encounters, but so can the narrator and the subject of enunciation.

Just as *event memory* may be found in academic memorials, *past-event memory* may be found in autobiographic poems. In the poem “Childhood”, for example, there is an attempt to balance the discomfort produced over the enunciatee by *event memory*, allowing him for a few moments to regain intelligibility of the text, in spite of an accelerated poetics. The first verse sets in a noun phrase a scene with no temporal or spatial anchoring, and yet with no onomastic identification particularizing the actors. Who are the cyclists? What are they doing there? In the following verses, however, the enunciatee gains a better understanding of the scene: the “cycling race” is part of the memories of the narrator. The age “3 years old” anchors the event, even though in a vague way – mainly if we were to take into account the question marks at the end of the verse –, and it provides more stability to the reader of the poem. The same effect is attained by the use of the name of the city: “Petrópolis”.

It is possible to affirm then that *event memory* occurs in academic memorials in a milder configuration, since it is dominated by *past-event memory*. Following the same logic, event memory prevails in the poems, even though there is a timid presence of *past-event memory*<sup>28</sup>. The many genres that compose the corpus of this work can be organized on a scale, at whose extreme points are academic memorials and autobiographic poems. Literary autobiographies in prose are located in the middle of the scale, showing inclination to either of the extreme points. The graph below displays the sensible and intelligible relations in autobiographic genres<sup>29</sup>:

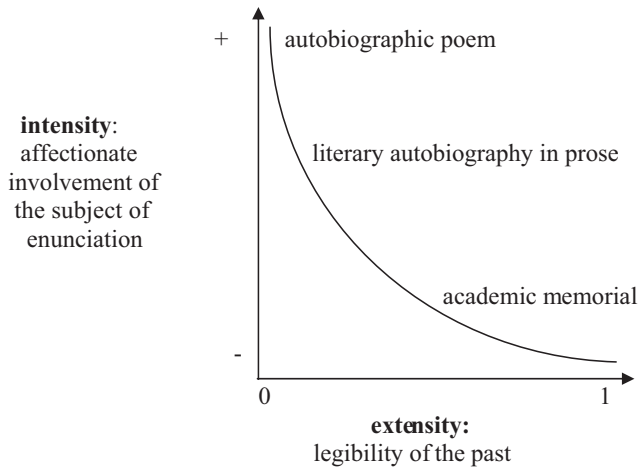
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do mato e dos rios, do Campo Triste, das caçadas e pescarias, das fazendas de colonos que eu visitava muitas vezes com meu pai, no atendimento aos chamados dos doentes.” (ARRIGUCCI JR., p.1).

<sup>28</sup> It would be necessary to prove these statements with respect to autobiographic poems via an exam conducted in works of other authors, since we only analyzed more systematically Manuel Bandeira’s poems.

<sup>29</sup> It is necessary to state that this schema only organizes comparatively the genres with which we have worked on our research, observed with respect to one another and not in isolation. The incorporation of other genres, such as

**Figure 4** – The relations between the sensible and the intelligible in autobiographic genres



**Source:** Author's elaboration.

Autobiographic literary prose combines in a more balanced manner the two discursive configurations of the memory<sup>30</sup>. The book *Infância*, by Graciliano Ramos (2003), starts with the first memory of the narrator, the event memory:

The first thing I kept in the memory was a twisted china vase, filled with *pitombas*, hidden behind the door. I ignore where I saw it, when I saw it, and if a part of this case did not flow in another posterior case, I would consider it to be a dream. Maybe I don't remember the vase that well: it is possible that the image, shining and slim, remains because I told it to people who confirmed it. Thus I do not preserve the memory of a weird implement, but of its reproduction, corroborated by those who gave it its form and content. The appreciation in any way must have been real. The notion of *pitombas* was engrained in me this during this time – and the *pitombas* served me to designate all round objects. Later I was told that this generalization was a mistake. (RAMOS, 2003, p.9)<sup>31</sup>.

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curriculum vitae, that presents the activities as a list and thus does not favor the emergence of authorship styles, would lead to a reorganization of the whole schema proposed, since this genre is less propitious to the appreciation of event memory than academic memorials are.

<sup>30</sup> As stated in the beginning of this paper, we were able to attest these facts with respect to autobiographic literary prose in previous works, in which we examined a body of books besides *Infância*.

<sup>31</sup> Original text: "A primeira coisa que guardei na memória foi um vaso de louça vidrada, cheio de pitombas, escondido atrás de uma porta. Ignoro onde o vi, quando o vi, e se uma parte do caso remoto não desaguasse noutra posterior, julgá-lo-ia sonho. Talvez nem me recorde bem do vaso: é possível que a imagem, brilhante e esguia, permaneça por eu ter comunicado a pessoas que a confirmaram. Assim, não conservo a lembrança de uma alfaia esquisita, mas a reprodução dela, corroborada por indivíduos que lhe fixaram o conteúdo e a forma. De qualquer modo a aparição deve

This is a memory surrounded by uncertainties. The narrator cannot say when or where they happened, he can only place them within the chronologic line, not of his life, but of his memories: this is the first thing he remembers. The narrator cannot attest to the reality of the event that originated the memory, rather he uses the modals indicating “possibility” and still as verisimilitude. In what follows, he admits that the registered image is, in fact, a result of posterior conversations.

Here we have the prognostic of what the book will be about, whose organization imitates the come-and-go of the memory. The chapters are constructed with associative relations, one narrated event attracts another; and some events seem to be narrated more than once<sup>32</sup>: “Verão” ends with a reflection about the causes that made the father become so violent; the following chapter, “Um cinturão”, narrates the father exerting all this brutality; “Padre João Inácio”, “O fim do mundo” and “Inferno” deal with themes connected to religion. Maybe this explains their sequential ordering.

What is more, in *Infância*, the narrator fixates only in the moments lived by the child and in her perceptions of the world around him, without crossing the limits of the childhood experiences. Few facts are presented even about the ancestors, the narrator talks about his great-grandparents, grandparents and parents, and still with not much detail. All these elements strengthen the readers’ impression about the content of this book, which is not about the past, but about the memory of the past. This does not mean that the book does not provide a glimpse into the society in which the boy lived; on the contrary, the only facts not portrayed are those in which the narrator did not have direct participation and those of which he did not have news while a boy.

The determinations imposed by the memory hinder an absolutely linear presentation of the past, but it is still possible to perceive that the story begins when he was between 2 or 3 years old and ends when he was a teenager, approximately 11 years old. A chronologic line is established, although somewhat frail. There are few dates and temporal anchoring, such as history moments, or the identification of people’s ages. The landscape of time is marked, above all, by the changes of the seasons, by climatic alternations and spatial dislocations, more specifically, the family trips.

On the contrary of what happens in academic memorials, the narrator of *Infância* uses expression such as “one day”, “at that time” in order to circumscribe the moment when the events happened; this creates a semantically underdetermined past, but organized under the mark of preterit.

My oldest memories of the environment where I grew up like a tiny animal date back to that time. Until then some people, or fragments of

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ter sido real. Inculcaram-me nesse tempo a noção de pitombas – e as pitombas me serviram para designar todos os objetos esféricos. Depois me explicaram que a generalização era um erro.” (RAMOS, 2003, p.9).

<sup>32</sup> Here, we maintain the names of the chapters in Portuguese, in their original title. Some of these chapters had already been published individually in newspapers and magazines from that time, when the book was released. We opted, nonetheless, to analyze the book as it was published, considering the meaningful effects created by the organization of the book.



people, had manifested themselves but to put it properly they lived out of space. They started little by little to locate themselves, and that upset me. There were imprecise places; between them there was no continuity. Foggy dots, drafts of islands in an empty universe. (RAMOS, 2003, p.12)<sup>33</sup>.

One day there was no water. (RAMOS, 2003, p.28)<sup>34</sup>.

This figurative underdetermination of the past, characteristic of remembering and forgetting, also resounds in the actorial and spatial constructions. Last names, which are rare, are used normally when a person was called and known by others by name and last name. Their main function is to create the illusion of the real. The actors are characterized mainly by their actions and by the relations they have with the child or with family and friends<sup>35</sup>. The spaces in which the events occur are not followed by precise addresses: “Our house was in Straw Street, next to Mrs. Clara’s house, who was a serious person and had several children, a cat, an invisible husband” (RAMOS, 2003, p.59).

All the resources presented – such as the organization that “imitates” the functioning of the memory, temporal and spatial underdeterminations, among others – point towards the *event memory*. There remains *past-event memory* in *Infância*.

In some excerpts of the book, we find a thorough description of spaces, such as in the chapter “A vila”, dedicated to the presentation of Buíque, in which the narrator builds the town as a “crippled body” (RAMOS, 2003, p.51). In this chapter, the narrator locates, always with respect to the “body”, the streets and important places in Buíque, such as the school, houses of known or famous people, among others: the house of Mr. Galvão was in the crotch, the Stone street and the Palha street were the legs (one folded and the other stretched), the alleys were the elbows. In this chapter, we also find important information about the social organization of the village; there is the presentation of the most powerful families and the places they frequently visited, the role played by his father in this micro-society, among others.

What is more, even though the book *Infância* is construed as a simulacrum of the memory, the narrator establishes, in many excerpts, a certain distance in narrating the past – this is achieved not academically, like in the memorials, but literarily. When he describes the thoughts and the sensations of the child after seeing the ossuary in the

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<sup>33</sup> Original text: “Datam desse tempo as minhas mais antigas recordações do ambiente onde me desenvolvi como um pequeno animal. Até então algumas pessoas, ou fragmentos de pessoas, tinham-se manifestado, mas para bem dizer viviam fora do espaço. Começaram pouco a pouco a localizar-se, o que me transformou. Apareceram lugares imprecisos, e entre eles não havia continuidade. Pontos nebulosos, ilhas esboçando-se no universo vazio.” (RAMOS, 2003, p.12)

<sup>34</sup> Original text: “Um dia faltou água em casa.” (RAMOS, 2003, p.28).

<sup>35</sup> According to Antonio Candido (1992, p.65), it is mainly from situations that we can understand Graciliano Ramos’s characters: “By the way, he is not primarily a creator of characters, but he is a creator of situations whereby the character is expressed [...]”.

cemetery, he affirms: “These letters seems to me at that time confusing and pedant. But the craft of composition does not exclude substance from fact.” (RAMOS, 2003, p.191). In some moments, he blends memory and metalinguistic reflection, as if he were trying to control the irruptions from the memory, not welcomed, since the past bears dysphoric values. The narrator examines in many parts the manner in which the past is narrated, distancing himself from the narrated matter, and thus creates a new level of language. It is necessary to say that, in doing so, he observes the functioning of his memory:

From this old life altering summer there are few traces left. And I can't even say if I actually remember them. The habit leads me to create an environment, imagine facts to which I give the status of reality. With no doubt the trees stripped themselves and blackened, the reservoir stanchied, the gateways of the corrals were opened, useless. It is always like this. I however ignore if the withered and black plants were seen at that time or in later droughts, and I keep in the memory a reservoir filled, covered with white birds and flowers. With respect to the corral there is a strange omission. They probably were in the neighborhood, but this is pure speculation. Maybe the bare minimum necessary to characterize the farm somewhat destroyed had not been observed afterwards. For sure there exist things by derivation and association; they repeat themselves, impose themselves – and, with capital letter, they gain conscience, grow roots. We hardly ever would portray a northeastern summer in which the branches were not black and the wells empty. We gathered elements considered indispensable, we play with them, and if we ignore a few, the picture will be incomplete. (RAMOS, 2003, p.27-28)<sup>36</sup>.

In this book, the limits that separate the levels of autobiographic discourse are not, therefore, always broken, given that the narrator distances himself from the boy he once was. What is more, the presentifications of the past are less frequent than in other autobiographic literary prose works; and they usually take the form of the adverb “now”, instead of an enuncive adverb<sup>37</sup>:

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<sup>36</sup> Original text: “Desse antigo verão que alterou a vida restam ligeiros traços apenas. E nem deles posso afirmar que efetivamente me recorde. O hábito me leva a criar um ambiente, imaginar fatos a que atribuo realidade. Sem dúvida as árvores se despojaram e enegreceram, o açude estancou, as porteiras dos currais se abriram, inúteis. É sempre assim. Contudo ignoro se as plantas murchas e negras foram vistas nessa época ou em secas posteriores, e guardo na memória um açude cheio, coberto de aves brancas e de flores. A respeito de currais há uma estranha omissão. Estavam na vizinhança, provavelmente, mas isto é conjectura. Talvez até o mínimo necessário para caracterizar a fazenda meio destruída não tenha sido observado depois. Certas coisas existem por derivação e associação; repetem-se, impõem-se – e, em letra de forma, tomam consistência, ganham raízes. Dificilmente pintaríamos um verão nordestino em que os ramos não estivessem pretos e as cacimbas vazias. Reunimos elementos considerados indispensáveis, jogamos com eles, e se desprezamos alguns, o quadro parece incompleto.” (RAMOS, 2003, p.27-28).

<sup>37</sup> In *Baú de ossos* (NAVA, 2000), for example, this resource is largely employed (RAMOS, 2003, p.27-28).

In ordinary nights, in order to escape the residents of the dark, I wrapped up my head. This saved me: no ghost would follow me under the sheet. Now I could not preserve myself. The extinct firebrand came closely acquainted with the brine that shed deep cracks. (RAMOS, 2003, p.98)<sup>38</sup>.

If the narrator and the actor of the narrated may be identified via the discursive syntax – both designated by the personal pronoun “I” –, other elements hold a separation between them. Besides the reflections of the narrator about his memory, the metalinguistic comments and the little use of temporal neutralizations, irony, too, distinguishes the adult position from the same facts when he was a boy. The child was more in accord with the worldview of the family, or at least she tried to mold to it. In the chapter “Adelaide”, the boy’s surprise with the “inversion of roles”, as he calls it, that is, the fact that a black teacher mistreats her white cousin, with “proprietary soul”, reveals his immersion in a society with slavery values. The narrator tells, ironically, that, when he was a kid, he saw these power relations as being natural, without an understanding of the reason why black teachers mistreated their white cousins. The reader, however, is lead towards the perception that the adult behaves differently:

It did not occur to me that someone handled the hoe, worked hard in planting cotton and cane: the plants grew spontaneously. [...] Dark place the kitchen. Why did they leave there, coming to the living room to pull Adelaide’s ears? I could not believe that. What harm had Adelaide done them? (RAMOS, 2003, p.185)<sup>39</sup>.

The manner in which the narrator explains the past, filling gaps in the memory, and the manner in which he perceives the world of the child strengthen the *past-event memory*. In this book there is the selection of ravishing moments to the actor of the narrator, but these are moments the adult wishes to present “from a distance”.

Each chapter usually narrates a great transformation undergone by the child, even though she was not prepared for such transformation. She sees herself compelled to rebuild her world each moment; she cannot see a law that allows to establish some connections and to make predictions and, therefore, to act. The large employment of inchoative aspect is worth noting: “The first thing I kept in my memory”<sup>40</sup> (RAMOS, 2003, p.9), “The first time they talked about the devil”<sup>41</sup> (RAMOS, 2003, p.28), “My

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<sup>38</sup> Original text: “Em noites comuns, para escapar aos habitantes da treva, eu envolvia a cabeça. Isto me resguardava: nenhum fantasma viria perseguir-me debaixo do lençol. Agora não conseguia preservar-me. O tição apagado avizinha-se com a salmoura que vertia de gretas profundas.” (RAMOS, 2003, p.98).

<sup>39</sup> Original text: “Não me ocorria que alguém manejara a enxada, suara no cultivo do algodão e da cana: as plantas nasciam espontaneamente. [...] Lugar de negro era na cozinha. Por que haviam saído de lá, vindo para a sala, puxar as orelhas de Adelaide? Não me conformava. Que mal lhes tinha feito Adelaide?” (RAMOS, 2003, p.185).

<sup>40</sup> Original text: “A primeira coisa que guardei na memória” (RAMOS, 2003, p.9).

<sup>41</sup> Original text: “Pela primeira vez falaram-me no diabo” (RAMOS, 2003, p.28).

first contacts with justice were painful and they marked me deeply.”<sup>42</sup> (RAMOS, 2003, p.34), “I had never seen a dead body”<sup>43</sup> (RAMOS, 2003, p.95), “for the first time I laughed at myself”<sup>44</sup> (RAMOS, 2003, p.204). The aspectual changes, marked by the *first times*, are responsible for initiating a new duration.

Thus the boy sees each event in isolation, with no repetition. The adult narrator, on the other hand, gives clues that what was understood as gratuity is repeated inside and outside the family. The narrative of the memories endows with meaning this universe and still constitutes an opposition to it. The narrator, via the report, acquires the knowledge to do and the power to do, like it happens when he tries to explain his father’s attitudes from a socioeconomic viewpoint:

Today I find it natural the violence that blinded him. If he were low, free of ambitions, or up high, in prosperity, the boy José and myself would have lived peacefully. (RAMOS, 2003, p.31)<sup>45</sup>.

This does not mean that all gaps are filled. The work comes to existence in fragmentation, more explicit in some moments than in others, for example, when the narrator remembers a violent experience. The chapter “Um cinturão”, in which the father wakes up without the belt and jumps on the boy, is, in this sense, exemplar. The child, taken over by fear, cannot move nor speak, she feels the threat of the father as recrudescence of intensity and almost nullifies extensity: “If the fear did not hold me back, I would try to scape. [...] I must have thought about it, standing still, behind the coffins” (RAMOS, 2003, p.34)<sup>46</sup>. What was experienced as an impact by the boy emerges into the field of presence of the narrator, now, as a memory, but with the same strength.

A lump in my throat, the house spinning, my body falling in the wind, flying, bees – and, in this hubbub, the fearful question. Nausea, sleepiness. Where was my belt? To sleep a lot, behind the coffins, free of martyrdom. (RAMOS, 2003, p.36)<sup>47</sup>.

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<sup>42</sup> Original text: “As minhas primeiras relações com a justiça foram dolorosas e deixaram-me funda impressão” (RAMOS, 2003, p.34).

<sup>43</sup> Original text: “Eu nunca tinha visto um cadáver” (RAMOS, 2003, p.95).

<sup>44</sup> Original text: “pela primeira vez ri de mim mesmo” (RAMOS, 2003, p.204).

<sup>45</sup> Original text: “Hoje acho naturais as violências que o cegavam. Se ele estivesse embaixo, livre de ambições, ou em cima, na prosperidade, eu e o moleque José teríamos vivido em sossego”. (RAMOS, 2003, p.31).

<sup>46</sup> Original text: “Se o pavor não me segurasse, tentaria escapulir-me [...]. Devo ter pensado nisso, imóvel, atrás dos caixões”. (RAMOS, 2003, p.34).

<sup>47</sup> Original text: “Aperto na garganta, a casa a girar, o meu corpo a cair lento, voando, abelhas – e, nesse zunzum, a pergunta medonha. Náusea, sono. Onde estava o cinturão? Dormir muito, atrás dos caixões, livre do martírio”. (RAMOS, 2003, p.36).

The hairy hand locked me down, dragged me to the middle of the living room, the leaf of leather flogged against my back. Howls, useless outcries, rattling. (RAMOS, 2003, p.36)<sup>48</sup>.

Textual fragmentation is the strategy found to show the narrator imprisoned by the image and by the sensations associated with fearful times. It is in those moments that *event memory* appears in its totality in the work. The sequence of juxtaposed clauses, nominal sentences, isolated nouns, the use of deviant syntax, somatic expression thrust the *event* to the level of the enunciation (Level 1). At first, the enunciatee does not make a clear sense of this, but may come to realize sensitively the anger experienced by the adult, as well as the boy's fear.

In this point it is relevant the distinction proposed by Zilberberg (2006a, p.233) to the *survenir*, which establishes one of the access points of a value in the field of presence of the subject, and the other, the *parvenir*. Because it corresponds to a sudden realization of the unrealizable, the semiotician defends that *survenir* represents a radical fiduciary crisis. Without any warning, it virtualizes the modal competences of the subject. In this case, we see that the boy loses the possibility of acting against his father; the narrator, in a certain way, has his voice interrupted; but the enunciatee, too, experiences the momentarily fiduciary lost in facing the fragmented text, which, at first, he cannot read. The work *Infância* seems to be closer to autobiographic poems than to academic memorials.

Based on our analysis, we present a chart with some textual and discursive elements that in combination allow recognizing the dominance of each form of memory. It is important to say that not all elements are compulsorily present in all realizations of these discursive organizations of the memory.

**Frame 1** – Event memory and past-event memory

Past-event memory	Event memory
Abundance of chrononyms, antroponyms and toponyms, among other elements that contribute to the creation of referential illusion.	Almost complete absence of chrononyms, antroponyms and toponyms, among other elements that contribute to the creation of referential illusion.
Spaces and times predominantly enuncive,	Spaces and times enunciative and enuncive (balance).
Little use of temporal and spatial shifting in.	Predominant use of temporal and spatial shifting in.
Events presented to the enunciatee according to the order of the predictable (usually, chronologically).	Events presented to the enunciatee according to the order of the unpredictable.

<sup>48</sup> Original text: "A mão cabeluda prendeu-me, arrastou-me para o meio da sala, a folha de couro fustigou-me as costas. Uivos, alarido inútil, estertor". (RAMOS, 2003, p.36).

Past-event memory	Event memory
Relation between the protagonist and the world is guided by the logic of the exercise.	The world is construed as event to the protagonist.
Relation between narrator and past memory is guided by the logic of the exercise.	Past memory is construed as event to the narrator.
Textualization construed such as to augment the intelligibility of the memory.	Textualization is construed such as to reduce the intelligibility of the memory.
Strengthening of the lines that separate and distinguish the internal levels of the autobiographic utterance, enabling unfolding.	Dilution of the lines that separate and distinguish the internal levels of the autobiographic utterance, enabling compression.

Source: Author's elaboration.

### Between the sensible and the intelligible

The two notions proposed here, *event memory* and *past-event memory*, allow us to make reflections about the enunciative contract established in autobiographic discourses, and, therefore, the interaction between enunciator and enunciatee, starting from the relation between sensible and intelligible.

The fact a given text is autobiographic seems to indicate that there is a greater affectionate involvement of the enunciator, who talks about what was lived. The link with what is said in the text is thus strengthened simply because it is an autobiographic discourse. However, in order for this effect of involvement to be accomplished and recognized and empathetically partaken by the enunciatee it is necessary that the enunciatee recognize in the uttered-discourse the marks that make the text and autobiographic one. Therefore, we could imagine that the construed discourse with autobiographic marks always appeals predominantly to the enunciatee's affections.

This is not the situation, nonetheless. The exam of innumerable autobiographic works, literary and academic in nature, reveals that the enunciatee may be manipulated either by strategies of the order of sensibility (*event memory*) or by strategies of the order of intelligibility (*past-event memory*), which result in different experiences of the text by the enunciatee.

In texts dominated by *past-event memory*, the truth is grounded in memories construed as preexistent to the act of narration. Every anchoring resource that inserts times, spaces and subjects in a shared social discourse, as well as the provision of separation of the levels of the autobiographic discourse and the language that is distanced from the aesthetic component contribute to the creation of this type of referential truth, taking the truth to be a discursive effect. In this case, the past has a maximal degree of legibility and a number of competences are summoned on the enunciatee that allow him/her to understand past memory while maintaining a certain degree of distance.

In the texts dominated by *event memory*, on the other hand, we find the aesthetic work as a frequent strategy that favors the sensible and affectionate involvement of

the subject of enunciation. The creation of novel and authentic ways of narrating may strengthen the link between enunciator and enunciatee with the discourse; the effect is that they come about at the moment when man meets the world, not before. Because it is presented as a discourse that signifies language, the aesthetic discourse makes the illusion of reference to lose importance in a great number of autobiographic literary works, especially in poetry, since other rules are created to its evaluation.

Therefore, past-event memory and event memory seem to put in tension two uses of language in autobiographic genres, two rationalities and distinct modes of interaction between enunciator and enunciatee. This reveals that different veredictory contracts are established between communication partners. In one of them, the truth is construed by sensations and emotions; in the other, truth appeals to the intellect.

The genres that compose the corpus of this research can be organized in a scale at whose extreme points are academic memorials and autobiographic poems. At the center are literary prose autobiographic texts. Obviously each work will have its own specificity.

We highlight, however, that the relations between communication partners are not discrete, because both types of discursive organization of the memory – *past-event memory* and *event memory* – coexist in each text. The tension between these two types of memory, between these two forms of knowing and producing the world, seems to be foundational of autobiographic genres, which license us to only talk about dominance.

BARROS, M. A memória do acontecido e a memória-acontecimento: um estudo semiótico dos gêneros autobiográficos. *Alfa*, São Paulo, v.60, n.2, p.367-397, 2016.

- *RESUMO: Com base nas noções de campo de presença e de acontecimento, desenvolvidas pela gramática tensiva, são propostas duas formas de memória como categoria analítica dos discursos autobiográficos: a memória do acontecido e a memória-acontecimento. Essas organizações discursivas da memória determinam modos diferentes de adesão do enunciatário aos discursos, uma vez que a primeira coloca em cena estratégias que privilegiam a legibilidade do texto e a segunda explora sua dimensão sensorial e afetiva. Tendo isso em vista, o objetivo central deste artigo é investigar, no quadro teórico da semiótica discursiva, a interação entre enunciatador e enunciatário em diferentes gêneros autobiográficos, como a autobiografia literária em prosa, os poemas de caráter autobiográfico e os memoriais acadêmicos. Em cada gênero, a memória do acontecido e a memória-acontecimento se articulam de forma singular. É justamente a tensão que se estabelece entre essas duas memórias, entre essas duas formas de conhecer e produzir o mundo, que parece ser fundadora dos discursos autobiográficos.*
- *PALAVRAS-CHAVE: Memória. Gêneros autobiográficos. Semiótica. Gramática tensiva; Enunciação. Acontecimento.*

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# PERSONAL RECOUNTS AND SOCIAL CONSTRUCTION OF KNOWLEDGE IN THE FOREIGN LANGUAGE CLASSROOM<sup>1</sup>

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- **ABSTRACT:** The present article aims at analyzing recounts of personal experiences spontaneously produced by children and teenagers in EFL classrooms. Inserted in the field of Applied Linguistics, this study is based upon the Sociocultural Theory (VYGOTSKY, 1998, 2001), according to which language mediates the social construction of knowledge. Moreover, we regard language as a use-oriented tool in service of social and communicative purposes, as proposed by Systemic Functional Linguistics (HALLIDAY; HASAN, 1989). We stand on such theoretical backgrounds as well as on a qualitative perspective (DENZIN; LINCOLN, 2006) to argue that the analyzed recounts contribute to the social construction of pedagogical knowledge through personal experience, prompting the emergence of meaningful and shared learning in the classroom. Finally, we suggest that social world experience subsidizes the awareness of curriculum issues and, in return, those contents support the construction of students' personal experiences, as proposed by Nóbrega (2003, 2009).
- **KEYWORDS:** Recounts. EFL classrooms. Systemic functional linguistics. Sociocultural theory. Mediation. Social construction of knowledge.

## Initial considerations

The interest of this research in the daily life of the classroom comes from acknowledging this space as a social and discursive practice with the potential of generating

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<sup>1</sup> Some of the ideas proposed in this article were briefly presented in a paper published for the III International Congress of Language and Interaction which took place in São Leopoldo - RS, from June 17th to June 19th, 2015.

meaning. The classroom is the place where mediation of knowledge construction<sup>2</sup> occurs, and it brings forth an integration and confrontation of experiences, knowledge, and beliefs that reflect the social roles of the individuals participating in the teaching and learning process.

Thus, the classroom is one of many social events in which individuals participate throughout their lives, and as such, the discourses that circulate in it do not exist in a vacuum (VAN LIER, 1994, 1996), but are the products and the producers of a reality external to the educational environment. Such discourses, which are nested and imbued by social markings, work on the construction of ideologies and identities as well as in the negotiation of meanings and values.

Inspired by the potential that multiple discourses originated in the classroom have in mediating the social construction of knowledge, this article proposes the study of recounts of personal experiences in the English as a Foreign Language classroom<sup>3</sup> for children and young teenagers. In addition to demonstrating the relationship that teachers and students develop regarding their individuality and curriculum content (NÓBREGA, 2003, 2009), such recounts are understood here as discursive manifestations of a narrative nature (MARTIN; ROSE, 2008) through which students share their personal experiences. Acting as mediators and scaffolds<sup>4</sup> in the construction of knowledge, the recounts have the communicative purpose of reporting events involving the narrator, starting from an initial orientation in a sequence of events (MARTIN; ROSE, 2008), so that the student is able to situate her/himself and others in the classroom context.

This research is inserted in the area of Applied Linguistics (AL), whose initial studies have been focused on issues of language teaching and learning, such as the design and evaluation of didactic material, contrastive analyses between first and foreign languages, teacher development, among others (MOITA LOPES, 1999). A more contemporary perspective describes Applied Linguistics as a field seeking to “make sense of social problems in which language plays a central role” (MOITA LOPES, 2006, p.14), shifting its focus from very specific topics in language teaching and learning to broader issues of language use in varying social contexts. In this contemporary perspective, we stress the concern for empowering groups historically silenced by hegemonic worldviews, as well as the use of knowledge from various areas of expertise in the understanding of language issues, a feature that has always been associated with AL.

Aligned with the more recent studies in AL, the topic of our study is related to language teaching and learning. Our focus, however, is on the educational process and the interaction among individuals who participate in it, which corresponds to a concern for social, and not structural, aspects of language. It should be noted that it is

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<sup>2</sup> In this study, we understand *construction* as a social and collaborative process, also referred to as co-construction.

<sup>3</sup> As Leffa (2012), we use the terms “second language”, “foreign language” and “additional language” interchangeably, but, to avoid repetition in the text, we use the L2 acronym as an umbrella term to cover the discussed situations in this work. For the first language, we use the acronym L1.

<sup>4</sup> Concept introduced by Brunner (1976 apud MERCER, 1994) as *scaffolding*. It refers to the support given by the more competent adult/partner so that a child can carry out a task he/she initially would not be able to perform by him/herself.

this contemporary conception of AL which underpins the proposed study, especially with regards to co-participation and multidisciplinary. We believe that the analysis of students' recounts allows the observation of life experiences usually ignored in a school system conventionally focused on the teacher and that often rejects more spontaneous students' discourse, since it considers such discourse unsuitable for production in the educational environment.

Moreover, the analyses proposed here are grounded on theoretical principles concerning learning and language, which are consistent with the assertion made by Celani (1992, p.19) that AL is "the point, then, where the study of language intersects with other disciplines". Therefore, we place our research interests in the analysis of discourse in the foreign language classroom, specifically in the recounts of personal experiences, conceived as potential mediators in the social construction of knowledge.

### **Language, mediation, and social construction of knowledge**

In order to analyze the mediating and functional nature of the recounts in question from an interdisciplinary perspective, we understand language from two complementary theoretical frameworks: (i) the sociocultural theory (DANIELS, 2001; WELLS; CLAXTON 2002; WERTSCH, 2006, 2002, among others), stemming from Vygotsky (1998, 2001), for whom language is a mediating and cultural tool; and (ii) Systemic-Functional Linguistics, as originally seen in Michael Halliday's studies (HALLIDAY; HASAN, 1989; HALLIDAY; MATTHIESSEN, 2004).

In sociocultural theory, there is an approach to learning in which language has a fundamental role. Such a perspective does not focus on the development of a language theory, but in demonstrating the role language plays in the learning process. As we shall see, according to sociocultural theory, language acts as a mediating tool in the process of social construction of knowledge. With respect to Systemic Functional Linguistics, there is a conception of language as network of possibilities that allows users to make choices in order to convey and build meaning(s). It is a social semiotic theory, according to which language should be analyzed in its contexts of use and according to the functions it plays in social life.

Thus, we believe that a social outlook on language allows for the observation of its relevance in the process of constructing knowledge, and creates a better understanding of the role recounts of personal experiences play as mediating and scaffolding elements in the context of the English language classroom. Learning (including other languages) is therefore understood as a semiotic process involving participation in socially mediated activities (DONATO, 2000). In this sense, we suggest that the recounts are not merely a parallel discourse, decontextualized from the classroom environment, but social practices that build and influence learning in the instructional and interactional context.

As it also pertains to the sociocultural approach, we stress that this perspective provides contributions to the study of language in education, understood here as a way of situating the participants of a pedagogical interaction in the environment in which they are acting. The student, as an agent, builds his/her knowledge and social reality in the interactions, which are realized in social process in which participants create a common knowledge through dialogue. Based on this social view of learning, Vygotsky (1998) states that learning takes place in a particular cultural circle from the interaction with other individuals.

In order to understand whether and how education in the classroom reaches its goals as a process that aims to develop students' knowledge and understanding, it is therefore necessary, as seen in Mercer and Littleton (2007), to conceive learning as a process mediated by dialogue. The relevance attributed to the mediating role of dialogue in the social construction of knowledge, as discussed by the authors (MERCER; LITTLETON, 2007), is paramount within the context of this research, in which we stress the relationship between the construction of knowledge of the English language and personal recounts, which naturally arise in the shared dialogue in the examined classroom.

As with Mercer and Littleton (2007), we argue that social interaction is significant in the construction of knowledge. Therefore, in this study, we understand dialogue as a "cultural artifact" in the social construction of knowledge. More specifically:

Talk with a teacher, and with other students, is perhaps the most important means for ensuring that a student's engagement in a series of activities contributes to their developing understanding of science, mathematics or any other subject as a whole. (MERCER; LITTLETON, 2007, p.102).

We additionally resort to sociocultural theory, since it attempts to explain learning as a mediated process, as pointed out by Wertsch (2006). Thus, the individual is constituted in social relationships with his/her peers (FREITAS, 2000) and it is through investigating the mediating elements that this relationship can be understood. Consequently, we can see that mediation is the starting point for a sociocultural analysis. We believe that in the context of the classroom, "semiotic mediation is the key to all aspects related to the construction of knowledge" (JOHN-STEINER; MAHN, 1996, p. 192).

In this sense, the recounts of personal stories become quite significant for the process of constructing knowledge, since in commenting on their experience, the participants can reach a potential objective (e.g., forming a piece of knowledge) through social interaction and the use of language.

By creating different meanings from its use, language reveals its functional nature, as proposed by Systemic Functional Linguistics (SFL). According to the systemic-functional principles, language is a social reality, discursively materialized in texts that mold themselves to their use and social communicative purposes (ALMEIDA, 2002).

To meet such aims, language users make choices based on a potential of meanings in such a way that the end meaning results from the choice of what was said over what could have been said (HALLIDAY; MATTHIESSEN, 2004). Since language use has its situational and cultural motivations, SFL is theoretically grounded on the notion that language and context are closely linked. As such, because language shapes itself around requirements of use, it is important to observe the characteristics and features surrounding it.

According to Vian Jr. (2013), what distinguishes SFL from other functionalist approaches to language is that this theoretical approach seeks to develop a theory of language as a social process as well as an analytical method for describing linguistic patterns (EGGINS, 1994 apud VIAN JR, 2013). As stated by Vian Jr. while commenting Eggins,

This aspect characterizes SFL as a highly interdisciplinary theory in constant dialogue with other areas [...]. SFL is far-reaching among teaching professionals concerned with social issues and the central role language plays in their daily lives, as well as how the understanding of language development may provide clues to understanding the reality in which they live [...]. (VIAN JR., 2013, p.127).

Accordingly, and in line with the author, we believe SFL, as well as AL, to be intrinsically interdisciplinary and an approach that aims to observe the production of meaning through textual processes of social life (MOURA NEVES, 2001; EGGINS, 2004). Its semantic and functional nature favors language as a creator of meaning, and investigates the role such meanings acquire through the use of language. In its broader perspective, SFL attempts to explain how individuals use language and how language is structured in its different uses (EGGINS, 2004).

Therefore, the proposed convergence of two complementary theoretical perspectives, i.e. the sociocultural theory and SFL, seeks to associate a theory of learning – seen as a social and discursive process mediated by interaction –, to a view of language nested in society and directed to use.

### **Methodological orientation and data analysis**

The data from this study were generated in three classes, herein named Groups A, B and C, of an English course for children and adolescents, located in the south zone of Rio de Janeiro. The data was recorded in audio and video, and the parts selected for the analysis were transcribed according to the conventions<sup>5</sup>proposed by Atkison and Heritage (1984), incorporating symbols suggested by Schiffrin (1987) and Tannen (1989).

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<sup>5</sup> The transcription conventions can be found in the Appendix.

The three groups varied both in age and proficiency level. Group A, composed of three girls aged between seven and eight years in their first semester of the course, is the one with the most basic English proficiency. Group B, made up of three girls and five boys, aged between seven and nine years, albeit beginners, attended the second semester at the language course. Group C students were eleven-year-olds whose proficiency level was a little more advanced, as such, kids in this group were more familiar with L2. On account of these differences concerning levels of proficiency and, consequently, lexicogrammatical knowledge of each participant, the use of L1 and L2 naturally varied in the discursive production during the classes in which the recounts of personal experiences emerged.

The data include audio and video recordings as well as field notes. The fragments used for the data analysis in this article were taken from a more extensive *corpus*, consisting of recordings of fifteen lessons, five in each group. As selection criteria, we bring to our debate interactions in which the recounts make reference to the pedagogical content. Of these interactions, some were motivated by the content of the lesson itself, while others stemmed from unrelated elements. All of them, however, are in some way related to the course syllabus. From a qualitative and interpretative perspective (DENZIN; LINCOLN, 2006), this study thus aims to analysis four fragments taken from interactions produced in the aforementioned groups.

The interest in observing the existing relationship between the syllabus content and the recounts produced by participants in the classroom stems from the idea that these discourses seek to reshape previous experience, relating them to the pedagogical context, as is discussed below.

### **Analysis of recounts of personal experiences and their role in knowledge construction in the English language classroom**

The first fragment considered in this analysis of recounts is an instance of the need for students to make sense in the context in which they are placed. The classroom is often, if not always, felt as a kind of abstract and unreal environment where students encounter new lexicogrammatical structures and knowledge. This is even more latent in foreign language contexts, where, in addition to dealing with new concepts, students seem to still need to associate them with their knowledge and L1 experience.

In the first fragment<sup>6</sup> under discussion, three students from Group A were starting to study animals in English and, after an initial conversation (brainstorming activity), they begin working on the lexical content presented in the textbook: *tiger, monkey, elephant, dinosaur* and *ostrich*. The first four animals were familiar to the children,

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<sup>6</sup> The current draft of this article displays the fragments under analysis in their original state, using both English and Portuguese. There is, however, the English version of the parts in Portuguese in parenthesis and in italics. It is important to note that not all the annotations made following transcription conventions were used because this could have modified the original meaning and compromised the analysis.



who were able to identify them quickly. That is, the students, in the fragment below, did not show major difficulties in recognizing those English words or using them in their oral language production. However, both the semantic concept and the pronunciation of *ostrich* were difficult for the students to understand.

### Fragment 1

- 1 Adriana: ok this is an ostrich os-tri-ch  
2 Lurdes: AI que difícil teacher.  
(*Oh, that's too difficult, teacher.*)  
3 Adriana: sabem aquele barulhinho que o ônibus faz quando freia? (.)  
4 tchhh((imitando um ônibus)) então a gente tem que fazer  
5 este barulho no final da palavra os-tri-chh  
(*do you know that sound the bus makes when it brakes?*  
*tchhh - makes the sound - so, we have to make this sound*  
*at the end of the word ostrich*)  
6 Isadora: Ostrictchhh  
7 Lurdes: [ostrictchhh  
8 Adriana: YES that's it (.) do you know how to say ostrich in  
9 Portuguese? vocês sabem qual é este animal em  
10 português?  
(*do you know how to say ostrich in Portuguese?*)  
11 Isadora: NO  
12 Lurdes: hum, hum ((negando com a cabeça))  
(*uh-uh - say no by shaking head*)  
13 Adriana: é um avestruz aquele que esconde a cabeça no chão  
(*it's an ostrich, the animal that hides its head in the*  
*ground*)  
14 Isadora: [TEACHER TEACHER posso te contar uma coisa? quando eu  
15 fui no Hotel Portobello lá em Angra tinha um homem que  
19 tinha um carro e levava a gente para fazer um passeio para  
17 ( ) ver os animais (.) ((pega a caneta no chão)) a gente  
18 até passava dentro d'água (.) lá tinha um bicho desses que  
19 botava o pescoço dentro do carro e queria bicar TUDO  
(*TEACHER TEACHER can I tell you something? When I went to*  
*the Portobello Hotel in Angra there was a man who had a*  
*car and he took us for a ride to see the animals - picks*  
*up pen from the floor. We even drove through water. There*  
*was one of those there, it would put its neck in the car*  
*and try to peck at everything*)  
20 Karla: como é que fala teacher?  
(*how do we say it teacher?*)  
21 Adriana: os-tri-ch say it Karla ((risos)) (*laughing*)  
22 Karla: os-os (.) AH teacher não dá não ((risos))  
(*os-os, AH teacher, I can't do it - laughing*)

The first moment of knowledge construction the fragment above refers to the pronunciation of the word *ostrich*, which took place between lines 1 and 7, where the focus of the discussion was on the textbook content. In this excerpt, we see that two students, Lourdes and Isadora, were able to learn the pronunciation of the new word (lines 6 and 7) from the introduction of shared knowledge by Adriana, the teacher: the noise the bus makes when the driver hits the brake (lines 3 to 5). This seemed to have been enough for the students to start building the knowledge concerning the pronunciation of the new vocabulary.

However, as indicated in lines 8 to 12, the explanation provided by Adriana was not enough for the students to understand the concept of *ostrich*. That is when the second moment of knowledge construction begins: the recognition of the animal, and thus the understanding of its concept. Having realized that the students still had problems identifying the word, Adriana introduces a specific characteristic of the animal (*it's an ostrich, the animal that hides its head in the ground*, line 13), which will act as a discursive motivation for the production of the recount by Isadora, between lines 14 and 19. It is from the use of the word 'ostrich' made by the teacher-researcher that the student is able to relate it to her experience, which may have eventually led to the construction of her knowledge.

Isadora's recount of a trip to a hotel located in Rio de Janeiro, when she had the chance to see an ostrich and experience a special situation, is a spontaneous discursive manifestation by the student which suggests a connection between her personal experience and the pedagogical content. In this case, we observe that, in line with the sociocultural theory, the student's recount acts as a mediating element in the construction of knowledge, suggesting that the lexicogrammatical choices made by the narrator of the story work as a link between the student's previous personal experience and the new vocabulary as part of the syllabus content. It may therefore be noticed that there is the need for Isadora to relate pedagogical content to her previous experience. The translation of the word and its correlation with the real world make it possible for the student to understand what was going on pedagogically in the classroom; it was through social practice that the syllabus seemed to make sense. This understanding is also in line with the principles of SFL, which understand language as a continuous process of using previous references for creating new meanings. Although the systemic-functional perspective (HALLIDAY; MATTHIESSEN, 2004) originally refers to the learning of L1, we can infer that the same theoretical framework also applies to the study of foreign languages.

The mediating aspect of personal recounts is also present in the interaction transcribed in Fragment 2 below, which was taken from a class in Group C. At the time, the teacher was working with daily routines and activities. Once the teacher assigned the students the learning task, João started recounting his personal experience, focusing on his daily routine.

## Fragment 2

- 1 Adriana: NOW you're going to write about your week for example (.) ((escrevendo no  
2 quadro)) (*writing on the blackboard*) on Monday you write seven o'clock  
3 swimming classes, on Tuesday at ten o'clock - dentist
- 4 João: AH <não>teacher  
(*Come on, teacher*)
- 5 Adriana: come on Jo::e don't be lazy ((risos)) (*laughing*)  
6 João: lazy?
- 7 Luisa: pre-gui-ço-so  
(*la-zy*)
- 8 João:  você fala isso porque não tem o meu dia eu acordo às sete  
9  horas da manhã e faço um mon::te de coisas até tarde de-da  
10  noite até almoçar no colégio eu almoço ah, eu não vou  
11  escrever tudo isso não ( ) vai dar muito trabalho e-e nem vai  
12  dar no meu caderno  
(*you say this because your day is not like mine, I wake up at seven in the morning and I do a lot of stuff until late at night, I even have lunch at school, I'm not going to write all of that, it's going to take too much time and won't fit in my notebook.*)
- 13 Adriana: [Hello you don't need to write e-very-thing write just  
14 one thing for each day, ok? Você não precisa escrever tu-di-  
15 nho ((risos))  
(*you don't need to write everything - laughing*)
- 16 João: a::h <agora melho::u> posso escrever só sobre hum um dia  
17 quinta-feira é-é o dia que faço um montão de coisas vai dar  
18 para usar um monte de esses ((risos))  
(*that's better, I can write about Thursday, it's the day I do a lot of stuff, I can use a lot of those - laughing*)

In the ESL classroom, activities in which students need to assume a given contextual identity and produce texts based on it are very common (GOUVEIA, 2014). In this case, considering the created scenario (speaking about one's routine), students had to recount their activities regarding the days of the week and time of day. According to Halliday and Matthiessen (2004), it is possible to deduce the contexts in which the students are inserted focusing on the analysis of the given texts. In the case of the ESL classroom investigated in this research, a previous definition of context was given in order to develop the specific textual formats which run through it.

The student seems not to heed the previous definition of context established by the teacher and refuses to participate in the activity, opting to bring his own experience to the classroom. Producing a joke, the learner draws a parallel between the syllabus content about daily routines in English and his own real world experience, making the given context more meaningful to him. Here, the student's recount of his knowledge of the real world, compared to the imaginary of the classroom, acts, according to sociocultural theory, as scaffolding on which João builds his knowledge of the lexical grammatical structure proposed. In interacting with the other participants of the exchange, João makes his recount a two way interaction in which real world (NÓBREGA, 2003, 2009) experience contributes to the building of pedagogical knowledge, and this in turn serves as scaffolding for the building of the student's experience.

The following fragment shows a recount of the personal experiences produced by a student from Group B. As we can see, the recount relates to real facts of their contextual experience.

### Fragment 3

- 1 Adriana: hum(.)Bel what kind of clothes do you wear in winter time  
2 Bel: scarf, coat, sweater, (.) socks  
3 Adriana: What else (.) Lulu?  
4 Luciana: hum (.) gloves, gorro, boots AI Adriana uma vez eu fui pra Nova  
5 Iorque e tava o ma::ior fri::o eu não tinha bota nem luva nem  
6 gorro quase morri acho até que morri mesmo((risos))  
(mmm, gloves, cap, boots.. once I went to New York and it was so  
cold.. I didn't have boots nor gloves nor a cap and I almost died..  
I think I actually died - laughing)  
7 Bel: engraçadinha como é que você tá aqui então heim?((risos))  
(you're so funny.. how are you here then? - laughing)

In Fragment 3, we notice that Bel refers to L2 vocabulary to recount a personal experience external to the classroom context. As such, the information built during practice in the classroom maintains a dynamic relationship with the extracurricular context, in a way which strongly motivates the behavior (action) on the part of the student. Just as in the other fragments, the third fragment shows an attempt by Bel in relating the concept of “winter”, and the respective lexicon introduced by the teacher, with her trip abroad to an English speaking country. By sharing her personal experience lived in a context where the language being taught is used, the student builds here knowledge of the curricular content. Bel’s attitude highlights the conception of language as a social and material reality, which conforms to the systemic-functional theory, as well as the mediating function of the recounts in the process of social construction of knowledge. In other words, the social character of language refers us to the student’s use of discursive practice in constructing meaning.

Finally, fragment 4 is of an interaction in a class of Group B, in which the notion of time was being discussed. The activities *get up*, *go to school*, *go home* and *play outside* were presented and drawn on the board as a timeline, recounting the activities of the character in the adopted class book *Ben* in chronological order. When it’s time for *Ben* to return home (*go home*), the student named Carol draws a correlation between the imaginary world of the character and her reality.

## Fragment 4

- 1 Adriana: when do you play outside Gil ((apontando para o aluno))  
(*pointing at the student*)
- 2 Gil: Como assim  
(*what do you mean?*)
- 3 Vitor: Quando você brinca  
(*when do you play?*)
- 4 Carol: e-eu brinco no colégio eu-eu não brinco depois (.) IH  
5 amanhã é dia vinte e dois eu tenho passeio OBA. não posso  
6 chegar atrasada ( ) ninguém quer saber pra onde eu vou?  
(*I-I play at school, I-I don't play after.. Oh, tomorrow is  
the 22nd and I'm going on a field trip. I can't be late.  
Do you know where I'm going?*)
- 7 Gil: não, não estou nem interessado teacher o que é que você  
8 quer que eu responda  
(*no, I'm not interested teacher. What do you want me to  
reply*)

This is yet another occasion in which the student recounts her experience, bringing to the classroom situations, attributes, conducts, events, etc., which relate to her real world experience. A clear way of demonstrating this is by considering the classroom as a context in which each participant of this social encounter brings to it their own context from their life experience. From this the possibility of creating a common situational context arises, based on a shared understanding, and formulating the idea of multiple contexts interacting with each other, exchanging information and jointly building the macro sociocultural context. Consequently, there is social cooperation, since each realized exchange, each reported experience, contributes to the cementing of the pedagogical practice; in other words, what it is to be a student or teacher in a determined social context.

The analysis of the data also suggests that the participating teacher often found herself constrained by the institutional expectations commonly found in language schools, that is, the need to speak in L2. Due to this, there was, not in general, the chance to explore in greater depth the recounts of personal experience at the moment they spontaneously arose and mediated the construction of knowledge, as aimed in this work, anchored in sociocultural theory and a sociosemiotic perspective of language. As such, the teacher's position in the dialogue brought in the fragments investigated reveal the intention of reverting back to L2 as soon as possible and returning to the pedagogical agenda. It is important to note, however, that this does not present itself as a problem, but an aspect related to the issues mentioned above: institutional expectations, teaching methodology, and the need of using L2.

## The multifunctional character of the recounts of personal experiences

The analysis of the fragments leads us to propose that the four recounts produced in the classroom are the spontaneous personal manifestations of each participant, which can be understood as a way of sharing personal information to establish common knowledge between the participants in the classroom. In this light, language, by means of the recounts, is used in accordance with the sociocultural theory, a function of the creation of shared knowledge. It could be said that a new understanding of the information given in the pedagogical context is created through the recounts of personal experience, in which the use of language in the social construction of knowledge comes about in a predominantly collaborative way.

Accordingly, the participant's experience and their respective recounts are potential mediating resources in teaching/learning as a whole and, specifically in this research, as it relates to English for children and adolescents. In recounting their lived experience, the narrators bring to the context of the class their knowledge of the world, making it vital for the construction of knowledge. As Góes points out (1997, p.17, emphasis of the author):

During the classroom activities, the children focus on the interpersonal relationships present and also shift their attention to other experiences not restricted to the 'here and now'. There are many occasions in which they recount their experiences, bringing as a topic of discussion the personal attributes and conduct, or events that involve themselves or others. Even when faced with situations in which institutional objects are being elaborated, children seek to insert their previous experiences, reverting to an eminently *narrative* approach, relying on memory.

Acting as scaffolding (BRUNER, 1976 apud MERCER, 1994) in the social construction of knowledge, experiences are apparently recounted as a way to build the future from the past; in other words, building new knowledge from previously lived experience. Aligned with Mercer (2000), we also maintain that in order to build a relationship between what was and what will be, we use the resources of past experience to collectively create a new understanding. Therefore, the recounts seem to be a "search" for personal experiences which can act as collaborators in the construction of new knowledge and pedagogical understanding.

By means of the production of recounts, understood here as the contextual foundations in teaching/learning, the narrators seem to search for a (re)contextualization of the knowledge worked in the classroom, allowing for a more significant learning experience for all. It is in the possible (re)contextualization of the pedagogical content that we suggest the recounts act as a link between the different ways of knowing and understanding the world, allowing the participants to build knowledge situated in their experience.

With respect to the analysis of the fragments as a whole, it is apparent that the role played by the participants (teacher-researcher and students) and the classroom are inserted in a social context. After all, as states Van Lier (1994), this pedagogical space does not exist in a vacuum; the students and teachers present there come from somewhere and are going somewhere. The classroom is placed in an institution, in a society, in a culture; what often happens in these environments is therefore determined by the external context. Consequently, in this work, we consider the entire social and institutional context in which the participants find themselves to be essential.

## **Final Considerations**

Understanding the classroom as a social event presupposes a continuous observation of all the social practices that exist within it. The recounts of personal experiences are an important source of knowledge on the part of students and teachers in the environment in which they are acting as social agents. In this article, despite treating only the recounts spontaneously produced by the students, we emphasize that personal living experience of the teachers are also frequently brought to class as scaffolding for the social construction of knowledge in L2.

The recounts of personal experiences can be understood as a mirror of the expectations and knowledge of the world of each participant in the pedagogical interaction. Such recounts, often ignored and wrongly confused with lack of discipline, digression and/or lack of attention, are important individual representations in the teaching and learning process, acting as a bridge between the pedagogical context and the surrounding external world. As such, we should, as educators, pay attention to what is being said in the classroom, promoting a more significant learning experience. We could argue that the dialogues in which the recounts of personal experiences emerge mediate the student's understanding of the pedagogical content. That is, by means of the dialogues which bring stories of everyday situations, the students build the specific content of the English language. Therefore, the foreign language classroom evinces a discursive practice appropriate to the participants of the interaction, having a socially constructed common purpose: the learning of another language. The recounts of personal experiences serve a specific function in the construction of knowledge in the foreign language classroom, acting as potential mediators in the process of social construction of a second language.

The exposition of stories and comments based on the personal experiences of the participants in the classroom seems to seek room for the pronouncements of those whose participation is usually only solicited in the pedagogical context of the institutional situation. Lastly, we emphasize that the teaching-learning of the English language is seen, in this study, as a dialogic process, according to which the students and teachers

are inserted in a social context in which language is a fundamental cultural tool. We maintain that, as such, learning cannot be understood without considering the social and communicative nature of human life.

NOBREGA, A.; AZEVEDO, S.; SOUZA, M. Relatos de experiências pessoais e socioconstrução de conhecimentos em sala de aula de língua estrangeira. *Alfa*, São Paulo, v.60, n.2, p.399-415, 2016.

- *RESUMO: Este artigo tem por objetivo analisar relatos de experiência produzidos espontaneamente por crianças e jovens adolescentes em sala de aula de língua inglesa. Inserido na área de Linguística Aplicada, o estudo está fundamentado na perspectiva teórica sociocultural (VYGOTSKY, 1998, 2001), segundo a qual a linguagem é uma ferramenta mediadora na socioconstrução de conhecimentos, em interface com uma visão de linguagem orientada para o uso e a serviço de propósitos sociocomunicativos, como proposto pela Linguística Sistêmico-Funcional (HALLIDAY; HASAN, 1989). Nessa arquitetura teórica e com base em uma tradição qualitativa de pesquisa (DENZIN; LINCOLN, 2006), discutimos como os relatos analisados atuam na socioconstrução do conhecimento pedagógico a partir da experiência pessoal, tornando os saberes significativos e compartilhados em sala de aula. Além disso, sugerimos que a experiência de mundo colabora para a construção do conhecimento curricular e esse, em retorno, serve como suporte para a construção da experiência particular do estudante, conforme proposto por Nóbrega (2003, 2009).*
- *PALAVRAS-CHAVE: Relatos. Sala de aula de língua inglesa. Linguística sistêmico-funcional. Teoria sociocultural. Mediação. Socioconstrução do conhecimento.*

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## Appendix

### Transcriptions conventions

...	unmeasured pause
.	descending intonation at the end of speech
?	ascending intonation
,	continuity intonation
-	sudden stop
=	continuous elocutions without pause between them
-----	syllabication
<b>underline</b>	emphasis
<b>ALLCAPS</b>	speech in loud voice or strong emphasis
<b>&gt;word&lt;</b>	faster speech
<b>&lt;word&gt;</b>	slower speech
<b>: or ::</b>	stretching
[	beginning of overlapping speech
]	end of overlapping speech
( )	speech not understood
<b>(word)</b>	questionable speech
<b>(( ))</b>	analist's comment, description of non verbal activity
<b>"word"</b>	speech
<b>hh</b>	sigh or laugh
<b>eh, ah, oh, ih, hum, ahã, humhum</b>	pause, hesitation or signs of attention

Conventions based on the studies of Conversation Analysis (ATKISON; HERITAGE, 1984) incorporating symbols suggested by Schiffrin (1987) and Tannen (1989).

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# BEHAVIORAL AND NEUROIMAGING STUDIES ON MULTITASKING: A LITERATURE REVIEW

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- **ABSTRACT:** This literature review aims at articulating evidence from behavioral and neuroimaging studies on multitasking, where at least one of the tasks is a linguistic one. Simply put, multitasking is the handling of more than one task at the same time by a single person. Findings from six behavioral and five neuroimaging studies were articulated with the literature to corroborate two hypotheses longstanding in the field, that (1) multitasking results in one task being performed more poorly than when performed alone (PASHLER, 1994; SCHMIDT, 2001), and that (2) multitasking is a matter of synchronizing and utilizing more efficiently the available neural resources (SALVUCCI; TAATGEN, 2011; JUST; BUCHWEITZ, 2014). The selected studies investigate simultaneous listening comprehension and driving; listening comprehension and performing mental rotation tasks; dichotic listening comprehension; reading/attending a lecture and messaging; bilingualism; the role of intelligence and working memory capacity; the effects of training; and choices across generations. Findings from the reviewed studies corroborate the literature and add support that less voxels in a network of brain areas are activated in multitasking than in single tasking. Implications of such findings for education were also discussed in the review. Future studies may light the path by showing the brain mechanisms that allow and limit multitasking, the effects of learning under conditions of distraction as well as how teaching may evolve to keep up and guide the new generations.
- **KEYWORDS:** Multitasking. Dual tasking. Behavioral studies. fMRI. Literature review.

## Introduction

The topic ‘multitasking’ has increasingly interested a number of researchers over the last twenty years. Just by typing ‘multitasking’ in the search engine of *Portal de*

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*Periódicos CAPES*<sup>1</sup>, it was possible to reach the number of 5,610 studies (on August 16<sup>th</sup>, 2015). The term ‘multitasking’ has two different uses: (1) “the simultaneous execution of more than one program or task by a single computer processor”; and (2) “the handling of more than one task at the same time by a single person” (MULTITASKING, 2015). As the focus of this paper is on the second definition proposed by Oxford dictionaries, the articles related to computing were discarded. From the initial 5,610 articles, 1,375 remained for the period 1995-2015, and 1,085 for the period 2005-2015. The majority of the articles published in the last twenty years are written in English (1,349) and published in respected journals such as *Computers in Human Behavior* (40), *Plos ONE* (22), *Computers & Education* (15), *Experimental Brain Research* (9), *Neuropsychologia* (9), *Journal of Experimental Psychology: Human Perception and Performance* (8), to mention but a few.

Modern life requires multitaskers. Multiple events occur simultaneously and individuals need to deal with them immediately and concurrently. As technology develops, individuals have at their disposal new communication devices, multiplying the number of available information that we have to process. According to Ophir, Nass and Wagner (2009), we live in a saturated media environment in which we consume more than one stream of information at the same time, and perform more than one task at a time. Multitasking may seem so easy that we do not realize we are doing it, such as *talking while walking, showering, or eating a meal; mixing ingredients while reading a recipe; listening to a lecture and taking notes*; among many other tasks. At other times, multitasking may become difficult, excruciating or even impossible, as when people are trying to *drive while scanning a navigation device*; when *trying to read an academic article while listening to other people talking* about an interesting subject; or when *performing a working memory capacity task* in which you have to process information while *storing other kinds of information*. Real life situations require multitasking abilities. Practicing is one of the most obvious ways to ease the burden of multitasking. For instance, when beginning to learn a foreign language, everything seems so hard; it is difficult to pronounce the words, put them into grammatically accurate sentences; but soon each subprocess becomes easier, some processes become automatized and the individual can produce and understand coherent speech with fluency (SKEHAN, 1998). This process takes time and effort, but it is an example of the amount of practice required to achieve expertise in any domain. According to Schmidt (2001), automatic processes require little or no attention while controlled processes require attention as well as interfere with other processes that also require it.

Multitasking is a fundamental skill that we perform on a daily basis. Even though we perform it so well, we have difficulty explaining and understanding such a feat. Additionally, the increase in the amount of available information, which is

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<sup>1</sup> Is a website created by CAPES and the Brazilian government where Brazilian scholars and students, from different areas of expertise, can find a broad range of scientific articles published worldwide. Available in: <<http://www.periodicos.capes.gov.br/>>. Access in: 16 Aug. 2015.

a consequence of our living in such a high-tech world, brings to light the issue of whether and how our brains cope up with the task of processing more than one stream of information at a time. With the advent of neuroimaging tools that enable us to see the healthy brain at work, to unveil the brain mechanisms that support and limit our multitasking ability is a scientific challenge (JUST; BUCHWEITZ, 2014). An even greater challenge is to apply such findings to improve learning and performance at school, work and leisure contexts.

In what follows, groundbreaking behavioral and neuroimaging studies of multitasking, where at least one of the tasks involves language, are reviewed briefly with focus on the patterns that emerge from the data. The main objective of the present article is to articulate evidence from such studies to corroborate the hypotheses that (1) multitasking normally results in one task being performed more poorly than when performed alone (PASHLER, 1994; SCHMIDT, 2001); and that (2) multitasking is not a matter of recruiting more brain areas; it is, instead, a matter of synchronizing and utilizing more efficiently the available neural resources (SALVUCCI; TAATGEN, 2011; JUST; BUCHWEITZ, 2014). Within this main objective, we seek to understand how multitasking takes place in the brain, how our brains cope up with the task of processing various tasks, various streams of information at a time. In addition, we aimed at reviewing studies that investigated how learning and performance take place under conditions of distraction. To reach such goals, six behavioral and five neuroimaging studies were selected. They are thought to represent the major areas explored by studies about multitasking where at least one of tasks involves language.

To accommodate the objectives, the present article is divided into three subsections: (a) behavioral studies of multitasking; (b) neural substrates of multitasking; and (c) final remarks. The content in each subsection is organized thematically, rather than chronologically. In the first subsection, the findings from six behavioral studies are articulated: first, (i) two studies about language comprehension and messaging; (ii) one study about the benefits of bilingualism for multitasking; (iii) one study about language comprehension and driving; (iv) one study about the role intelligence and working memory capacity play in multitasking performance; and (v) last, but not least, one study about multitasking choices across generations. In the second subsection, the results from five neuroimaging studies are articulated: first, (i) one study about multitasking in a brain lesioned sample; (ii) one study about dichotic listening (listening to one voice in one ear and another voice in the other ear); (iii) one study about the impact of listening comprehension on driving performance; (iv) another study about listening comprehension and the simultaneous performance of mental rotation tasks; and (v) last but not least, a study about how the human brain responds to training in multitasking. In the last subsection, the main findings are recapped in the light of the literature and some reflections about education are offered.

## **Behavioral studies of multitasking**

The cognitive literature has suggested that our capacity for processing information is limited (KAHNEMAN, 1973). Due to our capacity limitations, dividing attention among one or more different tasks leads to decrements in performance (PASHLER, 1994). There are many published behavioral studies of multitasking and attention, but due to the objectives and limits of this paper, only six recent studies representative of five thematic areas will be reviewed.

First, let us start by examining existing empirical evidence about whether multitasking in a learning environment affects students' performance. Bowman et al. (2010) investigated the effects of instant messaging while students were reading a textbook. The experimental study design created a situation in which 89 college students read a passage from a textbook online while receiving and answering instant messages. The researchers tracked the time it took them to read the passage, tested their understanding of it, and compared their performance (experimental group) to that of students who were not interrupted by instant messages (control group). The experimental group was divided into two: one in which participants received messages before reading the text and another group in which they received messages while reading. As expected, students took significantly longer to read the passage when they used instant messaging while reading compared to the group that did it before reading and to the group who did not receive or send messages at all. Contrary to what was hypothesized (that multitasking would lead students to superficially process the passage), there were no significant differences in performance on the test for measuring comprehension. Therefore, it can be concluded that students "actually need more time to achieve the same level of performance on an academic task" (BOWMAN et al., 2010, p.931) when they are multitasking. The present review questions some methodological issues found in Bowman et al. (2010) study, such as the instrument used to measure reading comprehension (multiple choice test) and the initial instructions given to the participants (the group that received messages before the passage, for instance, knew that they would not be interrupted afterwards, while the other groups did not receive any related instruction). Despite such issues, the study highlights that students who message while studying may think that they are accomplishing more by multitasking, but in fact, they are taking longer to achieve the same level of performance in a reading/comprehension task.

Within the same theme, Ellis, Daniels and Jauregui (2010) designed a study to empirically explore whether multitasking in the context of a classroom affects the grade performance of 62 undergraduate business students. The participants, students from a university in the U.S., attended a class lecture and subsequently were given a quiz covering the lecture content (they did not know in advance that they would have to perform). The experimental group with 31 students, randomly assigned, was instructed to multitask by sending three messages through their cell phones to the professor during class while 31 different students of the control group were not allowed



to turn their cell phones on and were asked to pay attention to the class. All participants were instructed not to talk to anyone during the lecture to ensure anonymity about the study. Findings show that the experimental group students had lower scores than the control group students. From the sample, 26 were male and 36 were female, and the analyses revealed that gender does not affect performance. Overall, the results are in accordance with the idea that multitasking reduces the ability of the brain to effectively retrieve information. In the authors' own words, "[...] evidence shows that there is a cost associated with multitasking in a learning environment – lower grade performance [...]" (ELLIS, DANIELS; JAUREGUI, 2010, p.6). Both studies, Bowman et al. (2010) and Ellis, Daniels and Jauregui (2010), tackle the effects of messaging on academic performance. In classrooms all over the world, teachers encounter students using media for social purposes that distract from academic tasks. Notwithstanding, media technological tools have a great potential to enhance learning, if used appropriately. Therefore, it is relevant to be discussed in the educational field how to help students become media literate, how to help them deal with multitasking.

As we have discussed multitasking in learning environments, it seems pertinent to bring to light the issue of bilingualism. According to Grosjean (2012), bilingualism is a worldwide phenomenon. Some countries support bilingual populations mainly because of the cultural and linguistic diversity of its citizenry. In addition, increased possibilities of moving around the globe have enlarged the number of individuals who have become bilingual. Nevertheless, what does it take to be considered a bilingual? Grosjean (2012, p.4) defines bilinguals as "those who use two or more languages (or dialects) in their everyday lives". They do not form a homogeneous group; they vary along a number of dimensions: age and manner of acquisition, level of proficiency and how much and in what contexts they use their languages. Bilinguals need to control, on a regular basis, which language to choose in a certain context and inhibit interference from the language not in use. Poarch and Bialystok (2015, p.121) postulate that "this process makes all language use by bilinguals a model for linguistic multitasking". They argue that bilingual experience enhances the set of executive function processes that are also essential for multitasking performance. Thus, they hypothesize that bilinguals should be better multitaskers than monolinguals.

In the attempt to provide empirical evidence for such a position, Poarch and Bialystok (2015) recruited 203 children from 8 to 11 years old: 60 were English monolinguals; 44 were being educated in French but used it only in school (partially bilinguals); 60 were fully bilingual; and 39 were trilingual. Among the tasks, participants performed the Peabody picture vocabulary test, the Raven's colored progressive matrices test and a modified flanker task<sup>2</sup>. The study did not involve any measure of task switching

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<sup>2</sup> In the modified flanker task used by Poarch and Bialystok (2015, p.119), participants were required to "[...] indicate the direction in which a target chevron in the middle of an array of five chevrons was pointing by pressing one of two mouse buttons positioned on either side of the computer." The authors employed four types of trials: (1) baseline trials in which a single chevron was presented in the middle of the screen; (2) neutral trials in which two diamonds surrounded the middle chevron; (3) congruent trials in which "the flanking chevrons pointed in the same direction

or multitasking, but the authors guarantee that the flanker test has the central elements of multitasking: selection, inhibition and response shifting. Results showed that the children from all groups performed similarly in English vocabulary and nonverbal intelligence, accuracy was at ceiling, but bilinguals and trilinguals outperformed monolinguals, i.e., were faster at resolving conflict than monolinguals and partial bilinguals. The researchers explain that both languages in bilinguals are constantly active; they need to direct attention to the target language and avoid interference from the non-target one. Therefore, there is a bilingual advantage in executive function (EF), since the EF system controls attention. In the authors' own words, "[...] the involvement of EF in bilingual language processing makes bilingualism a form of linguistic multitasking [...]" (POARCH; BIALYSTOK, 2015, p.113).

Moving slightly away from the educational context, Engonopoulos, Sayeed and Demberg (2012) investigated the effect of linguistic complexity on cognitive load in a dual-task situation: simultaneous driving and language use. The researchers manipulated the driving task difficulty as well as the structural complexity of the linguistic items. A total of 24 participants performed a simulated driving task that varied between 'easy' and 'difficult' driving while listening to sentences in German containing a relative clause. The clause was followed by thematically related filler sentences and participants had to answer yes/no comprehension questions. The stimuli were designed in pairs in a way that the items in each pair are similar with the exception of the form of the auxiliary of the relative clause, which defines whether it is a subject relative clause or an object relative clause. The sentences are locally ambiguous between the object and subject relative clause until reaching the auxiliary. As an example, "*Die Lehrerin, die einige Eltern wegen einer solchen Kleinigkeit angerufen [haben / hat], hat nun eine Elternversammlung einberufen*" ("The teacher <sup>FEM</sup> [who called some parents / whom some parents called] because of such a trivial issue, has now called a parents' meeting") (ENGONOPOULOS, SAYEED; DEMBERG, 2012, p.2250). The researchers also collected physiological data based on two measures: pupillometry and skin conductance response. Results indicate that the language task undoubtedly disturbs performance on the driving task. Additionally, linguistic ambiguity and complexity resulted in higher cognitive load, as measured by the two physiological tests. The authors explain that in the disambiguating region they observed higher steering deviation, indicating that "[...] people are allocating more mental resources to the linguistic task, hence impeding steering performance [...]" (ENGONOPOULOS; SAYEED; DEMBERG, 2012, p.2253). This issue of comprehending language and driving will be better discussed in the following subsection with neuroimaging evidence.

Moving to the professional context, Colom et al. (2010) examined the role played by intelligence and working memory capacity (WMC) in multitasking performance.

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as the target"; and (4) incongruent trials in which "the target and flanking chevrons pointed in opposite directions" (POARCH; BIALYSTOK, p.120). This test is widely used in cognitive psychology to assess the ability to suppress responses that are inappropriate in a particular context.

The study was conducted with 302 applicants for admissions to air traffic control training courses. Intelligence was measured by an analytic reasoning test; WMC, by the computation span and dot matrix tasks; and multitasking, by the divided attention and funnel tasks<sup>3</sup>. Researchers found that, although both intelligence and WMC are related to multitasking, WMC is more highly correlated and it is the one that predicts multitasking performance. They explain that the processing and storage components of WMC tests are highly related to the skills required by multitasking. In their own words, “working memory tasks might be used for personnel selection when multitasking requirements are involved” (COLOM et al., 2010, p.550).

Due to the relatively recent technological urge, the last theme of this subsection involves the perception and choices made by individuals from different generations. Carrier et al. (2009) explored the multitasking choices and difficulty ratings in three generations of north-Americans: Baby Boomers<sup>4</sup>, born between 1946 and 1964; Generation X, born between 1965 and 1979; and Net Generation, born between 1980 and the present. It is the first study to directly compare the multitasking behavior of older and younger generations. The authors claim that the Net Generation members “grew up with computer-based technology readily available and enmeshed in their school and home environments” (CARRIER et al., 2009, p.483). An online questionnaire about different technology-related tasks was answered by 1319 participants. As expected, more recent generations significantly multitask more than older generations. Surprisingly, newer and older generations agreed on which tasks should be combined for multitasking and which should not. Such finding is “[...] consistent with the idea that all generations share mental limitations affecting which tasks can be combined with other tasks [...]” (CARRIER et al., 2009, p.489). As limitations, such results may potentially be due to chronological age rather than generational differences; and the responses to the questionnaire reflect the participants’ perceptions of their own multitasking experiences rather than their real multitasking behaviors. By any means, it seems that the limitation in multitasking ability is shared across generations. Adding to the findings of this study, Ophir, Nass and Wagner (2009) compared cognitive control abilities between chronic heavy media multitaskers with those who occasionally multitasked. Their findings suggest that either “heavy media multitaskers are distracted by the multiple streams of media they are consuming”, or those who rarely multitask are “more effective at volitionally allocating their attention in the face of distractions” (OPHIR; NASS; WAGNER, 2009, p.15585). They conclude that the increased need for multitasking may be placing new demands on cognitive processing and especially on attention allocation.

These studies have shown that tasks may compete for a common central cognitive processing resource, resulting in a bottleneck. Pashler (1994, p.221) sustains that

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<sup>3</sup> For details, check the original paper.

<sup>4</sup> Baby Boomers were born between 1946 and 1964 in countries such as the United Kingdom, France, the United States of America, Canada or Australia. After World War II, these countries had a sudden increase in the birth rate (U.S. CENSUS BUREAU, 2011).

“when two tasks need the mechanism at the same time, a bottleneck results, and one or both tasks will be delayed or otherwise impaired”. We have seen that multitasking is a ubiquitous need in modern life and people believe that they are using time more effectively by performing more than one task at the same time in different contexts. In reality, studies, as the ones reviewed here, have suggested that individuals are being distracted, and such a fact interferes with their ability to perform tasks, to retain and retrieve information/knowledge. Now, let us explore such multitasking issues through the lenses of neuroimaging, a set of techniques that can image the brain, especially the healthy brain, at work.

## Neuroimaging studies of multitasking

The neural basis of multitasking has been inspected through lesion studies and more recently through technological tools, such as functional magnetic resonance imaging (fMRI)<sup>5</sup>. Among the many published studies, one lesion study and four neuroimaging studies were chosen to be reviewed here. These studies confirm the long known hypothesis that brain areas do not work in isolation, one at a time; they collaborate extensively to achieve a goal. They corroborate the idea that the human brain is capable of reorganizing itself, put forward by William James in his *Principles of Psychology* (1890). As well, they follow the basic principles from the Parallel Distributed Processing approach proposed by McClelland, Rumelhart and PDP Research Group (1986) that cognitive processes take place in parallel in a distributed network of cortical areas.

According to Just and Buchweitz (2014), to accomplish a task, such as sentence comprehension, different areas are synchronized (PRAT; JUST, 2010), activation levels rise and fall together, indicating that information is being transferred among the areas, what is referred to as coordination of activity. Just and Buchweitz (2014) review six principles articulated by Just and Varma (2007) that are consistent with the majority of fMRI studies, including studies of multitasking: (1) there is not only one area activated in the accomplishment of a task, there is rather *a network of cortical areas*; (2) each area activated has a characteristic processing style; (3) areas are assembled dynamically as task demands increase; (4) activation is synchronized between the participating areas; (5) the more demanding the task, the greater the amount of activation in the area(s) involved; and (6) cognitive centers are tightly integrated with sensory and motor centers; activation rises and falls at the same time.

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<sup>5</sup> According to Huettel, Song and McCarthy (2009), fMRI is a noninvasive technique based on the same technology of magnetic resonance imaging (MRI). It uses a strong magnetic field and radio waves to create detailed images of the brain. fMRI measures brain activity by detecting changes in blood oxygenation and flow that occur in response to neural activity (when a brain area is active, it consumes more oxygen to meet the increased demand). The technique is used to produce activation maps showing which parts of the brain are involved in a particular cognitive process. Besides being noninvasive, it presents excellent spatial resolution and good temporal resolution. It has become a popular tool for imaging normal brain function and has been providing new insight to the investigation of cognition.

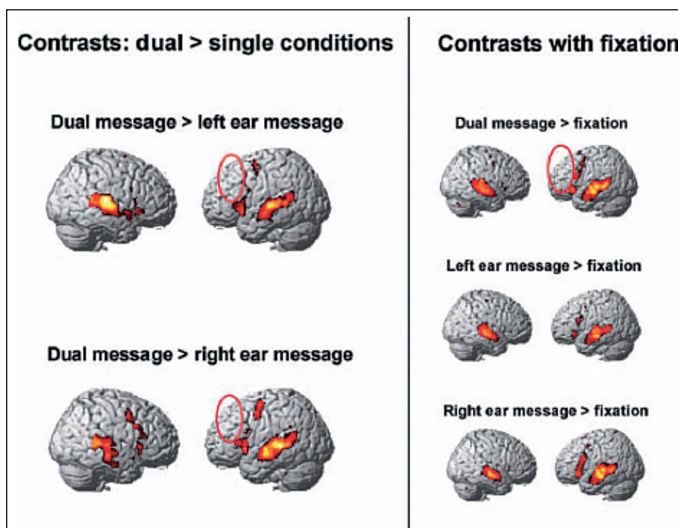
Historically, lesion studies were the only way to study the human brain before the advent of neuroimaging techniques, so let us start by reviewing one. Burgess et al. (2000) investigated 60 patients that had suffered focal brain lesions. These patients performed tasks that tackled retrospective and prospective memory, as well as planning skills. Findings indicate that different stages involved in multitasking are disrupted by lesions to different brain areas. The left posterior cingulate region and extensions to the occipital lobe seem to reflect impairments to retrospective and prospective components of the tasks; the right dorsolateral frontal regions appear to reflect deficits in planning. Damage to such regions leads to decrements in task performance. The study presented a tentative account “to explain how these brain regions might interact together in supporting multitasking” in a brain lesion sample (BURGESS et al., 2000, p.860). Although the investigation of brain lesions presents limitations and results should be interpreted with caution (BOOKHEIMER, 2002; MATLIN, 2004), Burgess et al.’s study (2000) shows that there are particular areas of the brain where injury leads decrements in performance in different stages of multitasking.

With time and technological development, researchers became able to observe and study the healthy brain at work. Let us now reflect upon three studies that deal with language (listening) comprehension and an additional task. Buchweitz et al. (2012) investigated, using fMRI, how twelve college-level participants dealt with the task of listening to a male voice speak in one ear and a female voice in the other ear (dichotic listening), and understanding what each one of them was speaking. The researchers compared this situation to the single task (listening and understanding a single speaker) and found that the same set of areas was involved in both conditions. In the multitask situation, they observed an increase in activation in Broca’s and Wernicke’s areas<sup>6</sup> and also an increase in the synchronization between these areas. In the single task, it seems that Broca’s and Wernicke’s areas are not completely synchronized, as revealed by the fact that Broca’s activation occurs later (by about 1.6-2.0 seconds) than Wernicke’s. In the dual task, peak activations of the two areas differ by only 0.7 sec, meaning that they synchronize during multitasking, leading to the maintenance of good performance in both tasks. Figure 1 presents the areas activated in each situation. As regards the probe questions designed to check comprehension, results revealed that response times were slower in the dual-task condition, as expected.

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<sup>6</sup> Broca’s and Wernicke’s areas are traditionally implicated in language processing (PRICE, 2010). They were named after the physicians that identified them in the 1800’s. They observed the behavior of patients with brain lesions and studied their postmortem brains. Broca’s area is a region in the frontal lobe, more specifically in the inferior frontal gyrus, associated with language production. In turn, Wernicke’s area is a region in the superior temporal gyrus, implicated in language comprehension. According to Bookheimer (2002), the lesion deficit-approach has led to a large-module philosophy, that the language system is composed of only these two domain regions.

**Figure 1** – Contrasting between multitasking situations, single task and rest.



**Source:** Reprinted with permission from the authors Buchweitz et al. (2012, p.1873).

Buchweitz et al. (2012) also observed the effects of WMC in multitasking. Lower WMC participants displayed larger time shifts maybe because they were not as able as higher capacity individuals to keep the results of two areas activated together when there were so many results to keep active. Unsuccessful participants were the ones who could not synchronize both tasks. The study shows that “[...] multitasking may be more than just a matter of doing more brain work. It may also be a matter of doing the work differently in adaptation to the doubled workload [...]” (JUST; BUCHWEITZ, 2014, p.8).

As mentioned previously, behavioral studies have stated that our capacity for processing information is limited and brain imaging studies have added that there is a limit on the amount of activation that can be recruited for a given task at a given time. Just and Buchweitz (2014, p.6) explain that

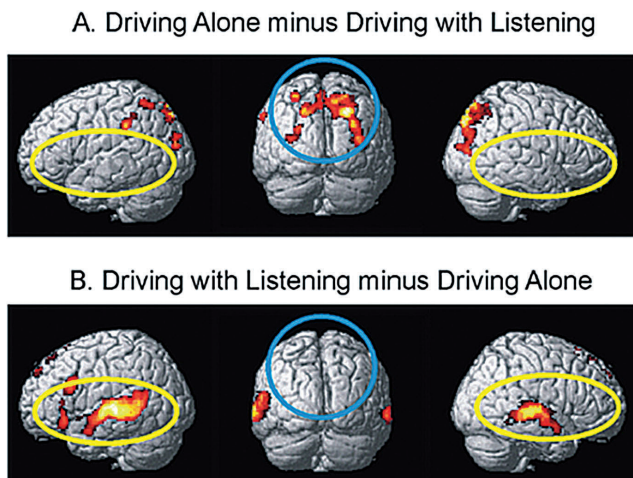
[...] if performing one task alone activates some volume of the brain, say  $x$  voxels, and another task alone activates  $y$  voxels of the brain, then perfect additivity of the two tasks might be expected to activate  $x+y$  voxels. But that is not what happens. Typically performing both tasks simultaneously activates substantially less than  $x+y$  voxels.

In multitasking, “[...] the brain activity involved in performing two tasks at the same time is not a simple union of the activity underlying each of the two component tasks [...]” (JUST; BUCHWEITZ, 2014, p.4). Prat, Mason and Just (2011) suggest that this ‘doing more with less’ reflects neural efficiency. Additionally, our brains are

capable of adapting themselves to the demands of the tasks involved, a concept known as neural adaptability (PRAT; JUST, 2010). As well, different networks involved in accomplishing tasks are able to become synchronized; it means that the activation of networks of different regions rise and fall in tandem, indicating that such regions are collaborating and connected functionally (PRAT; JUST, 2010).

Just, Keller and Cynkar (2008) used fMRI to explore the impact of concurrent listening comprehension on the brain activity associated with a simulated driving task. The dual task situation resulted in a significant decline in driving accuracy. It also revealed a decrease of about 37% of activation in the parietal lobe, an area traditionally associated with spatial processing. The findings, as shown in Figure 2, “[...] clearly establish the striking result that the addition of a sentence listening task decreases the brain activation associated with performing a driving task, despite the fact that the two tasks draw on largely non-overlapping cortical areas [...]” (JUST; KELLER; CYNKAR, 2008, p.75).

**Figure 2** – The impact of simultaneous listening in brain activity associated with a simulated direction task.



**Source:** Reprinted with permission from the authors Just, Keller and Cynkar (2008, p.73).

Results confirm the hypothesis that understanding sentences disrupts driving performance by distracting attention<sup>7</sup> from the driving task. Such finding corroborates Engonopoulos, Sayeed and Demberg’s findings (2012) from their behavioral study (reviewed above). This distraction effect may be interpreted as reflecting the limit of resources/attention that can be distributed across both tasks. In the authors’ words

<sup>7</sup> For a review on attention see Bailer (2011, p.16-21).

(JUST; KELLER; CYNKAR, 2008, p.76), “[...] this capacity limit might be thought of as a biological constraint that limits the amount of systematic neural activity that can be distributed across parts of the cortex [...]”. In countries such as Brazil and the USA, legislation prohibits the use of cell phones while driving. If the individual is holding the phone in hand (handheld use), s/he receives a fine; but if the individual has the phone inside the car in a stationary place (hands-free use), it is not considered as an infraction. Concerning this issue, Salvucci and Taatgen (2011, p.108) ponder that “[...] there are no significant differences between handheld and hands-free phone use, since the visual and cognitive requirements are effectively identical [...]”, thus, our cognition is impaired both by handheld and hands-free phone use while driving.

It is essential to highlight that automatic processes require little or no attention while controlled processes require attention as well as interfere with other processes that also require it (SCHMIDT, 2001). Neuroimaging studies have updated this definition, by claiming that “[...] a skill or behavior becomes automatic when there is a transition from goal-directed behavior controlled by a frontal-parietal executive system to a state in which the frontal strategic control drops away [...]” (JUST; BUCHWEITZ, 2014, p.9). Tasks can become automatic, meaning that they consume fewer resources, as a result of extensive practice. In the case of driving, while learning how to drive, our attentional resources are totally consumed by the task of driving and as we become more proficient in the task, we might feel capable of answering the cell phone or following a navigation device. The act of shifting gears or using the clutch may become automatic, but as highlighted by Salvucci and Taatgen (2011), “[...] it imposes a heavy procedural workload on cognition that, especially in difficult driving conditions, leaves little processing capacity available for other tasks [...]” (SALVUCCI; TAATGEN, 2011, p.107). Therefore, it seems clear from the evidence that driving and using the phone at the same time is not a good combination.

While Buchweitz et al.’s study (2012) required the comprehension of simultaneous spoken sentences and Just, Keller and Cynkar’s study (2008) explored the effects of listening comprehension on a driving task, Just et al. (2001, p.417) measured “[...] cortical activation during the concurrent performance of two high-level cognitive tasks that involve different sensory modalities and activate largely nonoverlapping areas of sensory and association cortex [...]”. The tasks involved a mental rotation task of visually depicted 3D objects and a listening comprehension activity and it is assumed that independent brain networks underpin them. Results reveal that performing the two tasks concurrently draws mental resources away from the language processing and mental rotation regions, reflecting decrements in performance. As reported by Buchweitz et al. (2012) and by Just et al. (2001), the activation of both networks involved in the two tasks decreased from single to dual tasking.

Behavioral studies describe decrements in performance as a result of interference. For instance, research on bilingualism has found that, compared to monolinguals, bilinguals are better able to direct their attention to task-relevant information and further



maintain their attention despite adverse interference (YANG et al., 2005). According to Just and Buchweitz (2014, p.13), “[...] interference remains a label for a phenomenon without much explanation of the underlying mechanism [...]”. These authors argue that brain-imaging studies are able to identify the brain areas involved in multitasking, its effects like performance degradation, and indicate, at times, the psychological processes involved. Other scholars such as Salvucci and Taatgen (2011) perceive interference from a different perspective. They reason that different individuals have very different abilities in particular tasks and that such difference comes from differences in people’s skills and abilities in the individual task domain. A theory called *Threaded cognition* postulates that “[...] carrying out concurrent novel tasks is very hard because of declarative interference, but much easier as expertise in one or both tasks is acquired [...]” (SALVUCCI; TAATGEN, 2011, p.257). The authors explain that novices rely more on declarative memory processes to execute a task. As experts do not rely so much on memory retrieval, they are faster at deciding what they have to do and make fewer errors. Such “reduced reliance on declarative memory makes it easier for them to do tasks in parallel” (SALVUCCI; TAATGEN, 2011, p.171).

Yet, tasks may compete for a common central cognitive processing resource, resulting in a bottleneck. As aforementioned, in a multitasking situation where the same mechanism is needed, one or both tasks may take more time to be accomplished and/or performance may be impaired (PASHLER, 1994). Brain imaging studies have been interested in finding out whether the decrements in performance reflect a limitation in the ability to perform concurrent tasks or in the engagement of executive functions and strategies to enhance performance. According to Just and Buchweitz (2014), brain imaging confirms the role of the executive network and strategic control for the processing of concurrent tasks.

Executive functions are central for situations that require switching attention between tasks, since these functions help organize goal-directed actions. The executive network involves the prefrontal cortex (PFC) and is associated with directing attention and maintaining information, thus working memory (OSAKA; OSAKA, 2007). It is well known that executive functioning can be impaired by brain injury, age, and neurodegenerative diseases. According to Just et al. (1996), brain resources are measured in two ways: the volume of neural tissue that is activated above resting state and the mean activation of a volume. Studies of higher-order cognition have found that high-functioning individuals utilize fewer resources, displaying more focal activation (PRAT, MASON; JUST, 2011), what is known as neural efficiency (doing more with less). It has been reported as a functional indicator of individual differences among more-skilled and less-skilled readers (PRAT; JUST, 2010). In the area of multitasking, few studies have investigated the impact of individual differences. For instance, Buchweitz et al. (2012) did not find WMC to correlate with dual-tasking ability, possibly because the task was either too easy or too difficult for the participants. The researchers only recruited individuals who achieved an accuracy

rate of at least 75% in the dual task practice session before scanning, what represents around 35% of the initial sample of screened participants. In the authors' own words, "[...] the successful participants showed a change in the temporal organization of their neural processing, a shift in the timing relation among nodes in the language network, achieving higher functional connectivity in the dual task condition [...]" (BUCHWEITZ et al., 2012, p.1881).

Higher performers are capable of maintaining consistent levels of performance even when task difficulty increases, without consuming all cognitive resources. As stated by Just and Buchweitz (2014, p.10), "[...] high levels of performance in multitasking may be underpinned by neural efficiency; the use of fewer resources in areas of the prefrontal cortex, in turn, may be associated with the ability to automate task-specific dual-tasking processes." In turn, lower performers experience decrements in performance, since they select strategies of low efficiency, thus, consuming more brain resources. Cole et al. (2013) suggest the existence of fronto-parietal flexible hubs to explain how the brain implements the ability to adaptively control its own behavior. Braun et al. (2015, p.1) complement this view by claiming that "[...] individuals with greater network reconfiguration in frontal cortices show enhanced memory performance, and score higher on neuropsychological tests challenging cognitive flexibility."

Moving back to the educational context as discussed in the previous subsection about behavioral studies, such studies are difficult to be implemented inside a scanner due to its limitations. For instance, participants ought to remain still while being fMRI scanned, that is precisely why it is so difficult to study language production with fMRI. Therefore, studies are designed taking into consideration the limitations of the instrument. Dux et al. (2009) was the closest study to the educational context we found. Dux et al. (2009) examined how seven participants responded to training in multitasking. Despite not including any linguistic task, only distinct sensory-motor tasks, the study is relevant to mention in this review since it tackles the issue of training in multitasking performance. Participants received training on a daily basis during a period of two weeks. They were fMRI scanned before training, at the midpoint of training and after training had been concluded. According to the authors, in the literature there are two accounts of the training effects. The first posits that training results in a reorganization of the brain areas that support task performance while the second sustains that training improves the efficiency of the preexisting neural networks. As findings, reaction times were reduced with training and no additional areas were recruited in multitasking. The researchers concluded that training led to an increase in the speed of information processing in the prefrontal cortex, thus, allowing multiple tasks to be processed quickly. Training leads to more efficient multitasking, reducing the multitasking costs by decreasing the dependence on executive control. Efficient multitasking, rather than recruiting additional brain regions, is "[...] associated with better synchronization or coordination between task-related areas and more efficient use of neural resources [...]" (JUST; BUCHWEITZ, 2014, p.11).

As regards biology, the human brain did not change over thousands of years, but its cognitive capabilities keep expanding. Dehaene (2009) argues that cerebral plasticity allows our neuronal circuits to operationalize cultural and educational inventions such as reading and writing. His theory posits that the neural networks of the human brain are *recycled for reading* written language, since learning to read adapts and connects the occipital and temporal brain regions already present in the child, concentrating reading processes in the left-occipitotemporal letterbox area. In Dehaene's own words (2009, p.302), "only a stroke of good fortune allowed us to read". As our brains adapted themselves to read, they may be adapting themselves to multitasking.

## **Final remarks and future directions**

Bearing in mind that "a review is limited to the reviewer's own understanding of the topic and how the conclusions of each paper fit together" (PRICE, 2010, p.62), this paper aimed at articulating evidence from behavioral and neuroimaging studies on multitasking where at least one of the tasks involved language to corroborate two hypotheses longstanding in the field, that multitasking results in one task being performed more poorly than when performed alone (PASHLER, 1994; SCHMIDT, 2001), and that multitasking is a matter of synchronizing and utilizing more efficiently the available neural resources (SALVUCCI; TAATGEN, 2011; JUST; BUCHWEITZ, 2014). The paper sought to provide an understanding of how our brains cope up with the task of processing various tasks, various streams of information at a time. Additionally, we sought to articulate findings from studies that investigated how learning and performance take place under conditions of distraction. We selected six behavioral and five neuroimaging studies thought to represent the major areas explored by studies about multitasking where at least one of tasks involves language.

As reviewed here, dual-tasking/multitasking may be defined as a complex cognitive process that "usually results in at least one of the concurrent tasks being performed more poorly than when it is performed alone" (JUST; BUCHWEITZ, 2014, p.1). Multitasking demands more mental resources than single tasking, since the former requires complex cognitive processes to occur simultaneously while sharing a common infrastructure. Some scholars have proposed that it is not a matter of recruiting more brain areas; it is, instead, a matter of neural efficiency and neural synchronization. We have to keep in mind that many variables influence the studies such as the profile of the participants, the tasks used to examine the effects of multitasking, the level of automaticity participants exhibit in the tasks proposed, the procedures and instructions used, the results and the interpretation of findings. Overall, findings from the studies reviewed here agree with the literature that a network of brain areas is activated in the accomplishment of tasks and that activation in such areas is synchronized. In addition, the more demanding the task, the greater the amount of activation in the areas involved,

the greater the cognitive resource consumption. Such facts are reflected, for instance, in the legislation of countries like Brazil, that do not permit handheld cell phone use while driving.

With technology, new devices and new forms of communication are emerging, leading our brains to adapt themselves to the new requirements of living in this society. For better or worse, multitasking skills are required in such a high technology world. As far as we know, Carrier et al.'s study (2009) is the only one to compare multitasking across generations. They found that newer generations seem to be more used to multitasking although they recognize they cannot combine demanding tasks.

Although the ubiquity of multitasking is clear, learning and performance under conditions of distraction is a growing concern. Educators ought to be aware of the risks posed by new technologies. Bowman et al. (2010, p.930) recommend that “[...] the benefits must be weighed against the tendency students have to use media for irrelevant, social purposes that may distract significantly from the target academic tasks.” In addition, educators should understand the challenges of multitask and have time available to talk to students about the uses and limitations of multitasking as part of school information as well as help students become media literate. According to Ellis, Daniels and Jauregui (2010), if used appropriately, media technological tools are powerful devices with potential to enhance learning; but if used inappropriately, they can bring harmful outcomes to learning.

Future studies may clarify these issues, as well as how teaching may evolve to keep up and guide the digital native generation, how to teach teens and adults to deal with this increasingly multistream world. Just and Buchweitz (2014, p.14) advocate that “[...] the central scientific challenge is to further understand the brain mechanisms that both enable and constrain multitasking and to use this understanding to enhance learning and performance in educational, workplace, and recreational contexts.”

## Acknowledgements

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BAILER, C.; TOMITCH, L. Estudos comportamentais e de neuroimagem sobre multitarefa: uma revisão de literatura. *Alfa*, São Paulo, v.60, n.2, p.417-436, 2016.

- *RESUMO: Esta revisão de literatura objetiva articular evidências de estudos comportamentais e de neuroimagem que têm sido conduzidos sobre multitarefa, nos quais pelo menos uma das tarefas envolve linguagem. De forma bem simples, ser multitarefa é lidar com mais de uma tarefa ao mesmo tempo. Achados de seis estudos comportamentais e de cinco estudos de neuroimagem foram articulados com a literatura para corroborar duas hipóteses consagradas*

*na área, de que (1) ser multitarefa resulta em demonstrar desempenho inferior em uma das tarefas (PASHLER, 1994; SCHMIDT, 2001), e de que (2) ser multitarefa envolve sincronizar e utilizar de forma mais eficiente os recursos neuronais disponíveis (SALVUCCI; TAATGEN, 2011; JUST; BUCHWEITZ, 2014). Os estudos selecionados investigam compreensão auditiva e direção; compreensão auditiva e desempenho de tarefas de rotação mental; escuta dicótica e compreensão; leitura/participação em palestra e envio de mensagens; bilinguismo; o papel da inteligência e da capacidade de memória de trabalho; os efeitos do treinamento; e as escolhas multitarefa em gerações diferentes. Os resultados advindos dos estudos revisados corroboram a literatura e mostram que menos 'voxels' são ativados em uma rede de áreas cerebrais em situação multitarefa do que ao desempenhar as tarefas individualmente. Implicações dos achados para a educação também são tratados na revisão. Estudos futuros podem contribuir mostrando os mecanismos cerebrais que permitem e limitam os indivíduos em ser multitarefa, os efeitos do aprendizado em condições de distração bem como a maneira como o ensino pode evoluir para guiar as novas gerações.*

- **PALAVRAS-CHAVE:** *Multitarefa. Dupla tarefa. Estudos comportamentais. fMRI. Revisão de literatura.*

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# PAPER SUBMISSION INSTRUCTIONS

## *Alfa*: Revista de Linguística

### 1. Editorial policy

**ALFA – Revista de Linguística** – the linguistics journal of the São Paulo State University (UNESP), sponsored by the Research Provost, publishes papers authored by professors, researchers, and PhD students in co-authorship with professors and researchers from national and international institutions of learning, teaching and research. Maximum number of co-authors should be 3. Regular issues are organized in a “continuous flow” system, and special issues are edited according to the organizers’ convenience. The journal publishes papers, book reviews, interviews and translations with a substantial contribution to any of the various branches of Linguistics.

Contributions in the form of articles should be original and unpublished and cannot be simultaneously submitted for publication in other journal. Only reviews of books published in Brazil in the last 2 years and abroad in the last 4 years should be submitted for publication in the journal. Translations should be preferably of scientific articles and book chapters published within twelve months of submission; interviews should be conducted with researchers with academic prestige acknowledged in Brazil and abroad.

All submissions are read by two anonymous referees. Authors’ identities are not revealed to the referees. Should

the judgment of the two referees be inconsistent, a third referee will be called in. Once the refereeing process is concluded, the review copies are sent to the author, or to the first author of co-authored papers, with the appropriate instructions.

Papers can be written in one of the following languages: **Portuguese, English, French, Spanish, or Italian**. In papers written in **Portuguese**, **TÍTULO**, **RESUMO**, and **PALAVRAS-CHAVE** should come before the body of the paper, and their English versions, **TITLE**, **ABSTRACT**, and **KEY-WORDS**, after it. In papers written in any of **the other languages**, the corresponding elements that come before the body of the paper should be written in the same language the paper was written; the corresponding elements that come after the body of the paper should be written in **Portuguese** for papers written in **English** and in **English** for papers written in **French, Spanish, or Italian**.

All articles are published in a bilingual format, with English necessarily as the second language version. Authors who submit for approval an article originally in English must, in case it is accepted, provide its version in Portuguese, following the same guidelines indicated for the English language. Only articles with accepted versions in Portuguese (or another chosen language) and English

will be published. If both versions are not accepted, the article will not be published.

The journal editor reserves the right to return a manuscript if it departs from the style requirements. When applicable, a personal letter will be sent to the author, asking for improvements and adaptations.

Authors are responsible for the data and concepts expressed in the paper as well as for the correctness of the references and bibliography.

## 2. Online submissions

To submit a paper, authors must be registered on the journal's website. To register, create a login name and a password by clicking **Acesso** (Access) on the journal's website. After logging in, fill in the profile by clicking **Editar Perfil** (Profile Editing) and start the submission process by clicking **Autor** (Author) and then **CLIQUE AQUI PARA INICIAR O PROCESSO DE SUBMISSÃO** (Click here to start the submission process). Follow the **five-step submission process** below:

Step 1. Confirm the agreement to the Journal Policies (**Condições de submissão**) and the Copyright Terms (**Declaração de Direito Autoral**) by checking the appropriate boxes. Select either **Artigo** (Paper) or **Resenha** (Review paper). Save the form and go to step 2.

Step 2. Enter metadata: first name, last name, e-mail, bio statement, and paper title are obligatory. Save the form and go to step 3.

Step 3. Upload the paper file. Go to step 4.

Step 4. If necessary, upload supplementary files such as appendixes and annexes with research tools, data and tables, which should conform to the ethical standards of

assessment, sources of information usually unavailable to readers, and pictures or tables that cannot be inserted into the text itself. Go to step 5.

Step 5. Confirm the submission.

After confirming the submission, authors will receive a confirmation e-mail from the journal editor. After submission, authors can follow the process up, from submission and acceptance, through assessment and final version preparation, to on-line publication.

After submission, articles will be assigned to reviewers by the Editorial Board or special issue editors. The journal's Editorial Board and Editors are responsible for the policy of paper selection, which is available at the link **Sobre a Revista>Processo de Avaliação por Pares** (About the Journal>Peer Review Process).

## 3. Preparation of manuscripts

### 3.1. Presentation

Authors should ensure that their electronic copy is compatible with *PC/MSWord*, and use *Times New Roman*, *12-point* size. The page size should be set to A4 (21cm x 29.7cm), and the text body should be one-and-a-half spaced throughout. Leave 3 cm from the top of the page and on the left margin, and 2.0 cm from the bottom of the page and on the right margin. Articles should have a minimum of 15 pages and not exceed **30 pages**, including bibliography, appendixes, and annexes. The text must meet the rules of Portuguese new orthographic agreement, which became mandatory in Brazil from January 2016. Two versions of the paper must be

submitted: one containing the name and academic affiliation of author(s), and one in which all references to the author(s), including citations and bibliographical references are erased.

### 3.2. Paper format

The format below should be followed: **Title.** The title should be centered and set in **bold** CAPITALS at the top of the first page. Runover\* titles should be single-spaced.

**Author's name:** The name of each author follows the title and should be given in full with the surname in CAPITALS and aligned to the right margin, on the third line below the title, with a footnote marked by an asterisk referring to metadata in the following order: acronym and full name of the institution to which author(s) is(are) affiliated, city, state, country, zip code, e-mail.

**Abstract.** The abstract, which must summarize the contents of the paper (goals, theoretical framework, results, and conclusion), should conform to the following: it should appear on the third line under the name(s) of the author(s), contain at least 150 and at most 200 words, be single-spaced, and, with no indentation for the first line, be preceded by the word **ABSTRACT** in CAPITALS in the same language of the paper,

**Keywords.** Each keyword (seven, at most) is followed by a period. They should be preceded by the word **KEYWORDS** in CAPITALS, and appear two lines below the abstract. The Editorial Board suggests that the keywords should match general concepts of the paper subject domain.

**Body of the paper.** The body of the paper should be one-and-a-half-spaced throughout. It begins on the third line below the keywords.

**Subsection titles.** The subsection titles should be typeset in **bold** and aligned to the left margin. They should not be numbered. There should be two one-and-a-half-spaced blank lines before and one one-and-a-half-spaced blank line after each subsection title.

**Acknowledgements.** Acknowledgements should conform to the subsection title layout, and should be preceded by the word "**Acknowledgements**" set in **bold**.

**Title in English.** For papers written in Portuguese, French, Spanish and Italian, the title in English (with no capitals and no bold) should be placed two blank single-spaced lines after the paper text body.

**The abstract in English.** For papers written in Portuguese, French, Spanish and Italian, the abstract in English should be typeset in *italics*, be preceded by the word *ABSTRACT*, typeset in *italics* and in CAPITALS, with no indentation for the first line, be single-spaced, and be placed three blank single-spaced lines after the title in English.

**The keywords in English.** For papers written in Portuguese, French, Spanish, and Italian, the keywords in English should be typeset in *italics*, be preceded by the word *ABSTRACT*, typeset in *italics* and in CAPITALS, and be placed three blank single-spaced lines after the abstract in English.

NOTE: For papers written in English, the title, abstract, and keywords referred to in 7, 8 and 9 above, respectively, should be written in Portuguese.

**References.** The subtitle **References** should be set in **bold**, with no indentation for the first line, and placed two blank single-spaced lines after the keywords. The reference list should be single-spaced and ordered alphabetically and chronologically (see 3.3.1 below), placed three blank single-spaced lines after the keywords in English. **12. Bibliography.** The bibliography list, if essential, should come after the reference list. The word “**Bibliography**” should be set in **bold**, with no indentation for the first line, and placed three blank single-spaced lines after the reference list, aligned to the left. It will include all works not mentioned in the paper or in its footnotes.

### 3.3. Further instructions

**3.3.1 Reference guidelines** Both reference and bibliography lists should be ordered alphabetically by the last name of the first author. A single space should separate one reference item from the other. The names of the translators must be specified.

Examples:

#### Books

AUTHIER-REVUZ, J. **Palavras incertas:** as não coincidências do dizer. Tradução de Cláudia Pfeiffer et al. Campinas: Ed. da UNICAMP, 1998.

CORACINI, M. J.; BERTOLDO, E. S. (Org.). **O desejo da teoria e a contingência da prática.** Campinas: Mercado das Letras, 2003.

LUCHESE, D. **Sistema, mudança e linguagem:** um percurso na história da linguística moderna. São Paulo: Parábola Editorial, 2004.

#### Book chapters

PÊCHEUX, M. Ler o arquivo hoje. In: ORLANDI, E. P. (Org.). **Gestos de leitura: da história no discurso.** Tradução de Maria das Graças Lopes Morin do Amaral. Campinas: Ed. da UNICAMP, 1994. p.15-50.

#### Thesis and dissertations

BITENCOURT, C.M.F. **Pátria, civilização e trabalho:** o ensino nas escolas paulista (1917-1939). 1998. 256 f. Dissertação (Mestrado em História) – Faculdade de Filosofia, Letras e Ciências Humanas, Universidade de São Paulo, São Paulo, 1998.

#### Papers in journals

SCLIAR-CABRAL, L.; RODRIGUES, B. B. Discrepâncias entre a pontuação e as pausas. **Cadernos de Estudos Linguísticos**, Campinas, n.26, p. 63-77, 1994.

#### Online papers

SOUZA, F. C. Formação de bibliotecários para uma sociedade livre. **Revista de Biblioteconomia e Ciência da Informação**, Florianópolis, n.11, p. 1-13, jun. 2001. Disponível em: <...> Acesso em: 30 jun. 2001.

#### Newspaper articles

BURKE, P. Misturando os idiomas. **Folha de S. Paulo**, São Paulo, 13 abr. 2003. Mais!, p.3.



EDITORA plagiou traduções de clássicos. **Folha de S. Paulo**, São Paulo, 4 nov. 2007. Ilustrada, p. 6.

### Online publications

UNIVERSIDADE ESTADUAL PAULISTA. Coordenadoria Geral de Bibliotecas. Grupo de Trabalho Normalização Documentária da UNESP. Normalização Documentária para a produção científica da UNESP: normas para apresentação de referências. São Paulo, 2003. Disponível em: <...>. Acesso em: 15 jul. 2004.

### Paper in edited volumes, conference proceedings, and working papers

MARIN, A. J. Educação continuada. In: CONGRESSO ESTADUAL PAULISTA SOBRE FORMAÇÃO DE EDUCADORES, 1., 1990. **Anais...** São Paulo: UNESP, 1990. p. 114-118.

### Films:

**Macunaíma**. Direção (roteiro e adaptação) de Joaquim Pedro de Andrade. Filmes do Serro/Grupo Filmes/Condor Filmes. Brasil: 1969. Rio de Janeiro: Videofilmes, 1969. Versão restaurada digitalmente, 2004. 1 DVD (105 minutos), color.

### Paintings, photographs, illustrations, drawings:

ALMEIDA JÚNIOR. **Caipira picando fumo**. 1893. Óleo sobre tela. 17 cm X 23,5 cm. Pintura pertencente ao acervo da Pinacoteca do Estado de São Paulo.

PICASSO, Pablo. [**Sem título**]. [1948]. 1 gravura. Disponível em: <<http://belgaleria.com.br>>. Acesso em 19 ago. 2015.

### Music CDs (as a unit or tracks)

CALAZANS, T. **Teca Calazans canta Villa Lobos**. Rio de Janeiro: Kuarup Discos, 1999. 1 CD.

CALAZANS, T. Modinha. In: CALAZANS, T. **Teca Calazans canta Villa Lobos**. Rio de Janeiro: Kuarup Discos, 1999. 1 CD.

### 3.3.2. In-text references and quotations

For references in the text, the surname of the author should be in CAPITALS, enclosed in parentheses; a comma should be placed between the author's last name and year, e.g. (BARBOSA, 1980). If the name of the author is part of the text, only the year is enclosed in parentheses: "Morais (1955) argues..."

Page numbers follow the year and are preceded by "p."; note a comma and a space between year and "p.", and between "p." and the number, e.g. (MUNFORD, 1949, p. 513).

References of the same author with the same year should be distinguished by using lower case letters in alphabetical order, e.g. (PESIDE, 1927a), and (PESIDE, 1927b). For references with one author and up to two co-authors, semi-colons are used to separate the surnames, e.g. (OLIVEIRA; MATEUS; SILVA, 1943); for references with more than two co-authors, the expression "et al." substitutes for the surnames of the co-authors, e.g. (GILLE et al., 1960).

Quotations longer than three text lines should be set in 11-point font size, and set out as a separate paragraph (or paragraphs) on a new line. The paragraph (or paragraphs) should be 4.0 cm from the left margin throughout, without any quotation marks. Quotations shorter than three text lines should be included in double quotation marks in the running text. Quotations from texts in foreign languages must be translated into Portuguese. Published translations should be used whenever possible. The original text should appear in a footnote.

### 3.3.3. Italics, bold, underlining and quotation marks

**Italics:** Use italics for foreign words, book titles in the body of the text, or for emphasis.

**Bold:** Use bold only in the title of the article and in the text headings and subheadings.

**Underlining:** Avoid using underlining.

**Quotation marks:** can be used to highlight parts of the major works, such as titles of poems, articles, chapters. The major works should be highlighted in italics, as the statement above; quotation marks must be used in the body of the text for quotations of excerpts of works. Example: A linguística é uma disciplina que "[...] se baseia na observação dos factos e se abstém de propor qualquer escolha entre tais factos, em nome de certos princípios estéticos e morais" (MARTINET, 1972, p.3).

### 3.3.4. Footnotes

Footnotes should be kept to a minimum and placed at the bottom of the page. The superscript numerals used to refer to a footnote come after any punctuation sign (comma, semicolon, period, question mark, etc.).

### 3.3.5. Figures

Figures comprise drawings, graphs, charts, maps, diagrams, formulas, models, photographs, x-rays. The identifying caption should be inserted above the figures, centered, preceded by the designation word designative (Chart, Map, Figure etc); if there is more than one, figures must be numbered consecutively in Arabic numerals using the same font and size of the body of the text. Indication of the source and other information necessary for its understanding should appear below the figure. Figures should be submitted as separate files, saved in the program in which they were generated. Maps, photographs and radiographs should also be submitted as separate files, high-resolution (300 dpi). Author(s) are responsible for image copyrights.

### 3.3.6. Tables and text frames

Tables should be used to present statistical information, and text frames should be used to summarize and organize textual information. The title is inserted above the table, centered, beginning with **Table 1** in bold, followed by a hyphen and the title without emphasis, in the same font and size of the body text; the title of figures should be presented above the figure,

centered, beginning with Figure 1 in bold, followed by a hyphen and the title without emphasis, in the same font and size of the body text. The numbering is consecutive, in Arabic numerals; if you need to specify the data source, it must be placed below the table or the table and the text aligned to the left. Tables should be built with the open side borders and no lines separating columns.

### **3.3.7. Appendixes and Annexes**

When absolutely necessary to the text comprehension, and within the limit of 30 pages, Annexes and / or appendixes, following the subsection style, should be included in the end of the paper, after the references or bibliography.

### **3.3.8. Review format**

The review should contain, at the beginning, the complete reference to the book being reviewed, including number of pages, in Times New Roman, 14 point size, single spaced, no title, no summary, no keywords. The name(s) of the review author(s), in 12 point size, must appear on the third line below the reference of the book reviewed, preceded by "reviewed by [name(s) of author(s)]". Names must be followed by an asterisk referring to a footnote containing the following information: full name and acronym of the institution to which the review author(s) belong; city; state; country; zip code; email. The text of the review should begin on the third line below the name(s) of the author(s) in Times New Roman, 12 point size 12 and spacing 1.5.

Page format is as follows: paper size: A4 (21.0x 29.7 cm); left and top margins 3.0 cm, right and lower 2.0 cm; minimum length of 4 and maximum of 8 pages, including bibliographic references and annexes and/or appendices; indentation: 1.25 cm to mark the beginning of the paragraph; spacing: 1.5.

### **3.3.9. Translation format**

Translated articles are subjected to a peer review process, to decide on the opportunity and the convenience of their publication. They should follow the article format, where applicable. In the second line below the name of the author of the translated text, right-aligned, the name(s) of the translator(s) should appear in the following format: "Translated by [name(s) of the translator(s)]", with an asterisk referring to a footnote with the following information: full name and acronym of the institution to which the translator(s) belong; city; state; country; zip code; email. The translated text must be accompanied with a written authorization of the publisher responsible for the original publication.

### **3.3.10. Interview format**

Interviews are subjected to a peer review process, which decides on the opportunity and the convenience of its publication. The format of the interview is the same required for articles, but the title should contain, besides the general theme, the expression "Interview with [interviewee name]", without emphasis, with an asterisk referring to a footnote containing a brief review of the biography of the

interviewee, which clearly demonstrates her/his scientific relevance. The author(s) of the interview should follow, according to the rules established for articles.

### **3.3.11. English version**

The author(s) of paper accepted for publication in Portuguese, French, Spanish or Italian must provide the English version of the text until the deadline shown in the e-mail notification of acceptance. The standards for citation of authors in the text and the references of the English version are the same as the ones in Portuguese. *Alfa* appoints reviewers to evaluate the English version of the article. The review is restricted to checking the quality of translation, i. e. adequation to the standard norms of English usage for research papers.

In case there are citations of works with an English-language edition, this edition should be used both in the text and in the references. In case there is no English edition, the quoted text should be translated into English, and the text in the original language of the edition used must be included in a footnote.

If the text contains figures scanned from advertisements in newspapers, magazines or similar media, in Portuguese or another language, the English version of the text must be included in a footnote.

When the text contains examples the understanding of which involves the need to clarify morphosyntactic features, a literal version of them in gloss should be included, followed by the common English translation in single quotation marks. Example:

- (1) isso signific-a um aument-o de vencimento-s (D2-SP-360)  
this mean-IND.PRS.3.SG a.M raise-NMLZ of salary-PL  
'this means a raise in salary.'

Conventions for the glosses: *The Leipzig Glossing Rules: conventions for interlinear morpheme-by-morpheme glosses*, edited by the Department of Linguistics of the Max Planck Institute for Evolutionary Anthropology (Bernard Comrie, Martin Haspelmath) and the Department of Linguistics at the University of Leipzig (Balthasar Bickel); available in <http://www.eva.mpg.de/lingua/resources/glossing-rules.php>.

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