

Language in a Psycho/Neurolinguistic and Cognitive Neuroscience perspective

The study of language has increasingly become more multifaceted and complex, due to the broadening and interaction of its scope of interest with areas of interface, such as Cognitive Neuropsychology, Speech-Language Pathology, Natural Language Processing (NLP) and neurosciences (HUBNER, 2015).

This new perspective deepens the study of natural languages because it demands the joint work of the various areas that focus on language processing. The bases that underlie the linguistic fundamentals are thus enriched by these valuable and complementary contributions, sometimes developed for the application in instances such as social daily interaction, artificial intelligence, and health or teaching/learning fields.

In a complementary approach, the past decades have experienced the inclusion of technological resources. Such technologies brought a new perspective to the studies on human language and cognition. Among these techniques are those of transcranial magnetic stimulation, transcranial direct current stimulation, functional and anatomical brain imaging, and the measurement of brain electric activity as in the case of event-related potentials (ERP).

A clearly increasing concern with the holistic person who comprehends and produces language has emerged. Thus, attention has been given to individual and social issues, which may affect linguistic performance. Among these issues we find, among others, reading and writing habits, socioeconomic status, general physical and mental health conditions, and socialization. Moreover, studies on atypical language processing emerge in a growing representative way, portraying an arena that had not yet received the necessary attention by linguists.

Taking in account this multidisciplinary feature, the integration between Psycholinguistics, Neurolinguistics and Cognitive Psychology composes this edition of *Letras de Hoje*. Here, language is presented in a complex and multifaceted way, sometimes adopting the use of cutting-edge technological resources.

Thus, while encompassing typical language processing in Brazilian Portuguese, its mother tongue, the present edition incorporates studies on syntax, pragmatics, linguistic awareness, and reading, among others. It also includes

research on atypical language processing, focusing on language and cognition in the autism spectrum disorder, symptomatic speech analyses under the Saussurian perspective, and literacy in Down syndrome, among others. Bilingualism is also present, with studies on several languages, including Brazilian Sign Language. Also, a study on natural language processing (NLP) of texts in mild cognitive impairment (MCI) integrates the edition. In what follows, a brief description of the eighteen articles included in this dossier is presented.

The first article, *Effect of monolingualism and bilingualism in the anterior cingulate cortex: a proton magnetic resonance spectroscopy study in two centers*, by Brendan Weekes and colleagues, presents a multicentered study under the cooperation between researchers from Italy and Hong Kong. The study compared neuronal tissue metabolism and its relationship with conflict and interference effects as measured by the Flanker test in young bilingual adults (Cantonese-English) in Hong Kong and young monolingual adults in Italy. The study aims at discussing the possible impact of bilingualism in brain metabolism, with an especial attention to the anterior cingulate cortex.

The second article, *Effects of inhibition on naming in aging* [original title in Portuguese: *Efeitos da inibição sobre a nomeação no envelhecimento*], by Neumann and colleagues, analyzed the impact of inhibition in naming processing in aged adults. They concluded that successful naming seems to rely on the maintenance of inhibition abilities.

The article by Oliveira and colleagues, *Wh-interrogatives processing in Brazilian Portuguese: EEG and eyetracking evidences*, analyzes the processing of Wh-interrogatives of subject and object in Brazilian Portuguese.

Pinel and collaborators present the article *Social robots as communication promoters in the Autism Spectrum Disorders (ASD)* [original title in Spanish: *Los robots sociales como promotores de la comunicación en los Trastornos del Espectro Autista (TEA)*]. They investigate the viability of the introduction of robotics as an intervention method for the treatment of individuals with autism in an educational setting.

The fifth article that integrates this dossier is *Detection of Mild Cognitive Impairment in narratives in Brazilian*

Portuguese: First steps towards an automatized system, proposed by Treviso and colleagues. The manuscript focuses on the use of a tool for automatic discourse analyses to distinguish between healthy elderly and people with Mild Cognitive Impairment (MCI). They used the DeepBond method of automatic segmentation of sentences to extract nine syntactic complexity metrics from the transcriptions of oral discourses produced by these two groups.

The manuscript *Event-duration semantics in online sentence processing*, authored by Sampaio and França, analyzes iterative coercion, an effect related to the reanalysis of punctual events used in durative contexts. The authors argue that this effect is not related to aspectual features, and that event duration semantics is accessed during online sentence processing.

Koch and Fontes, in their article entitled *Correlation between bilingual linguistic experience factors and inhibitory control*, address the debate on the bilingual advantage in the executive functions hypothesis. They also explore the factors related to the bilingual linguistic experience which could correlate with an inhibitory control advantage.

Pinho, the author of the article *Cognitive neuroscience in the classroom: strategies to teach Spanish*, discusses how the knowledge of the human brain applied to the classroom can positively influence language learning. The author analyzes a proposal of a pedagogical material elaborated to teach Spanish.

The article *The construction of a task of recognition of the translation of Libras-Portuguese: Methodological considerations*, by Fonseca and collaborators, aims at reflecting on important methodological aspects to be adopted in the elaboration of psycholinguistic tasks investigating lexical access in bimodal bilingualism.

The article entitled *Young adults, older adults and elderly adults' silent and loud reading time*, by Porto and colleagues, compared reading time and eye movement control (with eyetracker) during reading in English and in Brazilian Portuguese by groups or readers in three age groups.

Otero and Teixeira, in their article *Sentence disambiguation in the phonological-syntax-semantic interface*, analyze the linguistic structure type whose disambiguation occurs based on the resolution of a conflict between three principles of different grammatical origins.

The processing of idiomatic expressions is the topic of the article entitled *Idiomaticity, familiarity and previous information in the processing of idiomatic expressions in Brazilian Portuguese*, by Barreto and colleagues. The manuscript analyzes the comprehension of idiomatic expressions of the verb-complement type in Brazilian Portuguese. The authors assessed how the internal and

external properties of the expressions can influence processing.

Silva and collaborators, in their article *Coordinate structures processing with ellipsis in Brazilian Portuguese*, explore the relationship between the processing of two types of coordinate sentences and the issue of decision-making regarding the parser.

The article entitled *What Neuroscience has to tell us (or not yet) about metaphor processing?*, authored by Forneck, discusses the interface between the theoretical paradigm on metaphors and the neurological basis of their processing, in a dialog between Neurosciences and Linguistics.

Flôres, in her article *Reading and linguistic consciousness*, discusses the perspectives that integrate the reading processing by emphasizing the role of biological, cognitive and social factors in reading learning and teaching.

Milano and Ribeiro, in *The operation of symptomatic speech beyond the distinction normal/pathological: Saussurian contributions*, question the statute of the distinction between normalcy versus pathology in the scope of language disorders research. They base their study on Saussurian theoretical assumptions.

Phonological consciousness in Down Syndrome is the topic of the article by Porcellis and collaborators, entitled *Phonological consciousness stimulation in Down Syndrome*. The manuscript aims at assessing and stimulating phonological awareness development in Down Syndrome.

Finally, *the use of communicative strategies in oral narratives produced by elderly people with mild cognitive impairment and Alzheimer's Disease* is the topic of the article by Machado. The author also analyzes the impact educational level in the use of these strategies by healthy elderly people.

In sum, coming from different approaches of language and other cognitive constructs, in populations spanning the whole age-range, and in individuals with typical and atypical language processing, this edition of *Letras de Hoje* aspires to contribute to language research and to deepen our understanding of the issues present in the current agenda of the studies on language and cognition. We wish the audience an excellent reading.

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Reference

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