

## **Reading comprehension with null pronoun modulated by the gender trait with bilingual speakers of Spanish/L2 and Brazilian Portuguese/L1: A contribution to the teaching of Spanish grammar in higher education**

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### **ABSTRACT**

The overall objective of this study is to evaluate how gender aids in reading comprehension, specifically by observing anaphoric co-reference with bilingual university students of Spanish/L2 and Brazilian Portuguese/L1. The methodology consists of written stimuli, sentences divided into segments, as required by the experimental technique of *offline reading*. In all, 42 stimuli will be used, 16 experimental and 26 distracting, followed by a comprehension question about the preference for resumption. The experimental sentences will be composed of temporal adverbial subordinate clauses comprise the analysis of the resumption of reading in the face of possible antecedents of the null pronoun, as well as the comparison between different types of resumption and the verification of the role of the gender trait in the adjective in the decision making of 08 university students. The justification emphasizes the importance of understanding anaphoric co-reference in bilingual contexts, especially in Spanish, and highlighting the lack of studies in this area. The results of gender in pronominal interpretation and the identification of strategies facilitate the understanding of bilingual speakers. It is concluded that this study can generate valuable insights for language didactics and promote advances in the understanding of linguistic processes in bilingual contexts.

**Keywords:** Coreference, Null pronoun, Reading comprehension.

### **INTRODUCTION**

According to psycholinguistics, a branch of linguistics that focuses on the processes of encoding and decoding, while connecting the states of messages to those of communicators, it is relevant to discuss and observe how higher education students understand and attribute meaning to the co-referencing of certain sentence elements with null pronouns (*pro*) and the influence of the gender trait, especially in bilingual students of Spanish/L2 and Brazilian Portuguese/L1 in training.

It is known that several morphosyntactic terms play a crucial role in understanding sentences in specific contexts, such as pronouns, conjunctions, and adjuncts, aiding in the construction of meaning and reducing the difficulty of decoding. The lack of these terms can lead to ambiguity, making sentences vague and subject to varying interpretations depending on the reader's preferences and context.

To effectively understand the utterances, the sender uses a variety of linguistic resources, and co-reference is a process highlighted by psycholinguistics, which occurs through various anaphoric forms, through pronouns, repeated names, etc. This co-reference occurs in a dynamic and mental way,

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introducing events and entities and combining relationships that are updated as the discourse goes on and new information emerges and Unfolding. (MELO, 2020 apud KOCH, 2004)

The influence of co-reference, revealed by anaphoric forms, is a process that allows access to mental representations of elements mentioned in a discourse, which are an integral part of a discursive model present in the memory of the interlocutors (PEREIRA, 2005), contributing to understanding. This co-reference can be established through various morphosyntactic devices in an explicit way, expressed directly in a discourse, or implicitly, suggested in the text, as occurs with the null pronoun (known as *pro*).

The use of this type of pronoun can cause a lack of understanding, requiring the help of distinctive morphological traits of the nature of the referred term, as hierarchically established by Carminati (2005), where the traits of Person > Number > Gender play a crucial role. An example of this can be seen in the sentences below, taken from the author:

- (1) When Mary called Marius, she was happy. When Maria ha chiamato Mario, she was happy.
- (2) When Mary called Marius, she was tired. When Maria ha chiamato Mario, it was stanca.

The use of adjectives that are common to both genders can cause ambiguity, as in sentence (1), where it is not possible to clearly determine to whom it refers, since the adjective "happy" is applicable to both the feminine and masculine genders. However, ambiguity is resolved when the anaphoric term indicates gender, as in the case of the sentence (2). It is evident that *cansada* explicitly demarcates the feminine gender, that is, she makes reference to Mary.

However, the analysis of co-reference becomes relevant when dealing with the group of bilingual speakers of Spanish/L2 and Brazilian Portuguese/L1. The accurate comprehension of utterances in a second language depends on several aspects of the subject's knowledge, ranging from vocabulary proficiency to syntactic comprehension (Cabral, 2015).

The general objective of the research is to understand whether gender helps in the reader's decision-making when interpreting the sentence. The specific objectives included evaluating the type of resumption of reading when there is a possible antecedent of the null pronoun, verifying whether the gender trait in the adjective facilitates reading in decision-making among its antecedents among Spanish learners, university level, of the Spanish language course at UPE – Campus Mata Norte.

The problem and hypotheses of this research revolve around reading comprehension in Spanish, focusing on the influence of the gender trait. The central question is whether the gender trait contributes to reading comprehension and what is the anaphoric comprehension in Spanish when this trait is present. The hypothesis raises the idea that null pronouns are more easily co-referred to when the gender trait is present for resumption of antecedents in the subject position.



The justification for this research is based on the importance of anaphoric co-reference through the *pro*, which can have different understandings. Thus, this analysis stands out due to the scarcity of studies on null pronominal interpretation in the Spanish language by learners of Spanish as a second language. In addition, the research seeks to fill gaps in the literature related to anaphoric resumptions, influenced by the interference of the learners' mother tongue. Understanding these linguistic processes is crucial for foreign language learners, as many of them face challenges in grammar, pronunciation, and structuring ideas due to the influence of their mother tongue.

## THEORETICAL MARCO

According to Carminatti (2005), the study of formal traits is a relatively new area in psycholinguistics, with most investigations focused on the processing of morphological traits of number and gender, known as nominal phi traits (Chomsky, 1995, 1998). Most of these studies have focused on the phenomena of number agreement between subject and verb in English. Bock et al. (cited by Bock and Eberhard, 1993; Eberhard, 1997) explored errors in the agreement between subject and verb in the production of sentences in English. In addition, psycholinguistic studies have examined the processing of gender information in languages that have grammatical gender, such as Italian and Spanish (cited by Vigliocco and Zilli, 1999; Garnham et al., 1993, 1995). These studies have been dedicated to investigating the processing of individual traits, without exploring whether different phi traits are processed differently.

The idea that morphological traits are structured in a hierarchical fashion and that they convey conceptual traits with different levels of cognitive relevance has clear implications for sentence processing, especially with regard to pronouns and their traits. We assume that there is a relationship between the cognitive meaning of one trait in relation to another and its disambiguation capacity, i.e., the more cognitively relevant the trait is, the more effective it will be in eliminating ambiguities from the pronoun that contains it (or the greater its disambiguation capacity).

We call this the "Trace Force Hypothesis" (Carminati, 2002). If this hypothesis is correct, the strength of the trace should interact with the pronoun resolution strategies used by the processor. When considering a strategy based on the antecedent bias of the null pronoun, we would predict that the strength of the trait has two effects: (1) speeding up the antecedent attribution process when it is in line with the antecedent bias of *pro*, and (2) decreasing the loss when the attribution goes against the bias.

It was observed in the experiment carried out among BP L2/Spanish speakers that, by manipulating the gender trait – masculine/feminine, feminine/masculine, feminine/feminine and masculine/masculine –, there is no adjective that has traits that can allow the resumption by subject or object (forcing the preference for the latter – which in some cases may not be cognitively more available compared to the



subject of the sentence – which is or can be marked by anaphoric expressions – in this case). if the PRO is analyzed, which has no syntactic or semantic mark, the preference usually falls on the subject and not on the object, in both languages, and there is, therefore, no significant difference between the linguistic factors involved in anaphoric processing for disambiguation (MELO, 2020).

Taking into account that the *pro* is not highly marked synthetically and semantically, for the identification of an antecedent it requires more from the working memory and because there is no mark such as the entity mentioned or referred to called the antecedent, if the system would be related to other cognitive aspects, such as: the storage capacity of the working memory, with regard to the degree of accessibility of the antecedents in relation to the structural position of the resumption, since the subject (parallel) was preferred in BP and L2/Spanish.

In this case, based on the stroke theory, it is understood that the absence of a dash does not interfere with the preference, at the time of interpretation of the *pro* (null pronoun) when resuming its antecedents. This is because subjects tend to prefer the subject and not the object because it has no trace. Therefore, if such traits are suppressed, the processing occurs more by virtue of the hierarchical structure than by the similarity or dissimilarity between languages.

Thus, it leads us to believe that it will be a universal phenomenon because it transcends languages, that is, different languages, same/identical preferences. This is because subjects tend to prefer the subject rather than the object because there is no trace.

## **METHODOLOGY**

The material consists of written stimuli, sentences divided into segments, as required by the experimental technique of *offline* reading. In all, 42 stimuli will be used, 16 experimental and 26 distracting, followed by a comprehension question about the preference for resumption. The experimental sentences will be composed of temporal adverbial subordinate clauses.

Example: **MFP: Male – Female – Parallel**

When Ivo went out with Maria through the village square, he was delighted with all the intense movement of the festivities.

**FMP: Female – Male – Parallel**

When Maria went out with Ivo through the village square, she was delighted with all the intense movement of the festivities.

**MMP: Male – Male – Parallel**

When Marcos went out with Ivo through the village square, he was delighted with all the intense



movement of the festivities.

### **FFP: Women – Women – Parallel**

When Maria went out with Sarah through the village square, she was delighted with all the intense movement of the festivities.

The distribution of the material will be carried out through *the Latin* square, having a design of the type *within subjects* (intra-subjects), which allows each participant to be exposed to all conditions and all types of structures, without repetition of sentences **and** will be programmed in *Google forms*. The offline technique is used, in which the interpretation referring to the null pronoun refers to the subject or object will be verified. We will apply the experiment with a minimum of 8 bilingual Spanish volunteer subjects with a university degree in Spanish Languages (UPE) of the fifth level through the internet. The participants, first, will get guidance before the questions and after the instructions the questions begin. Soon after, a comprehension question will appear about the resumption preference. And the participant will choose an answer from the options given according to the probed questions. The dependent variable will be the answers referring to the reference to the probe question and the independent variables the type of resumption of the null pronoun (subject or object). The project was posted on the Brazil platform, evaluated and approved by the Ethics Committee of the University of Pernambuco - CAAE: 44934721.8.0000.5195

### **RESULTS**

It is expected, according to Carminati (2005) and Melo (202), that the gender trait, when it appears in the adverbs of experimental sentences, facilitates pronominal interpretation and the identification of strategies facilitates the understanding of bilingual speakers.

### **FINAL CONSIDERATIONS**

This research seeks to fill gaps in the literature, which lacks studies to clarify controversies related to anaphoric resumptions, influenced by the interference of the learners' mother tongue. Understanding these linguistic processes is crucial for foreign language learners, as many of them face challenges in pronunciation and structuring ideas due to the influence of their mother tongue.



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