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Lexical Functional Grammar

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Pronoun Incorporation in European Portuguese:

A Lexical-Functional Grammar Approach

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List of abbreviations

BP	Brazilian Portuguese
c-structure	Constituent structure
EP	European Portuguese
f-structure	Functional structure
LFG	Lexical-Functional Grammar

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1 Introduction

In many Romance languages, including European Portuguese (EP), it is common to omit the subject pronoun without losing the meaning of the sentence (Toivonen 2023: 563, Kailuweit 2006: 87). This phenomenon, known as "pro-dropping", makes it possible to express the subject simply through verb morphology. Analyzing this phenomenon poses a particular challenge for Lexical-Functional Grammar (LFG), as this theoretical framework assumes neither movement nor empty categories, which poses particular methodological challenges in explaining pro-dropping (Toivonen 2023: 566). This challenge makes the topic particularly relevant for linguistic research.

Despite the relevance of the topic, there are only a limited number of studies that deal specifically with EP in the context of LFG (Thomas 2021: 49). In contrast, there is considerable literature on other Romance languages such as Spanish and Italian, which have structural similarities with EP (Toivonen 2023, Posio 2012, Carvalho, Bessett, Orozco & Shin 2015). At the same time, however, there are significant differences within the Portuguese language varieties, especially between Brazilian Portuguese (BP) and EP (Barbosa 2011, d'Alessandro 2015). Due to these differences, especially with regard to the use of null subjects, this thesis focuses exclusively on EP and clearly distinguishes it from BP.

The aim of this paper is to provide an approach, based on existing literature, on how pro-dropping can be handled properly in the context of LFG for EP. This study focuses entirely on the use of subject pronouns, other pronouns that could also be omitted are not addressed in this paper.

The paper is divided into various sections. It begins with the theoretical background, which includes a general definition of pro-drop languages, followed by a classification of pro-drop languages and a literature review summarizing relevant findings. The analysis section then applies Toivonen's (2023) framework to EP. This is followed by a critical discussion of the approach. Lastly, the paper concludes with a summary of the findings and their implications.

2 Theoretical Background

This section provides the theoretical background, beginning with a definition of pro-drop languages and their classification. It then proceeds with a literature review relevant to the topic.

2.1 Definition of Pro-drop Languages

Pro-drop languages are languages that permit the omission of morphologically independent pronouns despite the pronominal interpretation of the sentence (Toivonen 2023: 563). Therefore, pronouns do not have to be realized phonetically in such languages (Barbosa 2011: 551). This linguistic phenomenon is also referred to as null-subject languages, since they allow the use of a so-called null subject when the morphologically independent pronoun is absent (de Santana Silva & Baxter 2024: 2, Posio 2012: 6). The term "pro-drop" is derived from the longer version of "pronominal dropping" or "pronoun dropping" (Toivonen 2023: 563).

Pro-drop is not limited to subject pronouns, but can also include other arguments, such as in Chinese and Japanese. Nonetheless, the term "pro-drop" is commonly used to describe the absence of the subject pronoun (Posio 2012: 6). It is important to note that this paper will use the term "pro-drop", as the focus of this study is to analyze the absence of subject pronouns.

In pro-drop languages such as Portuguese, it is possible to express the subject pronoun either explicitly through an independent pronoun or linked to the verb form through a verbal affix (Barbosa 2011: 551, Kailuweit 2006: 87). When a pronoun is not expressed independently, it is referred to as pro-dropping. The following example illustrates this phenomenon in EP based on Toivonen (2023):

(1) **a)** Eu   bebo   café.   **b)** Bebo   café.
     I.NOM   drink.1SG.PRS coffee   drink.1SG.PRS coffee
     'I drink coffee.'   'I drink coffee.'

The example illustrates that a pro-drop language like EP can express a sentence like *I drink coffee* either through an independent subject pronoun, as in (1a), with the first-person singular pronoun *Eu*, or through the verbal affix *-o* in the verb *bebo* reflecting person and number of the subject (Toivonen 2023: 567).

2.2 Classification of Pro-drop Languages

Null subject languages can be divided into four different categories, although the exact term for each class may vary. In this paper, the classifications of d'Alessandro (2015: 203-205) and Barbosa (2011: 552) were combined to provide a comprehensive overview. The following four categories of pro-drop languages can be roughly classified:

Canonical or consistent pro-drop languages are characterized by a rich verbal inflection or subject agreement morphology and allow the pro-dropping of all subject pronouns. These languages include, for example, Portuguese, Italian, and Spanish.

Furthermore, there exist radical or discourse-pro-drop languages, characterized by the absence of verb inflection and agreement morphology. They permit the omission of all arguments, including but not limited to subjects. Chinese and Japanese are typical representative groups of this category.

Partial pro-drop languages permit the pro-dropping of subjects only under specific conditions. Examples of such languages are BP and Finnish.

The fourth category is defined in different ways in the literature. D'Alessandro (2015) proposes the classification of pro-drop languages, which solely permit the dropping of expletives. An example would be the Dutch language. Barbosa (2011), on the other hand, proposes the classification of semi-pro-drop languages, which solely permit non-referential null subjects, such as Yiddish or Icelandic.

2.3 Literature Review

The study of Romance languages within the framework of LFG has already produced extensive research. However, research on Portuguese within LFG is still limited (Thomas 2021: 49). Many of the existing research focuses on BP, which is problematic because BP and EP represent different categories of pro-drop languages (Barbosa, Duarte & Kato 2005). Although EP is classified as a consistent pro-drop language, BP belongs to the partial pro-drop languages and therefore requires separate consideration (d'Alessandro 2015, Barbosa 2011). Particularly, there exists a limited amount of research on the utilization of subject pronouns in EP. This statement is applicable not only to Portuguese but also to Spanish, despite the poor research situation for Portuguese, particularly in the European variety (Posio 2012: 2). Although some studies have examined the use of subject pronouns in EP, the focus is often on the comparison with BP (Posio 2012, Barbosa et al. 2005). These studies indicate that BP is losing its status as a pro-drop language, with the result that these studies contribute little to the study of EP (Barbosa 2011: 130, Posio 2012: 2). Therefore, not only does the European variety need to be classified differently, but it also shows a different status as BP is currently in the process of losing its status as a pro-drop language altogether. The phenomenon of pro-dropping has been extensively researched, particularly in Romance languages such as Italian and Spanish (Posio 2012, Kailuweit 2006, Toivonen 2023). However, EP shows similar characteristics to Italian and Spanish, which facilitates the comparison between EP and these languages, since they fall into the same category of pro-drop languages (Posio 2012: 26). Especially EP and Spanish show considerable similarities. For example, subject dropping occurs in similar contexts in both languages, and they also have almost identical verb paradigms (Carvalho et al. 2015: 147). These findings provide evidence that EP and Spanish are comparable regarding subject

expression. Considering the research question of how LFG analyzes pro-dropping in EP, no specific literature could be found. However, Toivonen's (2023) framework, which addresses the analysis of pro-dropping in languages such as Italian, Spanish, and Finnish within LFG, presents valuable insights. Her work proposes a comprehensive approach for analyzing pro-dropping in LFG.

To summarize, while existing research offers many findings on pro-drop languages in general, specific studies on EP are comparatively rare. This highlights the necessity for additional research, specifically to enhance comprehension and analysis of the utilization of subject pronouns and pro-dropping in EP. Nevertheless, there is some research into other romance languages that can be used for comparison to Portuguese.

3 Analysis

As stated in the literature review, research indicates that Romance languages are comparable in terms of pro-dropping. Parallels can be found between Italian, Spanish, and Portuguese, particularly when it comes to subject expression. However, it is crucial to distinguish between the varieties of Portuguese, namely EP and BP. This distinction is necessary because EP is classified as a consistent pro-drop language, and BP is classified as a partial pro-drop language, more specifically in the process of losing its status as a pro-drop language.

Furthermore, the literature indicates that EP and Spanish have several similarities, including almost identical verb paradigms. As there was no adequate literature describing how LFG deals with pro-dropping in EP, Toivonen's (2023) framework was used. Toivonen's (2023) work offers an analysis of how LFG handles pro-dropping in languages such as Italian, Spanish, and Finnish. Due to the comparability of EP with other Romance pro-drop languages, particularly Spanish, this framework was utilized as a proposed solution for analyzing pro-drop, specifically subject pro-drop, in LFG for EP. In the subsequent section, the analysis of Toivonen (2023) is applied to EP.

In LFG, pro-drop is analyzed in terms of pronoun incorporation. Pro-drop is seen as a phenomenon in which the verb is rich in agreement marking. The verb morphology provides information about the subject's person, number, and sometimes gender. When the subject pronoun is dropped, the subject pronoun becomes redundant. Pro-dropping in LFG is typically analyzed as pronoun incorporation (Toivonen 2023: 564). This indicates that the morphology of the verb serves a dual function: firstly, as an agreement morpheme to the subject, and secondly, as an incorporated pronoun when the pronoun is omitted (Toivonen 2023: 563).

In a standard LFG analysis, it is not assumed that a pronoun is dropped. Movement is also not assumed in the LFG for pro-dropping. Instead, it is assumed that the morphology of the verb represents the pronoun. It is assumed that the agreement morpheme functions as an incorporated pronoun when no independent pronoun is explicitly expressed (Toivonen 2023: 566).

In order to comprehend how LFG handles pro-dropping, it is important to examine the constituent structures (c-structures) and functional structures (f-structures) The c-structure provides information about the syntactic categories, word order, and constituents, while the f-structure describes formal features and syntactic functions, such as subjects. The separation of the c-structure from the f-structure is of crucial importance when it comes to pronoun incorporation (Toivonen 2023: 566).

The illustration (2) from EP, derived from Toivonen (2023: 567) example for Finnish, serves to provide clarification. In a standard LFG analysis, it is assumed that the verb morphology provides information about the subject, which represents the subject. In the case of the verb *beber* 'to drink' in its conjugated form *bebo* for the first-person singular, the verbal affix *-o* conveys crucial morphological information. In the case of the sentence (1b) the c- and f-structures would look like this:
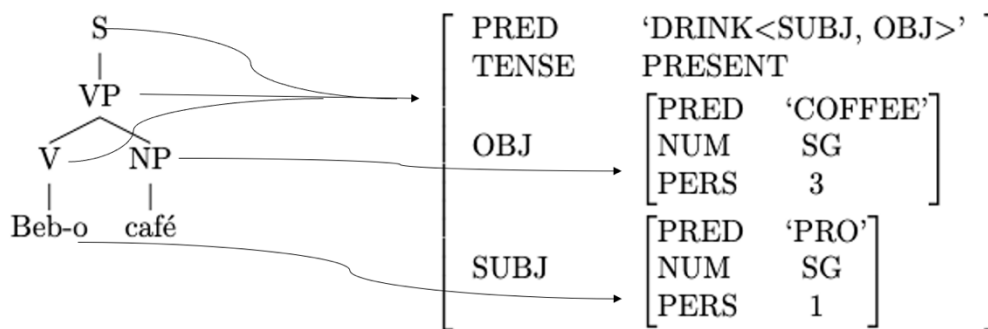
(2)

Figure 1: Bebo café

The c-structure does not access the verb's internal structure. Rather, the terminal nodes in the phrase structure are considered morphologically complete words. This means that the c-structure focuses on the analysis of whole words and not on the individual components of which these words are composed (Toivonen 2023: 567). Therefore, the verb *bebo* in (2) is fully formed in the lexicon and not in either the c-structure or f-structure.

The c-structure and f-structure thus allow for mismatches. Different f-structures can receive information from the same word. Both the main f-structure and the subject f-structure receive

information from the verb, which is expressed by the arrows in Figure (2) (Toivonen 2023: 567-568).

It is also possible that the same f-structure may receive information from different words. In the example of (1a), the subject receives information from both the independent pronoun *Eu* and the agreement morphology *-o* in the verb *bebo* (Toivonen 2023: 568). The corresponding c-structure and the f-structure is illustrated in (3).
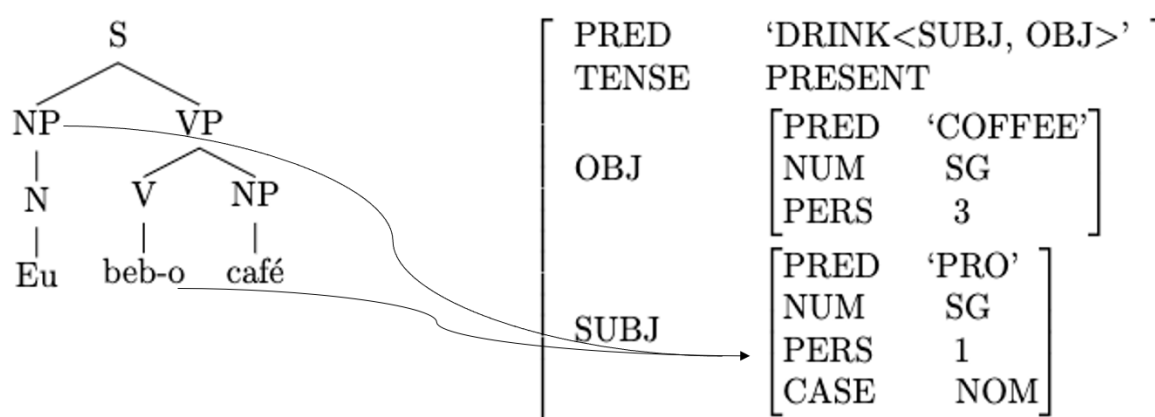
(3)

Figure 2: Eu bebo café

It is essential to understand how LFG deals with pronoun incorporation by understanding the separation of f-structure and c-structure. Both examples appear to have a similar f-structure. The f-structure in the examples only differs in that *Eu* has a nominative case feature (Toivonen 2023: 571). The fundamental difference lies in the c-structure and the way information is shared between the c-structure and the f-structure. In subject-pro-drop languages, the information can either come exclusively from the verb morphology as in (1b) or jointly from the subject pronoun and the verb as in (1a) (Toivonen 2023: 568). Nevertheless, it should be noted that the two entries have different forms: *Eu* is an independent word, and *-o* is a bound morpheme (Toivonen 2023: 571).

The difference lies in their function. In (1a), the verb morphology serves as an agreement marker and agrees with the independent subject in both person and number. In 1b, however, the verb morphology acts as a pronoun, since it is connected to the verb form. The affix *-o* therefore has a dual role, either as an agreement marker or as an incorporated pronoun (Toivonen 2023: 569).

The PRED feature holds significant importance in comprehending the dual function of verb morphology. Pronouns have a PRED feature, but agreement markers do not have one. The PRED feature is different from other features because its value is unique and cannot be

combined with another PRED feature, even if they are identical (Toivonen 2023: 569). The singular quotation marks surrounding the word 'PRO' (e.g. (2) and (3)) indicate the distinctiveness of the PRED feature (Toivonen 2023: 571). Based on these findings, the lexical entry for the EP first person singular ending *-o* could look like this (Toivonen 2023: 569):

$$
\begin{aligned}
-o \qquad &(\uparrow \text{SUBJ NUM}) = \text{SG} \\
&(\uparrow \text{SUBJ PERS}) = 1 \\
&((\uparrow \text{SUBJ PRED}) = \text{`PRO'})
\end{aligned}
$$

The first two lines specify that the subject of the verb must be first person singular. The third line contains an optional PRED feature, which enables the dual role of verb morphology (Toivonen 2023: 569). This lexicon entry results in two possible entries:

$$
\begin{aligned}
-o_1 \qquad &(\uparrow \text{SUBJ NUM}) = \text{SG} \\
&(\uparrow \text{SUBJ PERS}) = 1 \\
&(\uparrow \text{SUBJ PRED}) = \text{`PRO'}
\end{aligned}
\qquad\qquad
\begin{aligned}
-o_2 \qquad &(\uparrow \text{SUBJ NUM}) = \text{SG} \\
&(\uparrow \text{SUBJ PERS}) = 1
\end{aligned}
$$

The result is two lexicon entries, one with a PRED value and the other without one. This is consistent with the dual role of verb morphology without violating the uniqueness of the PRED feature. When no independent pronoun is present, the verbal affix $-o_1$ functions as an incorporated pronoun. Therefore, the verb morphology is a pronoun and has a PRED feature. In contrast, $-o_2$ functions as an agreement marker that aligns with the subject in person and number without possessing a PRED feature. The affix $-o_2$ cannot occur without an independent pronoun; otherwise, it would possess a SUBJ feature without a PRED value. According to the LFG principle of completeness, every semantic argument must include a PRED feature. This is also guaranteed by the option $-o_2$ (Toivonen 2023: 569-570).

Both the independent pronoun *Eu* and the verbal affix $-o_2$ function as pronouns, as they both have the PRED feature. However, they have different morphological realizations. LFG therefore allows the c-structure to look different, but still have the same functions in the f-structure (Toivonen 2023: 571).

The analysis explains how LFG explains the phenomenon of pro-dropping in EP through the incorporation of pronouns. The separation and interaction of the c-structure and f-structure are of central importance in understanding the dual function of verb morphology. The PRED feature plays an essential role in ensuring syntactic integrity and preventing morphemes from functioning as both agreement markers and incorporated pronouns, thus preventing ambiguity.

This analysis provides a comprehensive approach to analyzing pro-drop phenomena in EP within the LFG.

4 Critical Discussion

Toivonen's (2023) work provides valuable insights into the phenomenon of pro-drop, especially with regard to languages such as Italian, Spanish, and Finnish. However, it is important to note that Toivonen's (2023) analysis does not explicitly reference EP or Portuguese in general. She does not indicate that her methodology could be applied to other Romance languages without any adjustments. Therefore, it should be questioned whether the framework she has developed can be directly applied to Portuguese.

Even though the literature suggesting that Romance languages like Portuguese, Spanish, and Italian share numerous similarities, it is important to evaluate this assumption with caution. Despite numerous studies demonstrating similarities between these languages, there are also studies that highlight significant distinctions, particularly in the frequency of null subjects (Posio 2012, Carvalho et al. 2015). For example, differences have been found between EP and Spanish, although the pro-drop phenomenon occurs in similar contexts and the verb paradigms are almost identical (Posio 2012: 2). These differences indicate that a framework developed for one language is not readily transferable to another, despite their structural similarity. Another critical point is the limited availability of specific literature on pro-drop in EP, especially in the context of LFG. The literature on EP research is generally less extensive, and only a handful of works specifically address the phenomenon of pro-dropping in Portuguese (Thomas 2021: 49). Furthermore, the analysis was conducted solely using a single author's framework, thereby restricting it to a specific theoretical perspective. Therefore, it would have been beneficial to compare different theoretical approaches in order to critically evaluate the chosen approach and consider alternative solutions. This would be especially helpful for assessing the reasons for the application of a particular framework to another language and determining any necessary modifications.

5 Conclusion

This paper examined the phenomenon of pro-dropping in EP within the framework of LFG. Pro-dropping languages, including EP, allow the omission of morphologically independent pronouns without losing the pronominal interpretation of a sentence. These languages can use both explicit subject pronouns and subjects expressed through verb morphology (Toivonen 2023: 563, Kailuweit 2006: 87).

The study categorizes pro-drop languages into four types, identifying EP as a canonical pro-drop language (d'Alessandro 2015, Barbosa 2011). This classification highlights the importance of considering the differences between EP and other Portuguese varieties, especially BP, which is categorized as a partial pro-drop language and differs from EP in some key aspects (Barbosa 2011, d'Alessandro 2015).

Nevertheless, the study demonstrates significant comparability between EP and other Romance languages like Spanish, particularly in their verb paradigms, justifying the application of Toivonen's (2023) framework to EP (Carvalho et al. 2015). The analysis employs Toivonen's (2023) framework, viewing pro-drop as a phenomenon of pronoun incorporation. Verb morphology assumes a dual role: as an agreement marker and as an integrated pronoun when an independent pronoun is omitted. This dual role is provided by the optional PRED feature in the lexical entry of the affix.

A crucial aspect of the analysis is the separation of c-structure and f-structure, allowing verb morphology to perform different functions across various contexts without any loss of information. This separation is essential for ensuring the flexibility of verb morphology and preventing ambiguities. The uniqueness of the PRED feature is key in preventing morphemes from functioning simultaneously as agreement markers and integrated pronouns (Toivonen 2023).

In conclusion, this study shows how LFG analyzes pro-drop in EP through pronoun incorporation, with the distinction between c-structure and f-structure enabling verb morphology to serve dual roles. The unique PRED feature further ensures syntactic integrity (Toivonen 2023). However, the application of findings from other languages to EP has its limitations, indicating the need for further research in LFG.

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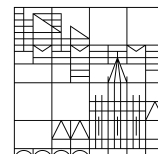
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