

The acceptability of logophoric anaphor in Brazilian Portuguese

A aceitabilidade da anáfora logofórica em português brasileiro

Flávia Gonçalves Calaça de Souza

Universidade Federal da Paraíba, João Pessoa, Paraíba / Brasil
flavia.ufpb@hotmail.com

Rosana Costa de Oliveira

Universidade Federal da Paraíba, João Pessoa, Paraíba / Brasil
rosana.ufpb@gmail.com

Judithe Genuíno Henrique

Universidade Federal da Paraíba, João Pessoa, Paraíba / Brasil
judithegh@gmail.com

Abstract: This study sought to investigate whether or not these logophoric structures are acceptable or not for the speakers of Brazilian Portuguese (BP). Both syntactic and semantic approaches have been used to explain logophoricity and a strong theoretical discussion has been conducted as to what kind of approach would be best to account for this phenomenon. Authors such as Reinhart and Reuland (1993) points out that logophoric anaphora exists separately from syntactic anaphora in Universal Grammar. The syntactic anaphora is guided by syntactic factors, such as location and c-command. By contrast, logophors may or may not notice these syntactic conditions. These studies also demonstrate that, in cases of logophoricity, the pronoun and anaphora are interchangeable, therefore, either one or the other can be used in the same position in the sentence. Based on these theoretical assumptions, we examine the acceptability of logophoric buildings in BP in order to know if they are present in the grammar of the speakers of that language.

An offline experiment of acceptability judgment was conducted, given that, according to Gibson and Fedorenko (2013), linguistic intuition is insufficient to verify such an acceptability. The following experiment demonstrated that the results were significant for logophoric anaphoras, which shows that a degree I anaphoras and logophoric pronouns are different. No significant result was observed for the pronoun, which does not allow us to point out that are not licensed in BP.

Keywords: judgment of acceptability; logophoricity; anaphora; pronoun.

Resumo: Este trabalho buscou investigar se as estruturas logofóricas são aceitáveis ou não para os falantes do português brasileiro (PB). Diversas abordagens sintáticas e semânticas têm sido usadas para explicar a logoforicidade, e uma forte discussão teórica é sobre qual tipo de abordagem melhor dá conta do fenômeno. Autores como Reinhart e Reuland (1993) apontam que a anáfora logofórica existe separadamente das anáforas sintáticas na Gramática Universal. As anáforas sintáticas são guiadas por fatores sintáticos como localidade e c-comando. Já a logófora pode ou não observar essas condições sintáticas. Esses estudos também demonstram que, nos casos em que há logoforicidade, a anáfora e o pronome são intercambiáveis, ou seja, tanto um quanto o outro podem ser usados na mesma posição na frase. Com base nesses pressupostos teóricos, examinamos a aceitabilidade de construções logofóricas em PB com a finalidade de saber se elas estão presentes na gramática dos falantes dessa língua. Foi realizado um experimento *off-line* de julgamento de aceitabilidade, visto que, segundo Gibson e Fedorenko (2013), a intuição do linguista não é suficiente para averiguar tal aceitabilidade. O presente experimento mostrou que a anáfora logofórica é licenciada em PB, o que aponta que os sujeitos veem a anáfora logofórica e o pronome logofórico como diferentes. Não houve resultado significativo para o pronome, o que não nos permite apontar que não são licenciados em PB.

Palavras-chave: julgamento de aceitabilidade; logoforicidade; anáfora; pronome.

Received on: December 10, 2016

Approved on: April 04, 2017

1 Introduction

The Binding Theory (CHOMSKY, 1981), seeks to study the coreference relations that exist between nominal and pronominal expressions, within the scope of a sentence. To explain such relations, Chomsky (1981) proposes three principles that govern these relations, namely:

- (1) Principle A – An anaphor must be A-bound in its binding domain.¹
- Principle B – A pronominal must be A-free in its binding domain.
- Principle C – An R-expression must be A-free.²

Principle A, which refers to reflexive and reciprocal anaphors (self, one another), predicts that an anaphor must be bound in its binding domain, that is, be bound by an antecedent that is c-commanded in its local domain. A c-command is understood as the syntactic notion of binding between two constituents. Let us observe the example below:

- (2) [*O neto do João*]_k³ *se*_{i/*k} *adora*. ([João's grandson]_k loves himself_{i/*k}.)

In this example, the DP⁴ “*O neto do João*” (João’s grandson) is the antecedent of the anaphor “*se*” (himself); therefore, the DP “*O neto do João*” (João’s grandson) c-commands the anaphor “*se*” (himself).

Principle B refers to the pronouns, and states that all pronouns are free in their binding domain, that is, the antecedent and the pronoun may not be on the same sentence. Let us see the examples below:

¹ A binding domain is understood as being the limit presented by the anaphora and its antecedent..

² Binding Principles (CHOMSKY, 1981)

A. An anaphor must be A-bound in its binding domain.

B. A pronominal must be A-free in its binding domain.

C. An R-expression must be A-free.

³ Indexation index..

⁴ Determiner Phase

- (3) a. [*Penha_i acha que [Bruna vestiu ela_i com o vestido.]*]
 ([Penha_i thinks that [Bruna dressed her_i with the dress.]])
 b. **[Penha acha que [Bruna_i vestiu ela_i com o vestido.]*]
 ([Penha thinks that [Bruna_i dressed her_i with the dress.]])

Sentence (3a) is absolutely plausible, given that the antecedent is outside the pronoun domain, unlike sentence (3b), which is ungrammatical, since we have the pronoun and its antecedent in the same domain, as contended by the Binding Theory.

Finally, there is Principle C. This principle mentions referential expressions, which must be free in all occurrence contexts, since they have referential autonomy and, therefore, do not need to be bound. Let us observe the example below:

- (4) *O João observou o Pedro na sala.* (João observed Pedro in the room.)

In some cases, the anaphor is not constrained by the binding conditions proposed by Chomsky (1981), as shown by Reinhart and Reuland (1993). These authors refer to this type of anaphor as logophoric. As we can see:

- (5) *Maria contava cinco pessoas na cozinha, além de si mesma/dela.*
 (Maria counted five people in the kitchen, in addition to herself/her.)
 (6) *Carlos viu uma blusa perto de si/dele.* (Carlos saw a shirt next to himself/him.)

In the examples above, the anaphor is in an adjunct prepositional phrase (PP)⁵ and is not an argument required by the verb. According to Reinhart & Reuland (1993), Chomsky (1981; 1986) does not explain the contexts exemplified in (5) and (6), precisely because the anaphor and its antecedent are not coarguments. These anaphors do not behave as predicted by the Binding Theory, since it does not explain the coreference with antecedents outside the binding domain.

⁵ Prepositional phrase

Based on these and other examples, Reinhart and Reuland (1993) observe the anaphors from the argument standpoint, indicating that the anaphor is logophoric when it is not in an argumental position. The syntactic anaphor, as its name indicates, is guided by syntactic factors such as location and c-command, while the logophoric anaphor is related to discursive factors. This is shown by the examples below:

- (7) *João se vangloriava de que o prefeito convidou Ana e ele mesmo para um café da manhã.* (João boasted that the mayor invited Ana and himself to have breakfast.)
- (8) *Vânia encontrou tempo para verificar que, além dela mesma, havia um outro funcionário que tinha sido demitido.* (Vânia found time to verify that, besides herself, another employee had been fired.)

The sentences above reveal that Chomsky's (1981; 1986) predictions for anaphors may not be verified, since the anaphor is not in the binding domain in either of the sentences above. Zribi-Hertz (1989) provides approximately 130 examples, such as those provided above, of sentences in which that anaphor is not in an argumental position.

Reinhart and Reuland (1993) also state that it is possible to have a logophoric pronoun whenever there is a logophoric anaphor, as in (9) and (10):

- (9) *Carlos estava chateado quando Júlia colocou Bruno e ele mesmo em perigo no paraquedismo.* (Carlos was upset when Júlia put Bruno and himself at risk in parachuting.)
- (10) *Carlos estava chateado quando Júlia colocou Bruno e ele em perigo no paraquedismo.* (Carlos was upset when Júlia put Bruno and him at risk in parachuting.)

The type of structure present in sentences (9) and (10) is discussed at length by both Pollard and Sag (1992) and Reinhart and Reuland (1993), as this is consistent with the fact that, in English, the pronoun is an acceptable means of alternating with the anaphor, maintaining the same interpretation.

The present work focuses on determining the acceptability of the logophoric anaphor and the logophoric pronoun in Brazilian Portuguese (BP), that is, this study's goal was to investigate if subjects consider sentences with logophoric anaphors and logophoric pronouns to be acceptable or unacceptable according to their intuition.

Gibson and Fedorenko (2013) indicate that, although the researcher's intuitions are useful to several studies, many others do not allow for high reliability based only on intuition, and require a stricter methodological control to detect the subtleties and to distinguish among different theoretical positions. The author also states that a major problem in the syntax field of study is that many articles do not include the experimental evidence to support their research hypotheses. The author also recommends that the studies collect quantitative evidence to ensure an improvement in this field of study. Taking such importance into account, this research focuses on the Acceptability Judgment quantitative method, in which the subjects evaluated sentences with logophoric anaphor and logophoric pronoun with the intent to present reliable data on the acceptability of these sentences.

The key goal of the off-line acceptability judgment performed was to observe the acceptability of anaphors deemed as logophoric, especially the anaphor "*ele mesmo*" ("himself") in BP, in order to compare it to the pronoun "*ele*" ("him"), to understand if, similarly to the English language, this phenomenon is present in the grammar of BP speakers. By hypothesis, based on Reinhart and Reuland's (1993) Reflexivity Theory, these theories would be acceptable and would not violate the binding conditions, given that they are not constrained to them.

It is important to note that there is a lack of studies in BP on the resolution of logophoric structures, as well as the processes it requires. Therefore, this work, in addition to verifying the acceptability of logophoric structures in BP, sought to conduct a bibliographic review of the studies performed on this topic in other languages, which indicate that logophoric anaphors occur separately from syntactic anaphors in Universal Grammar (UG).

2 Logophoricity in Linguistics

Although the relations involving anaphors, pronouns, and their antecedents in some cases are established in compliance with the constraints imposed by the Binding Theory (CHOMSKY, 1981), some studies (REINHART; REULAND, 1993; ZRIBI-HERTZ, 1989) show that these forms may be interpreted otherwise. As indicated above, logophoricity occurs in these cases, and it has been characterized and defined based on several perspectives. One of these perspectives is that it is not subject to the c-command and position constraints imposed by the Binding Theory for having a logophoric status.

Chomsky's (1981), Reinhart and Reuland's (1993) and Zribi-Hertz's (1989) approaches will be outlined in detail below, to provide a descriptive survey of this scarcely researched topic. Some of these approaches view the logophoric anaphor from the c-command configuration, that is, not only limiting and defining it by means of constraints of a syntactic nature, but also observing the discourse and semantics prior to the syntax. Zribi-Hertz's (1989) approach, for instance, gives theoretical priority to discursive factors. If these are not sufficient, the syntactic domain is sought.

2.1 Chomsky (1981)

The Binding Theory formulated by Chomsky (1981) describes the syntactic constraints on anaphors, pronouns, and referential expressions. He postulated three binding principles: A, B, and C. Principle A predicts that an anaphor must be bound to the antecedent that is within its domain, that is, it must be bound to the antecedent within the minimum clause that contains the anaphor. In addition to the presence of a local antecedent, principle A also predicts that the antecedents c-command the anaphor. The sentences below are two examples of anaphors bound to their local antecedent:

- (11) *[A prima de Joana]_i se_i acha muito bonita.* ([Joana's cousin]_i finds herself_i very pretty.)
- (12) *O Carlos_i machucou ele mesmo_i enquanto cozinhava.* (Carlos_i hurt himself_i while cooking.)

Examples (13) and (14) below show a DP that is not c-commanding the anaphors *se* (herself) and *ele mesmo* (himself), since, according to the Binding Theory, the anaphor *se* (herself) may not refer to Joana, and the anaphor *ele mesmo* (himself) may not refer to Carlos, making the sentences ungrammatical.

(13) **A prima de [Joana]_i se_i acha muito bonita.* (*[Joana's]_i cousin finds herself_i very pretty.)

(14) **O Carlos_i machucou Vivian e ele mesmo_i enquanto cozinhava.* (*Carlos_i hurt Vivian and himself_i while cooking.)

Principle B predicts that the pronoun is free in its binding domain. In sentence (15) below, the pronoun *ela* (she) may not have the *Maria* DP as its antecedent, since it is within its binding domain.

(15) **A Maria_i adora ela_i.* (*Maria_i adores her_i.)

Principle B, therefore, imposes that the pronoun may not be bound to its local antecedent, differently from principle A, which states that the anaphor must be bound to this antecedent.

Principle C, however, determines that referential expressions must be free in any syntactic context, that is, they may not be bound. In (16), the R-expression *o animal* (the animal) does not have antecedent within the sentence, which makes it ungrammatical. R-expressions do not require an antecedent element to extract their meaning, that is, they are referentially independent, which sets them apart from anaphors and pronouns, which have a referential dependency.

(16) *O animal fez um grande barulho.* (The animal made a great noise.)

Also in accordance with the Binding Theory, anaphors and pronouns are in complementary distribution. That is, an element can only be in the sentence where the other cannot. Hence, for a sentence to be deemed grammatical, these elements must be in opposite environments. An anaphor must be bound and a pronoun must be free. Therefore, if an anaphor has an antecedent within the same clause that includes it, it is grammatical. However, if this very sentence included a pronoun rather than an anaphor, the sentence would be ungrammatical. Nevertheless, several authors have demonstrated that this complementary distribution

may not always be identified, since sentences such as (17) are considered to be grammatical.

- (17) *Mateus_i sabia que ninguém gosta de João e dele mesmo_i/dele_i por causa de suas personalidades.* (Mateus_i knew that no one likes João and himself_i/him_i because of their personalities.)

Reinhart and Reuland's (1993) proposal described below recommends that anaphors, such as the one in example (17), be observed based on the notion of arguments and, if they are not coarguments in the same predicate, they will still be deemed grammatical. The fundamental idea is that complementary distribution does not exist in sentences such as (17), which contains a logophoric anaphor.

2.2 Reinhart and Reuland (1993)

The Reflexivity Theory proposed by Reinhart and Reuland (1993) is based on the need to reformulate the Binding Theory (CHOMSKY, 1981), explained by the many problems posed by principles A and B in this theory. The authors also question the complementary distribution between anaphors and pronouns, identifying several examples in which this complementarity fails. This theory also makes the difference clear when there is a connection and when there is a coreference between the anaphoric forms.

For such, the authors propose returning to the interpretation of reflexive predicates in the natural languages in which the verb has a strict connection with the reflexivization phenomenon. Based on this, reflexivization would then be analyzed as a property of predicates rather than a property of the anaphor, that is, the distribution of anaphoric forms is done based on the semantic properties of anaphoric forms, in this case, the property of reflexivizing a predicate (*inherent properties*). Therefore, the following anaphor definition is assumed:

Anaphors (of both the SE and the SELF type) are referentially defective NPs, which entails, for example, that they cannot be used as demonstratives, referring to some entity in the world (though it does not entail that they must be bound variables). (REINHART; REULAND, 1993, p. 658).

A typology of anaphoric expressions is proposed, based on this definition and on both types of anaphor functions. SE and SELF anaphors are included in the same group regarding the referential dependency property, and SE anaphors and pronouns are grouped because they do not have the reflexivization function. The summary of this typology is presented in the table below:

TABLE 1 – Reinhart and Reuland’s (1993) proposal for anaphor and pronoun distribution

	SELF	SE	PRONOUN
Reflexivizing function	+	-	-
R(eferential Independence)	-	-	+

Source: Reinhart and Reuland (1993)

According to the table above, SELF anaphors have the property of reflexivizing a predicate (+ reflexive function), but they do not have referential independence. The authors consider that this SELF reflexive function is sensitive to the binding condition proposed by them. SE anaphors, however, neither have referential independence, nor are responsible for making a predicate reflexive (- reflexive function), since they are only markers for inherently reflexive predicates. Pronouns, by contrast, do not reflexivize predicates (- reflexive function); however, unlike the anaphors, they do have referential independence, given that they carry person, gender, and number traits – although not necessarily all of these.

For the authors, however, it should be noted that both types of anaphors mentioned can be used logophorically. However, since studies that establish the distinction between the anaphor’s grammatical and logophoric functions are scarce, there are several mistakes regarding the syntactic distribution of anaphors and the terms local and long distance, given that, if used logophorically, both types of anaphors may result in all types of distance. Hence, logophoric reflexives do not follow a specific rule, but they should be considered to be grammatical. Nevertheless, the authors indicate that one of the properties of the logophoric anaphor is not being c-commanded (REINHART; REULAND, 1993, p. 660).

Reinhart and Reuland (1993) discuss that it is possible to have a pronoun whenever there is a logophoric anaphor. By stating this, the authors do not provide an explanation for the reasons why preference is given to a logophoric anaphor or to a pronoun. In a note, the authors themselves suggest Ariel's (1990) approach, which takes the most accessible available candidates in the discourse into account.

Regarding the grammatical function, the authors state that the domains are limited to two: local and long distance. The local domain corresponds to the reflexivity domain in which the SELF anaphor mandatorily reflexivizes the predicate. This domain is regulated by Conditions A and B, reformulated by them, which will be described below. The long distance domain, however, refers to the binding domain of SE anaphors, which adopt the pronoun pattern, and, therefore, are governed by Condition B.

Conditions A and B must be read as requirements and are defined as follows:

- (i) Condition A: a syntactic predicate marked reflexively is reflexive.
- (ii) Condition B: a reflexive semantic predicate is reflexively marked.

Condition A applies to predicates that are marked reflexively by syntactic ways, while Condition B inherently (semantically) applies to reflexives. A syntactically reflexive predicate is understood as being one in which two of its arguments are coindexed (with indistinct gender, number, and person traits), while a reflexively marked predicate is understood as being either lexically reflexive (which is marked by the presence of an SE anaphor) or having a SELF anaphor as one of its indexed arguments. Therefore, it is not the anaphor in itself, but rather the reflexive marking that allows for it to be interpreted reflexively.

Thus, for Reinhart and Reuland, Conditions A and B are not related to the c-command syntactic configuration, that is, with the possibility of binding to the antecedent available on the same pronoun or anaphor domain, but are related to the intrinsic property of the predicate being inherently reflexive or not.

To observe how Conditions A and B apply, let us observe the examples below:

- (18) a. **John_i likes him_i*.
 b. *John_i likes himself_i*.
 c. *John_i said Ann likes him_i*.

It should be noted that in (18a) *John* and *him* are coarguments of the predicate *likes*. This syntactic predicate will not be reflexive because it was not marked by the SELF anaphor corresponding to the anaphor that reflexivizes predicates, but it was instead replaced with a pronoun, making the phrase agrammatical. A predicate, such as *like*, would be subjected to condition A – a predicate that would be syntactically marked as reflexive, since one of its arguments would be a SELF anaphor. In (18b), the phrase is grammatical, since the SELF anaphor is used in the sentence as a reflexive marker and is compatible with Condition A. In (18c), however, *John* is a coargument for *said*, and *him* is a coargument for *likes*. Hence, the predicate is not reflexive, since there is no coindexation between the arguments in the same predicate; therefore, it is not guided by Condition B. In (18c), the predicates are not semantically reflexive; therefore, they are not reflexively marked.

One of the problems the authors identified about Condition A in Chomsky's Binding Theory (CHOMSKY, 1981) is the occurrence of anaphors that are free of their domain, as demonstrated by Kuno (1987) and Zribi-Hertz (1989) with SELF anaphors in the first, second, and third persons. Let us see:

(19) *Max boasted that the queen invited Lucie and himself for a drink.*

(20) **Max boasted that the queen invited himself for a drink.*

Reinhart and Reuland (1993) mention that, for Zribi-Hertz (1989), long-distance bound, third-person anaphors violate principle A and its use is known as logophoric. Nevertheless, the authors argue that it is not possible to conclude that the contexts in which there is a point of view⁶ allow for a violation of Condition A. For Reinhart and Reuland (1993), it is not merely a discursive issue, but, above all, a structural issue, given that (20) the SELF anaphor is an argument of its

⁶ The notion of point of view has been characterized in the literature to indicate the coreference of the anaphor/pronoun and the self-speaker, as proposed by Kuno (1987), whose discourse, thoughts, and feelings are being reported.

predicate and, therefore, the predicated is marked reflexively. In (19), there is no reflexively marked predicate, as the argument for *invited* is not only *himself* (SELF anaphor), but also *queen*, with which *himself* does not share gender traits; therefore, the first may not be coindexed the latter.

The view developed by the authors, based on the distinction between the grammatical and logophoric functions, show that Condition A is applied only to the anaphor in the argumental position. That is, SELF anaphors that occur outside this position (logophoric) are exempt from this condition.

In this discussion, the authors also state that the distinction between the anaphoric and the logophoric use of SELF is superfluous, given that, syntactically, there is only one type of anaphor, whose use is governed by Condition A. This immediately excludes the SELF anaphor in which there are no reflexive predicates as applicable to this Condition. Therefore, logophoricity is not coded in syntax, and the logophor does not need to be bound/coindexed to an antecedent. Its relation may be that of coreference (REINHART; REULAND, 1993, p. 673). This position is in disagreement with Sells (1987), who states that logophors, especially perspective logophors, are bound.

Only one case has been identified in which Condition A allows for the logophoric use of the SELF anaphor, that is, when it does not have an argumental position and, consequently, does not mark the predicate as reflexive.

As stated above, Condition A governs the anaphor. In addition, the Reflexivity Theory also contends that the pronoun is not excluded in certain contexts in which the prediction of an anaphor occurs. An example of this context is the occurrence of an *NP picture*, as in (21), in which an additional mechanism is provided to justify the occurrence of a pronoun.

(21) *Mary saw a Picture of herself.*

Moreover, it is important to emphasize that one of the properties of logophoric anaphor mentioned by the authors is that it does not need to be c-commanded by its antecedent. Therefore, the *NP picture* examples are easily accepted, as coreference rather than binding occurs.

2.3 Zribi-Hertz (1989)

Zribi-Hertz's article published in 1989 presents a detailed survey of the occurrence of reflexive pronouns in English that are compatible with the Chomskyan Binding Theory, and observes that some of these anaphors violate this theory's principle A, which reveals that it is based on a relatively small data corpus and that it is not sufficient to prove that the distribution of daily use pronouns is as constrained as the prediction made by principle A.

These pronouns that violate such a principle, according to the author, draw a clear line between syntax and discourse, and show that Chomsky's principle A is complete only if it is an internal theory of the phrase, not taking the discourse into account, although it is incomplete, as it ignores an integral component of the reflexives' grammar, and thus does not account for several data sets.

The key discussion in Zribi-Hertz's study is to understand where the line should be drawn, regarding the anaphor, between syntax and discourse. A survey of the syntactic and semantic properties of reflexive pronouns in English is conducted with the intent of confronting them with a corpus of English texts. After the corpus analysis, the author explains that English reflexive pronouns may be long-distance bound and may violate several structural constraints. Based on this, a relation between the grammar of locally bound reflexive and the discursive grammar of long distance bound reflexives has been proposed.

Some of the problematic data that arose after the Binding Theory jeopardize the complementarity between anaphors and pronouns. These include: NPs Picture, genitive positions, some PPs, and emphatic contexts, which are discussed by Warshawsky (1965), Ross (1970), Cantrall (1974), Kuno (1987), among other authors, as can be seen below:

- (22) a. *They thought that [pictures of {them / themselves}] would be on sale.*
 b. *We thought that [John's pictures of {us / ourselves}] would be on sale.*
- (23) *John said that there was a picture of {him / himself} in the post office.*

- (24) a. *(Mary thought that) [a picture of {you / yourself}] would be nice on the wall.*
 b. *(Mary thought that) [a picture of {me / myself}] would be nice on the wall.*
- (25) *They heard the stories about {them / themselves}.*

Using these and other counter-examples, some authors either indicate a change or alteration in the typology to include them within the structural theory, or suggest that these occurrences are outside the syntax field. However, this article argues that a grammatical theory for English reflexive pronouns cannot be complete without a discursive component.

The author quotes Cantrall's (1969) discussion about the hypothesis that, in English, whenever it is possible to alternate pronouns and anaphors in the same structural context, the choice for one or the other expresses the choice of a narrative point of view, as well as quotes Kuroda's (1973) discussion, which suggests that the *zibun* reflexive option is related to the non-reporting narrative style by means of which the author reports the events "from within" (a given character) contrary to the author's own point of view.⁷

Cantrall's (1969) discussion may also be observed in the examples below:

- (26) a. *The women_i were standing in the background, with the children behind them_i.*
 b. *The women_i were standing in the background, with the children behind themselves_i.*

Sentences 26a and 26b do not have the same informative content, since in 26b the children are located "behind the women", from the internal point of view of the discursive protagonist (the women), and, in 26a, the children are "behind the women", from the speaker's point of view. The contrast is related to the point of view option, which may be that of a discourse protagonist or that of the speaker and, consequently, as Cantrall (1969) points out, in choosing a third person in pronominal anaphors and pronouns, there is no structural conditioning.

⁷ The point of view is also the key concept of pronoun analysis made by Kuno (1972, 1983, 1987).

The proposal in Chomsky's Binding Theory does not correlate to the semantic properties above, and it is assumed that they do not belong to the syntax and derive from their structural properties. However, the author, although agreeing that the point of view does not belong to syntax, disagrees with its derivation from structural properties: "*It is the structural properties of pronouns that are, in a sense, derived from their discourse properties*".⁸ (ZRIBI-HERTZ, 1989, p. 705)

To justify this statement, the examples in (27), in which there is a semantic contrast, are provided:

- (27) a. *John_i hid the book behind himself_i.*
 b. *John_i hid the book behind him_i.*

For Zribi-Hertz, the spatial relation between John and the book is understood as being more direct in 27a than it is in 27b, given that, in the latter, John hid the book somewhere behind the shoulder line, whereas in 27a John hid the book very close to himself, probably in contact with his own body.

It is thus argued that the "subject of consciousness" is not a semantic variation of the syntactic subject, but stands out as a linguistic concept belonging to discourse grammar, and that this subject of consciousness, rather than the syntactic subject, is the relevant concept for the grammar of long-distance bound reflexives in English.

The concept of "subject of consciousness" is a category of discourse grammar, being similar to the concept of logophoricity proposed by Kuno (1987) and Clements (1975). As the author states, the "subject of consciousness" is a semantic property attributed to a referent whose thoughts or feelings, optionally explicit in the discourse, are transported by a part of the discourse. This "subject of consciousness", still in the author's words, is generally understood as being [+ human].

The author states that reflexive pronouns belong to discourse grammar, from which sentence grammar is a specific sub-domain. With this conclusion, the author suggests that structural constraints may have their discursive motivation.

⁸ "São as propriedades estruturais dos pronomes que são, em certo sentido, derivadas de suas propriedades discursivas."

An important statement made by the author is that the anaphoric relations indicated in her study belong to discourse grammar, since the structural constraints come into play when the discourse principle is no longer relevant.

Therefore, Zribi-Hertz's proposal argues that any anaphor structural theory must be completed by the discourse principles, since, to account for this phenomenon, the notions of discourse structure must be taken into account.

This proposal of sentence (syntax) grammar being a sub-part of discourse grammar authorizes reflexive pronouns to violate Chomsky's Principle A, in case some discursive properties are met. This makes Zribi-Hertz's proposal different from Reinhart and Reuland's (1993), since, for the latter, the syntax operates primarily and, if it is not sufficient, semantics and discourse are free to act.

3 Logophoricity in Psycholinguistics

Despite the several approaches to the phenomenon, few studies in Experimental Linguistics have understood the processing of this type of structure as their primary focus. In this topic, this study will demonstrate some approaches in the inter-sentence processing and some experiments developed in Psycholinguistics.

In the field of inter-sentence Experimental Psycholinguistics, there is a discussion about the online processing of sentences that have a single clause being constrained exclusively to the action of the Binding Principles proposed by Chomsky (1981) in the first processing stages. This problem includes a strong debate about the Chomsky's binding principle's moment of action, in the course of processing, which has unfolded into a differentiated prediction with the models that argue how much processing is affected by its antecedents, namely, the models: initial filter, reversible filter, and interactive filter.

In general lines, the first model was presented by Nicol and Swinney (1989), who state that the binding between the antecedent and the anaphor is constrained to Chomsky's (1981) binding principles, both in the initial stages of processing and in the subsequent stages. The second model is defended by Sturt (2003), Kennison (2003), and Leitão, Peixoto and Santos (2008) by presenting evidence of a reversible filter in which these principles guide the processing in

the initial stages but may be violated afterwards by many factors. Badecker and Straub (2002), however, analyze their data interpreting that not only the syntactic constraints operate in this first stage, but also other constraints of discursive nature. These last authors propose the interactive model.

The model described by Nicol and Swinney (1989) shows that the constraints proposed by the Binding Theory are applied in the initial and subsequent stages of processing. According to this model, the antecedent for anaphor is immediately chosen according to the binding theory, while other antecedents are disregarded in these first stages of processing and afterwards.

The authors analyzed the processing of pronouns and anaphors that had two types of antecedents, according to the Binding Theory: available and inaccessible. They performed *priming cross modal*⁹ experiment to observe the action of binding constraints. In this experiment, participants heard the sentences and made a lexical decision after viewing a probe word that appeared after anaphors and pronouns.

Therefore, it was predicted that the structurally available antecedents would influence the processing of coreference in the initial stages and the inaccessible antecedents would be immediately excluded and disregarded in the subsequent interpretation (Initial Filter Hypothesis).

The results of the study performed by them brought evidence to the Initial Filter Hypothesis, since there was a significant effect for the structurally available antecedents, while there was no significant effect for the structurally inaccessible antecedents, both for the anaphor and the pronoun. This indicates that they were not taken into account at the time of the coreference resolution and there is a grammatical filter that determines which candidates may refer to the anaphor and the pronoun.

Nevertheless, Sturt (2003), Kennison (2003), and Leitão, Peixoto and Santos (2008) found evidence against the initial binding filter model. Their data show that binding constraints are applied at the initial stages but may be violated afterwards. The filter would thus be reversible, with the possibility of being violated at a second moment of processing due to several factors.

⁹ When stimuli presented in the priming and target are of different modalities.

Sturt's (2003) work has shown that binding constraint are relevant in processing coreference at the first processing stage. Discursive factors would only produce late influence, which justifies the effect of inaccessible antecedents found in their study.

Running in line with Sturt's (2003) findings, Kennison (2003) investigated the action of principle B in processing by means of the self-monitored reading, capturing the processing in two stages.

The author conducted an experiment using the pronouns *her*, *his*, and *him* with available and inaccessible antecedents, in which the subjects took longer to read the pronoun under the condition in which the structurally inaccessible antecedent had the same gender in the anaphora, when compared to the condition in which the gender was the same.

Based on the results, Kennison (2003) suggests that the structurally available and inaccessible antecedents are considered during the coreferential resolution, differently from Nico and Swinney's (1989) proposal, in which only structurally accessible antecedents are taken into account.

Leitão, Peixoto and Santos' (2008) findings for BP, identified by means of two self-monitored reading experiments, dialog with Kennison's (2003) and Sturt's (2003) results. In the experiment conducted by the authors, the processing of the pronoun "*ele*" (him) as an object was investigated. At first, no significant difference in reading the critical segment (pronoun) was identified, which suggested that principle B blocked, in the first stage, the possibility of the pronoun "*ele*" (him) to be bound to the subject.

The reading times were longer when the structurally inaccessible subject had the same gender, number and animacy as the pronoun than under the conditions in which these traits did not match. These results suggest that coreference processing occurs in two stages.

A preamble was added to the second experiment with an available antecedent that shared the pronoun traits. The presence of this available antecedent made the pronoun reading significantly longer than it was in experiment 1, that is, there was no influence of inaccessible antecedents.

Finally, Badecker and Straub (2002) propose a model in which several constraints operate at the initial processing moment. Both syntactic and discursive constraints are combined in parallel, that is, the binding constraint act along with other types of information (gender, number and discursive focus traits). In this understanding, both available and inaccessible antecedents are relevant in coreferential processing from the first processing stage.

The self-monitored reading study conducted by them included both structurally accessible and inaccessible antecedents. Badecker and Straub (2002) found results in the post-critical segment, which were read faster when the anaphora gender matched the antecedent gender. However, the reading was slower when the gender of inaccessible and accessible antecedents matched the anaphora gender, which shows that inaccessible antecedents also affected the sentence processing. In this line, the authors propose that inaccessible antecedents interfere in the processing.

However, these models mentioned above do not specifically address the discussion of the processing of logophoric anaphors and logophoric pronouns, although they mention the possibility of certain types of structure in which the anaphor is used and in which the binding principles do not operate.

In another psycholinguistic study, specifically involving logophoricity, Foraker (2003) used the SELF form logophorically to examine if discursive information used in interpreting this logophoric is similar to that used in pronoun interpretation. In this study, a self-monitored reading was performed in which the distance between the logophor/pronoun and its antecedent was controlled, with three possible positions for the antecedent (*First-mentioned, Middle, and Most Recent*). In this experiment, Foraker shows that there was a *Spillover* effect (after the logophor/pronoun), which revealed that logophors and pronouns were processed in a similar manner only under the conditions in which the antecedent was at a long or intermediate distance in relation to the anaphora. When the antecedent was mentioned more recently, the logophor was read more quickly than when it was at a distant or intermediate position.

Their proposed explanation for the results found under the conditions with long and intermediate distance antecedent is that the coreference resolution for the logophoric anaphor appears to use the same type of pragmatic and discursive information used for pronominal coreference, given that, both for logophors and for pronouns, the same processing pattern was found. The set of sentences in the experiment is exemplified in (28) and (29) below:

(28) *Logophoric Reflexive*

First-mentioned: Megan wondered/ if Isaac had found out/ that Rick wanted to invite/ Sally and herself/ to the birthday party.

Middle: Isaac wondered/ if Megan had found out/ that Rick wanted to invite/ Sally and herself/ to the birthday party.

Most Recent: Rick wondered/ if Isaac had found out/ that Megan wanted to invite/ Sally and herself/ to the birthday party.

(29) *Pronoun*

First-mentioned: Albert was upset/ when Debbie didn't care/ that Rachel had endangered/ Gordon and him/ on the climbing trip.

Middle: Debbie was upset/ when Albert didn't care/ that Rachel had endangered/ Gordon and him/ on the climbing trip.

Most Recent: Rachel was upset/ when Debbie didn't care/ that Albert had endangered/ Gordon and him/ on the climbing trip.

Moreover, for the English language, Harris *et al.* (2000) conducted a study using EEG¹⁰ with the intent to determine the characteristics of the ERP¹¹ responses in sentences with syntactic and nonsyntactic violation, since in current literature it is possible to observe that ERP patterns are found based on the determination of syntactic and semantic nature violations.

Therefore, findings from Harris *et al.* (2000), in sentences with syntactic violation, showed that there was a comparison of the syntactic anaphor agreeing/disagreeing and, in sentences with nonsyntactic violation, there was a comparison of the logophoric anaphor agreeing/disagreeing. The author's prediction was that, in sentences containing a syntactic violation, a P600 would be found, since it has a syntactic nature and causes a similar pattern to that encountered in these types of violations. In logophoric sentences, however, P600 would not be found, since this violation would have a semantic-pragmatic nature. The author also states that it would be difficult to know what type of wave to expect from logophoric violations, given that they are not defined in literature in general. The author expected only to distinguish

¹⁰ Electroencephalograph

¹¹ Event-related brain potentials.

them from violations of syntactic pattern. For this purpose, a study was constructed with 24 sets of experimental phrases, constructed according to the following model:

- (30) a. *The boys' cousin introduced Suzie and himself at the wedding.*
b. *The boys' cousin introduced Suzie and themselves at the wedding.*
c. *The boys' cousin introduced himself at the wedding.*
d. *The boys' cousin introduced themselves at the wedding.*

The task performed by the 40 volunteers consisted of reading the sentences and determining who the recipient of the sentence action was, based on number agreement. Two answer options were shown on the screen, and all subjects were encouraged to anticipate the question and the answer.

The results confirmed that the comparisons involving syntactic constraints exhibited a P600, while constraints with logophors did not. It has been suggested that comparisons involving arguments are mediated by processes sensitive to syntactic constraints, whereas those with logophors are insensitive or sensitive to these constraints in a different manner.

In the attempt to understand sentence processing in real time, focusing on reflexivity, and using as its means the discussion about syntax-only field, on the one hand, and about syntax + discourse on the other, Petra Burkhardt (2002) conducts a study in the English language using the cross-modal paradigm to determine processing in sentences containing logophors. That is, both postures were examined from the perspective of processing.

Because the interpretation of logophoric reflexives involves the access to nonsyntactic operations, such as the access to the notions of discourse and point of view, and the coargument reflexives involve only syntactic operations, the author proposes the hypothesis that the contrast between these two reflexives would have different processing costs.

In the syntax-only position, the two reflexives proposed in the study would have a similar behavior; while in the syntax + discourse position, there would be a contrast between them.

Two tasks were performed, the sentence comprehension task and the lexical decision task, which consisted of presenting the sentence, which the subject heard and, afterwards, answered the comprehension question about it, at random points on the course of the experiment. At a given moment during the sentence presentation, a probe word was shown, and the subject had to decide, by pressing either the button “yes” or the button “no”, whether the probe word was an English word or not. The reaction time taken for the lexical decision was recorded.

For the study, 25 pairs of experimental sentences and 119 distracter sentences were created. In the experimental sentences, each pair consisted of a sentence with a coargument reflexive and a logophoric reflexive, as shown below:

- (31) a. *The woman_i who was arrogant praised^{PROBE} herself_i^{PROBE} because the network had called about negotiations for a leading role.*
 b. *The girl_i sprayed bug repellent around^{PROBE} herself_i^{PROBE} because there were many mosquitoes in the Everglades.*

The sentences with logophoric reflexive included direct objects (*bug repellent*) and prepositions of place (*around* or *behind*). The verbs in both sentences were controlled by frequency, and the total length of the sentences, as well as the distance between the antecedent and reflexive, were paired.

The probe words were placed in two positions: before the reflexive (control position) and after the reflexive (experimental position). They were not semantically related to the sentence, nor did they allow for generating a sentence continuation. In the experimental position, it is possible to measure the resources required while processing the reflexive, determining whether there is an additional cost or not.

By means of the comparison between the times taken for the lexical decision under both conditions, it is possible to determine if there are indications for the syntax-only position (no difference between both conditions) or for the syntax + discourse position (there is a difference between both conditions, with an increase in time for the conditions with logophoric reflexives).

Results have not shown a significant difference for the probe word in the control position, but there was a significant time difference for the probe reaction times (RT) in the experimental position, which recorded a longer time for the logophoric reflexives, thus indicating that the interpretation of logophoric reflexives is costlier to the processor than that of coargument reflexives.

The obtained data are in favor of a syntax + discourse approach to reflexivity, thus suggesting that logophoricity goes beyond syntax. The difference between the coargument reflexives (whose interpretation is merely that of syntactic reflexives) and logophoric reflexives (which implies that their interpretation requires access to syntactic and nonsyntactic information) indicates that there is an additional cost to the processor. This cost, in turn only compatible with the syntax + discourse position that claims that the interpretation of logophoric reflexives requires access to discourse information (extra-syntactic).

These results obtained by Pietra Burkhardt (2002) corroborate Harris et al.'s (2000) ERP findings, as described above, in which the "errors" involving the two types of reflexives produce different event-related brain potential activation patterns, suggesting the existence of syntactic and extra-syntactic processes.

The experiments conducted in English, as described above, are of utmost importance for the study of logophors, since the pragmatic factors have received great attention from the theoretical literature²¹. However, no quantitative studies have been found that determine the acceptability of sentences with logophors. Gibson and Fedorenko (2013) mentioned that the acceptability judgment task is the ideal form for probing syntactic/semantic knowledge, in comparison with other tasks or reading measures.

The experiments in Experimental Psycholinguistics with focus on the processing of logophors are mostly based on Reinhart and Reuland's (1993) perspective, in which the anaphor structural position determines its logophoric nature. In the present work, Reinhart & Reuland's (1993) perspective will also be used as a basis, given that logophoricity will be observed from the anaphor's and the pronoun's structural position.

4 The experiment

Considering the different theoretical approaches to logophoricity in several languages, the experiment described below was intended to verify the acceptability of constructions with logophoric anaphor in BP in order to understand whether or not they are present in the grammar of these language speakers, given that Reinhart and Reuland's (1993) approach shows that these structures in which semantics and discourse operate and have a determining influence in the coreferential resolution of logophoric anaphors are grammatical in English. Furthermore, as presented above, these authors also state that, in the contexts in which there are logophoric anaphors, there may also be a logophoric pronoun.

Galves' (2001, p. 132 *apud* BRITO, 2009, p. 56) study shows that, in some BP dialects, the word "*ele*" (he) may accept an anaphoric reading. Therefore, based on Reinhart and Reuland (1993), this study considers the logophoric property to be opposite to the anaphoric property, since the logophoric property is characterized for having an antecedent outside the binding domain, whether within the sentence or not. Therefore, the pronoun "*ele*" (he) in the experiment is called a logophoric pronoun, because it has an antecedent outside the binding domain in the sentences used. Based on this, this study also seeks to determine the acceptability of the logophoric pronoun in order to establish a counterpoint with the acceptability of the logophoric anaphor.

From these approaches, the study seeks to answer the following questions:

1. Are these constructions as acceptable in Portuguese as they are in English?
2. Are logophoric constructions with anaphors and pronouns equally acceptable?

To achieve this aim, an off-line experiment of acceptability judgment was conducted. According to Leitão (2011):

The determinations obtained from off-line experiments provide information on the interpretation (moment of reflection) of sentences or utterances, that is, they are able to capture the reactions to linguistic stimuli when there

has already been an integration of all linguistic levels (phonological, morphological, lexical, syntactic and semantic). (LEITÃO, 2011, p. 223).

As such, the experiment sought to observe whether or not there is acceptability in logophoric construction in BP, according to the Reinhart and Reuland's (1993) studies. Such acceptability may be confirmed by means of the off-line measurement, since the subjects will issue judgment for the sentences read. Thus, the logophoric anaphor (LA) *ele mesmo* (himself) and the logophoric pronoun (LP) *ele* (him) were used in this construction to determine such an acceptability. The hypothesis predicted for this test was that both structures would be deemed accepted by these language speakers, as provided in Reinhart and Reuland's (1993) Reflexivity Theory.

4.1 Method

4.1.1 Participants

The participants in this research were 77 students majoring in Languages at the Federal University of Paraíba (UFPB), Campus I João Pessoa, all native speakers of Brazilian Portuguese, with ages ranging from 19 to 32.

4.1.2 Material

To conduct this experiment, 12 experimental sentences were created, divided into 2 sets. Each set included six sentences with the logophoric anaphor *ele mesmo* (himself) and six sentences with the logophoric pronoun *ele* (him). In addition to these experimental sentences, 24 distracter sentences were inserted, 12 sentences of which were acceptable, while the other 12 were unacceptable. The purpose of these sentences was to ensure the subject did not realize the nature of the sentences that were the research's object of study. A small instruction was also prepared so that the subject would understand the task. The table below shows examples of the experimental sentences and the instruction in the test.

TABLE 2 – Example of experimental sentences in the pilot test

INSTRUCTION	
Observe the sentences below and answer whether you consider them to be acceptable or unacceptable. There are no right or wrong answers. We only want to check your intuitions about the sentences.	
TYPE OF SENTENCE	SENTENCES
Logophoric anaphor	<i>O irmão de Vítor penteou Lucas e ele mesmo com a escova da sua tia.</i> (Vitor's brother combed Lucas and himself with his aunt's brush.) <i>O genro de Mauro cortou José e ele mesmo com a faca na cozinha.</i> (Mauro's son-in-law cut José and himself with the knife in the kitchen.)
Logophoric pronoun	<i>O irmão de Vítor penteou Lucas e ele com a escova da sua tia.</i> (Vitor's brother combed Lucas and him with his aunt's brush.) <i>O genro de Mauro cortou José e ele com a faca na cozinha.</i> (Mauro's son-in-law cut José and him with the knife in the kitchen.) ¹²

Source: Prepared by the authors.

The experiment's dependent variable was the type of judgment (acceptable vs. unacceptable) made under each condition, and the independent variables were the type of logophor (anaphor and pronoun). Based on this, two experimental conditions were obtained: anaphora with logophoric pronoun and anaphora with logophoric anaphor. The antecedent and the anaphora genders (masculine) were controlled, and all logophors were within a coordination.

¹² The experimental sentences used here adopted the model proposed by Reinhart and Reuland (1993).

4.1.3 Procedure

The experimental acceptability judgment technique (*off-line*) was used, and it consists of checking if a given stimulus is acceptable to these language speakers, since the linguist's intuition is insufficient to determine such a judgment. This technique appears to be ideal to test this phenomenon since this judgment provides a piece of information that enables making inferences about the representation of logophoricity in these speakers' grammar.

The pilot experiment was prepared with Google Docs in a computer, and it was submitted to the subjects through the link to access the test. This same link included the instructions to perform the experiment, which were shown on the top part of the file. The participants read the sentences in front of the computer screen and keyboard. After reading each sentence, the participants would have to choose between acceptable and unacceptable options based on their own judgment. The options were beside each sentence, which had a single marking possibility. The sentences were divided into two sets – one sentence with logophoric anaphor “*ele mesmo*” (himself) and another sentence with logophoric pronoun “*ele*” (him). Therefore, the subject's task was to read each sentence and choose one option, that is, the subject would have to mark each sentence as “acceptable” or “unacceptable”. The stimuli presented in the experiment were randomized. As previously mentioned, the intent was to determine which sentence would be acceptable and which one would be unacceptable.

4.2 Results and discussion

The results obtained in this first test did not fully corroborate our original hypothesis formulated. In general, the sentences considered as acceptable were the ones that contained the logophoric anaphor, and the sentences considered as unacceptable were those with the logophoric pronoun. The logophoric anaphor was judged as acceptable 276 times, while the logophoric pronoun was judged as acceptable 213 times. However, no significant result was obtained in the latter, which contradicted the hypotheses that both structures are grammatical in BP.

The results of the judgments made under each condition may be expressed according to the table below:

TABLE 3 – Results of acceptability judgments
for each experimental condition

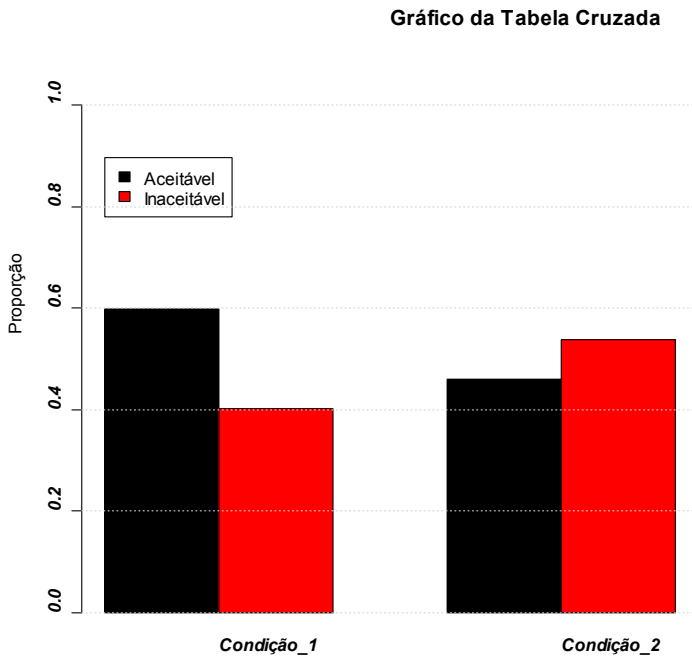
	Condition 1 (anaphora with logophoric anaphor)	Condition 1 (anaphora with logophoric pronoun)	Total
Acceptable	276	213	489
Unacceptable	186	249	435
Total	462	462	924

Source: Prepared by the authors.

Based on the table above, it is possible to observe that the logophoric anaphor obtained a higher number of “acceptable” answers (condition 1), while the logophoric pronoun obtained a higher number of “unacceptable” answers (condition 2).

The difference for the first condition, in which 276 acceptable answers were obtained and 186 unacceptable answers were obtained, was considered statistically significant in the Chi-square proportion test: $\chi^2(1, 462) = 17.532, p < 0.05$. This difference indicates an acceptability of this type of construction in Brazilian Portuguese. For the second condition, with 213 acceptable answers and 249 unacceptable answers, no significant result was obtained using the same statistical test: $\chi^2(1, 462) = 2.805, p = 0.09$. This result does not allow one to identify that logophoric pronouns are unacceptable in this language. Among the experimental conditions used, the Chi-square test of homogeneity provided us with a significant result ($p < 0.05$), indicating that the subjects viewed logophoric anaphor (LA) and logophoric pronoun (LP) as different structures. The chart below expresses this result, showing a reverse trend in the LP condition, when compared to the LA condition:

FIGURE 1 – Chart with the results of the acceptability judgment



Source: Prepared by the authors.

These results are capable of showing us the need to conduct a different experiment in order to explore the study of logophors in BP in greater depth, given that these data previously suggest that the grammar licenses the logophoric anaphors and sees them as different from the logophoric pronouns, which is different from what occurs in the English language (REINHART; REULAND, 1993). It is possible that the reason for this is the test design not having contributed to the acceptance of sentences with logophoric pronoun, since the test may have been biased, given that the subjects who read the sentences with logophoric anaphors also read the sentences with logophoric pronouns. Therefore, to eliminate this possibility, the next step in this research is to conduct an experiment of acceptability judgment whose design is structured so that the conditions are seen by different subjects.

5 General discussion

The present study's hypothesis was to determine whether or not constructions with logophoric anaphors and logophoric pronouns are accepted by BP speakers. Although our intuition may be used to consider such an acceptability, the reality to be checked by means of the data could be opposite, which led us to perform the previously described experiment. As Gibson and Fedorenko (2013) show, the linguist's intuition is not sufficient enough to determine such an acceptability.

The present study points to the reliability of sentence judgment tests and their importance in the study of these structures, given that they do not allow the researcher to assume the acceptability of structures seen as ungrammatical by naive subjects. Hence, this type of test goes beyond the mere use of the researcher's intuition to investigate the BP grammar. After all, if this acceptability study had not been conducted, both structures' acceptability could have been assumed, which was not supported by the acceptability test. The described experiment showed that the subjects considered sentences with logophoric anaphor to be acceptable, and sentences with logophoric pronoun to be unacceptable.

The data obtained based on the acceptability judgment, as conducted in this research, demonstrated that the structures of sentences with logophoric anaphor are considered to be acceptable by native speakers of BP. This type of structure will be considered, as in Reinhart and Reuland (1993), to be grammatical. The data found point toward this possibility, since significant values have been obtained for the acceptability of these logophoric structures.

Under the experimental conditions of logophoric anaphors, the subjects judged them to be acceptable; while in the conditions of logophoric pronouns, no clear significance difference was observed.

These results are capable of showing us a path to be explored in the study of logophors in BP, given that grammar licenses logophoric anaphors and considers them to be different from logophoric pronouns, unlike languages such as English (REINHART; REULAND, 1993).

A possibility of explanation for this difference is the occurrence of bias, since the subjects who read the sentences with logophoric anaphor also read the sentences with logophoric pronoun. Therefore, to exclude this possibility, another acceptability should be conducted with

both conditions: logophoric anaphor and pronoun, following the same model of the test performed, but exposing the subjects to only one of the experimental conditions.

Finally, the Reflexivity Theory predicts that logophoric structures are completely acceptable by English speakers. Therefore, based on the experimental technique used, the conclusion reached is that the data analyzed here show that logophoric anaphors are acceptable. Based on the perception of the subjects participating in the experiment, it has been detected that such a structure most likely composes the grammar of BP speakers.

6 Final considerations

Linguistic studies, especially in the linguistic processing field, which investigate the anaphoric process, seen as relevant to the Binding Theory binding principles in coreference resolution. These studies take these binding constraints' actions into account at the processing moment, questioning the grammaticality of antecedents in coreferential resolution.

The study described here seeks to understand structures with logophoric anaphors that are not addressed by this theory and to compare them with the logophoric pronouns. For this purpose, this study resorts to Reinhart and Reuland's (1993) Reflexivity Theory as a theoretical basis for the conducted experiment. This work seeks to prove the hypothesis that sentences with logophors are acceptable in BP, given that, according to Reinhart and Reuland (1993), these sentences should be considered to be grammatical in languages such as English.

The experiment results illustrated that the logophoric anaphor *ele mesmo* (himself) is acceptable in BP ($p < 0.05$); however, no significant result was obtained for the logophoric pronoun *ele* (he) ($p = 0.09$).

Since this is one of the first studies related to logophoricity in BP, there is still much to be explored. This topic still requires a broader approach in the fields of both Linguistics and Psycholinguistics, given that in this work only the acceptability of two of the different structures with logophors were studied. Therefore, in addition to investigating its acceptability, it is necessary to understand how the processing of these structures occurs, as well as to investigate experimentally the processing of the syntactic anaphor and the logophoric anaphor, with the intention of

determining whether or not these structures differ in terms of processing. It is worth mentioning that a new investigation is warranted to identify how the processing of these semantic-discursive factors takes place in structures with logophors, as well as to observe if the processing of a logophoric element will result in a higher operational cost.

Hence, the representation distinction between the syntactic and logophoric anaphors will be the observed in subsequent steps of this research.

References

- ARIEL, M. *Accessing Noun Phrase antecedents*. London: Routledge, 1990.
- BADECKER, W.; STRAUB, K. The Processing Role of Structural Constraints on the Interpretation of Pronouns and Anaphors. *Journal of Experimental Psychology: Learning, Memory, and Cognition*, American Psychological Association, v. 28, n. 4, p. 748-769, 2002. <https://doi.org/10.1037/0278-7393.28.4.748>.
- BRITO, D. B. S. *O se reflexivo no português brasileiro*. 2009. Tese (Doutorado em Linguística) – Faculdade de Letras, UFAL, Maceió, 2009.
- BURKHARDT, P. Logophors: Looking Outside of Syntax; Evidence from Real-Time sentence Comprehension. In: THRIFT, E. *et al.* (Ed.). *Proceedings of Console IX, 2002*. Disponível em: <<http://www.hum2.leidenuniv.nl/pdf/lucl/sole/console9/console9-burkhard.pdf>>. Acesso em: 10 abr. 2015.
- CANTRALL, W. R. *On the nature of the reflexive in English*. 1969. Dissertação (PhD) - Universidade de Illinois, Urbana-Champaign, 1969.
- CANTRALL, W. *Viewpoint, Reflexives, and the Nature of Noun Phrases*. The Hague: Mouton, 1974.
- CHOMSKY, N. *Lectures on government and binding*. Dordrecht: Foris, 1981.
- CHOMSKY, N. *Knowledge of language*. New York: Praeger, 1986.
- CLEMENTS, G. N. The logophoric pronoun in Ewe: its role in discourse. *Journal of West African Linguistics*, West African Linguistics Society, v. 10, p. 141-177, 1975.

FORAKER, S. The processing of logophoric reflexives shows discourse and locality constraints. *Proceedings from the Annual Meeting of the Chicago Linguistic Society*, Chicago Linguistic Society, n. 2, p. 295-309, 2003.

GALVES, C. C. *Ensaio sobre gramática do português*. Campinas, SP: Editora UNICAMP, 2001.

GIBSON, E.; FEDORENKO, E. The need for quantitative methods in syntax and semantics research. *Linguagem and Cognitive Processes*, Taylor & Francis Online, v. 28, p. 88-124, 2013.

HARRIS, T.; WEXLER, K.; HOLCOMB, P. J. An ERP investigation of binding and coreference. *Brain and Language*, Elsevier, v. 75, p. 313-346, 2000. <https://doi.org/10.1006/brln.2000.2318>.

KENNISON, S. Comprehending the pronouns her, him, and his: implications for theories of referential processing. *Journal of Memory and Language*, Elsevier, v. 49, p. 335-352, 2003. [https://doi.org/10.1016/S0749-596X\(03\)00071-8](https://doi.org/10.1016/S0749-596X(03)00071-8).

KUNO, S. Functional sentence perspective. A case study from Japanese and English. *Linguistic Inquiry*, MIT Press, v. 3, p. 269-320, 1987.

KUNO, S. Three perspectives in the functional approach to syntax. In: Grossman, Robin E.; JAMES SAN, L.; VANCE, Timothy J. (Ed.). *Papers from the parasession on functionalism*. Chicago: Chicago Linguistic Society, 1975. p. 276-336.

KURODA, S. Where epistemology, grammar and style meet: A case study from Japanese. In: ANDERSON, S.; KIPARSKY, P. (Ed.). *A Festschrift for Morris Halle*. New York: Holt; Rinehart & Winston, 1973.

LEITÃO, M. M. Psicolinguística experimental: focalizando o processamento da linguagem. In: MARTELOTTA, M. E. *Manual de Linguística*. São Paulo: Editora Contexto, 2011.

LEITÃO, M. M.; PEIXOTO, P.; SANTOS, S. Processamento da co-referência intra-sentencial em português brasileiro. *Veredas on-line*, Juiz de Fora, UFJF, v. 2, p. 50-61, 2008.

MENUZZI, S. *Binding Theory and Pronominal Anaphora in Brazilian Portuguese*. 1997. Tese (Doutorado) - Universidade de Leiden, 1997.

NICOL, J.; SWINNEY, D. The role of structure in coreference assignment during sentence comprehension. *Journal of Psycholinguistic Research*, Spring Link, v. 18, n. 1, p. 5-19, 1989.

POLLARD, C.; SAG, I. A. Anaphors in English and scope of Binding Theory. *Linguistic Inquiry*, MIT Press, 23:2, p. 261-303, 1992.

REINHART, T.; REULAND, E. Reflexivity. *Linguistic Inquiry*, MIT Press, v. 24, n. 4, p. 657-720, 1993.

ROSS, J. R. On declarative sentences. In: JACOBS, R. A.; ROSENBAUM, P. S. (Ed.). *Readings in English transformational grammar*. Washington: Georgetown University Press, 1970. p. 222-272.

SELLS, P. Aspects of Logophoricity. *Linguistic Inquiry*, MIT Press, v. 18, n. 3, p. 445-479, 1987.

STURT, P. The time-course of the application of binding constraints in reference resolution. *Journal of Memory and Language*, Elsevier, v. 48, p. 542-562, 2003. [https://doi.org/10.1016/S0749-596X\(02\)00536-3](https://doi.org/10.1016/S0749-596X(02)00536-3).

WARSHAWSKY, F. *Reflexivization I & II*. Indiana University Linguistics Club, 1965. [Reproduzido em notas de linguistic underground (*Syntax and Semantics*, v. 7), editado por James D. McCawley. New York: Academic Press, 1976, p. 63-84].

ZRIBI-HERTZ, A. Anaphor binding and narrative point of view: English reflexive pronouns in sentence and discourse. *Language*, Washington, v. 65, n. 4, p. 695-727, 1989. <https://doi.org/10.2307/414931>.

ATTACHMENT 1

The experimental conditions and the sentences used in the acceptability judgment test are presented below:

Anaphora with logophoric anaphor
<p style="text-align: center;"><i>O irmão de André machucou Davi e ele mesmo na BR230.</i> (André's brother hurt Davi and himself on BR230.)</p> <p style="text-align: center;"><i>O genro de Mauro cortou José e ele mesmo com a faca na cozinha.</i> (Mauro's son-in-law cut José and himself with the knife in the kitchen.)</p> <p style="text-align: center;"><i>O primo de Leandro barbeou Arthur e ele mesmo no banheiro da rodoviária.</i> (Leandro's cousin shaved Arthur and himself at the bus station's rest room).</p> <p style="text-align: center;"><i>O irmão de Vitor penteou Lucas e ele mesmo com a escova da sua tia.</i> (Vitor's brother combed Lucas and himself with his aunt's brush.)</p> <p style="text-align: center;"><i>O amigo de Joaquim feriu Tiago e ele mesmo com o brinquedo pontiagudo.</i> (Joaquim's friend hurt Tiago and himself with the sharp toy.)</p> <p style="text-align: center;"><i>O neto de Breno olhou Murilo e ele mesmo no espelho da sala.</i> (Breno's grandson looked at Murilo and himself on the living room mirror.)</p>
Anaphora with logophoric pronoun
<p style="text-align: center;"><i>O irmão de André machucou Davi e ele na BR230.</i> (André's brother hurt Davi and him on BR230.)</p> <p style="text-align: center;"><i>O genro de Mauro cortou José e ele com a faca na cozinha.</i> (Mauro's son-in-law cut José and him with the knife in the kitchen.)</p> <p style="text-align: center;"><i>O primo de Leandro barbeou Arthur e ele no banheiro da rodoviária.</i> (Leandro's cousin shaved Arthur and him at the bus station's rest room).</p> <p style="text-align: center;"><i>O irmão de Vitor penteou Lucas e ele com a escova da sua tia.</i> (Vitor's brother combed Lucas and him with his aunt's brush.)</p> <p style="text-align: center;"><i>O amigo de Joaquim feriu Tiago e ele com o brinquedo pontiagudo.</i> (Joaquim's friend hurt Tiago and him with the sharp toy.)</p> <p style="text-align: center;"><i>O neto de Breno olhou Murilo e ele no espelho da sala.</i> (Breno's grandson looked at Murilo and him on the living room mirror.)</p>