PRONOUN-ANTECEDENT AGREEMENT (BINDING) IN BRAZILIAN PORTUGUESE

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BRAZILIAN PORTUGUESE

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ABSTRACT

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Pronoun-Antecedent Agreement (Binding) in Brazilian Portuguese

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Research (Duarte, 1995, Barbosa et al. 2005) indicates that Brazilian Portuguese (BP) is evolving linguistically: it apparently contains two grammars that are partially +NSL and partially –NSL. Within the framework of the Position of the Antecedent Hypothesis (PAH) advocated by (Carminati, 2002), null and overt subjects retrieve antecedents in different structural positions. Pronoun-antecedent agreement is based exclusively on the syntactic configuration of a clause in which a null pronoun is bound to a sentential subject antecedent; however, an overt pronoun retrieves an antecedent in a lower syntactic position (e.g., the direct object), or outside of the clause (e.g., a discursive antecedent).

By providing new data which contributes to previous findings (Duarte, 1995, Modesto, 2000, Carminati, 2002, Barbosa et al. 2005, Filiaci, 2010), this study empirically tests whether the referring preferences of null and overt subject pronouns are determined by syntactic (linguistic, language specific) or pragmatic (non-linguistic, setting specific) factors in finite embedded or coordinate clauses. Results indicate that BP appears to rely on syntactic factors (e.g., c-command, Principles A & B, feature checking of person, number and gender agreement), predicate-argument structure (i.e. the type of predicate involved such as causatives like persuade, tell, or advise, convey that an external argument (the subject) is implicitly responsible for an action), and some degree of pragmatic constraints to retrieve an antecedent in finite embedded and coordinate clauses. This study has broad implications for colonial varieties of European +NSLs because the proposal in this study predicts that cross-linguistically languages with divergent subject-verb agreement conjugation from European dialects that have null and overt pronoun alternations should deviate from the PAH regarding pronoun-antecedent ambiguity resolution in finite embedded and coordinate clauses since overt pronouns do not always signal a preference to detach from the syntactic subject.
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Finally, I must ‘show love’ for my family and friends in the U.S. and Brasil. Your unconditional support and affection has helped me to be the person that I am (Tô representando! ‘I’m representing!’). Thank you, Paola Ribeiro, for editing test items, answering my ‘crazy’ questions about Brazilian Portuguese, and convincing your classmates to participant in the pilot study. Last, but not least, I thank my parents who have taught me the value of education and determination to achieve a goal.
LIST OF ABBREVIATIONS

1: first person
2: second person
3: third person
AGR: agreement
BP: Brazilian Portuguese
Cl: clitic
Det: determiner
EP: European Portuguese
Fem: feminine
INFL: inflection
Masc: masculine
NSL: null subject language
Pst: past
Pl: plural
Prs: present
Sg: singular
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1. INTRODUCTION

This thesis investigates pronoun-antecedent agreement (binding) in contemporary Brazilian Portuguese (BP) finite embedded and coordinated clauses for third person singular subjects. BP appears to rely on syntactic factors (e.g., c-command, Principles A & B, feature checking of person, number and gender agreement), predicate-argument structure (i.e. the type of predicate involved such as causatives like persuade, tell, or advise, convey that an external argument (the subject) is implicitly responsible for an action), and some degree of pragmatic constraints to retrieve an antecedent in finite embedded and coordinate clauses. Although BP is considered a null subject language (+NSL), the choice between a subject and an object antecedent for a null pronoun in a finite embedded clause is mainly dependent on syntactic knowledge; the position of the grammatical subject regulates pronoun-antecedent interpretations because null referential third person subjects potentially occur in one conditioned environment: only in embedded clauses; moreover, they behave like anaphors which require a sentential subject (Modesto, 2000, Ferreira, 2004).

Linguistic research (Duarte, 1995, 2000, Kato, 1999; Kato & Negrão, 2000, Modesto, 2000, Barbosa et al. 2005) shows that BP has been losing null referential subjects since the beginning of the nineteenth century. This phenomenon is related to impoverished verbal agreement morphology which causes BP to exhibit more overt pronouns compared to EP (Galves, 1993, Duarte, 1995, Barbosa et al. 2005). BP’s verbal paradigm has completely lost the agreement inflection for second person singular and second person plural; in addition, first person plural is being replaced by third person singular bound inflectional morphology (a non-inflected form), which causes the once uniform paradigm with five uniquely inflected forms (the theme vowel is considered a non-inflected
form) in the nineteenth century to have maximally three inflected forms (e.g., first person singular, first person plural, and third person plural) in the present indicative (Duarte, 1995, Nunes, 2007).

1.1 CO-INDEXATION in EP & BP

A property that distinguishes +NSLs (e.g., Spanish, EP, etc.) from –NSLs (e.g., English, German, etc.) is that in +NSLs overt pronouns in embedded clauses do not characteristically retrieve a subject antecedent in a main clause. Previous research in BP observes that overt pronominal subjects are allowed in positions where they lack emphatic force (e.g., embedded subject co-indexed with the subject of the main clause); in EP or Spanish, the context of an embedded subject co-referential with the subject of the main clause requires a null pronominal subject (Duarte, 1995, Rodrigues, 2004, Barbosa et al. 2005). Co-indexation in BP binding constructions differs substantially and operates differently than EP. Compared to EP and Spanish, prototypical +NSLs, one finds more overtly realized pronouns in BP in contexts where a null subject would show up in EP or Spanish, specifically when overt pronouns are bound to a subject in a main clause (Duarte, 1995).

(1) a. O João, disse que ele/j comprou um computador. (EP/BP)
   John, say-3sg-pst that he/ei/j buy-3sg-pst a computer
   ‘John said that he bought a computer.’

   b. O João, disse que ∅i/*j comprou um computador. (BP)
      John, say-3sg-pst that ∅i/*j buy-3sg-pst a computer
      ‘John said that (he) bought a computer.’

   c. O João, disse que ∅i/j comprou um computador. (EP)
      John, say-3sg-pst that ∅i/j buy-3sg-pst a computer
      ‘John said that (he) bought a computer.’ (Barbosa et al. 2005:3)
In EP and Spanish, null subjects produce a characteristic (unmarked) reading; ‘the overt pronoun is avoided [in all contexts] unless the identification of a null subject is impaired’ (Barbosa et al. 2005:12). In EP and Spanish, overt personal pronouns are omitted unless they are stressed or required for contrastive purposes (Luján, 1987); whereas, in BP an overt subject pronoun is used frequently without providing contrastive focus or emphatic significance (Kato, 1999, 2001). Contemporary BP exhibits overt subject pronouns where a null pronoun would be expected in EP and Spanish. As can be seen from (1), EP and BP permit sentential (within the main clause) antecedents and discursive (previously mentioned) antecedents in finite embedded clauses with an overt subject pronoun. Thus, a clause as in example (1) with a lexical subject in the main clause and an overt pronoun in the embedded clause is potentially ambiguous in meaning due to two possible interpretations: (1) co-referential with a noun phrase (NP) subject antecedent and (2) free (disjoint) reference which relates to a previously mentioned referent. Barbosa et al. (2005) claim that in EP the more natural (unmarked) reading for (1a) is the one in which someone other than John bought a computer (the embedded pronoun is preferably interpreted as not co-referring to the main subject); however, in BP the unmarked reading for (1a) is the one in which John bought a computer (the embedded pronoun is preferably interpreted as co-referential with the main subject).

Neither the distribution nor the interpretation of null subjects in BP is similar to EP or other Romance languages (Italian, Spanish, EP, etc.); in EP and Spanish null subjects are free to have a situational antecedent (refer deictically), to have a discursive antecedent or to have a sentential antecedent. Conversely in BP, null subjects can only retrieve a c-commanding antecedent in the subject position (Negrão, 1997, Modesto, 2000, Ferreira, 2004). Overt pronouns in BP can take sentential (subject or object) antecedents or discursive antecedents. Previous research (Carminati,
2002) alleges pronoun-antecedent agreement in finite embedded clauses is regulated by syntactic factors (e.g., subject-object positions) independently of word formation (i.e. type of predicate involved), although Alonso-Ovalle et al. (2002) argue that the primary factor which regulates pronoun-antecedent agreement is sentence processing. Filiaci (2010) provides evidence which undercuts the PAH by demonstrating that there is micro-variation even within +NSLs that traditionally are postulated to function similarly; reading times in Spanish differ from Italian regarding null and overt pronoun-antecedent interpretation. Carminati (2002) posits an antecedent in the subject position can resolve pronoun-antecedent ambiguity.

1.2 THE POSITION OF THE ANTECEDENT HYPOTHESIS

Carminati’s (2002) theory, the Position of the Antecedent Hypothesis (PAH), proposes that null and overt subjects retrieve their antecedents in different positions within the syntactic (subject-object) structure. Pronoun-antecedent relations are based exclusively on the syntactic configuration of the clause in which the null pronoun is bound to an antecedent that is in the grammatical subject position of the main clause; however, the overt pronoun retrieves an antecedent in a lower syntactic position (e.g., an object of the clause) or a previously mentioned referent. Pronoun-antecedent agreement is an example of a dependency relationship between two syntactic positions (e.g., a noun, pronoun or a noun phrase (NP) is anaphoric to a null or overt pronoun if its interpretation depends on the construal of a referent that is present in the same clause or is previously mentioned). Consider the following data in Italian:

(2) a. Gianni ha detto a Mario che ∅ è intelligente.

Gianni has told Mario that ∅ is intelligent.
b. Gianni ha detto a Mario che lui è intelligente.

Gianni has told Mario that he is intelligent. (Carminati 2002:89)

In (2) the interpretation of the null pronoun depends on the construal of Gianni in the main clause (the antecedent), and through this dependency the null pronoun comes to refer to Gianni himself. The interpretation of the overt pronoun lui ‘he’ is determined by the reading of Gianni and Mario in the main clause (the possible antecedents), and because of this reliance the overt pronoun could potentially refer to either Gianni or Mario. Pronoun-antecedent agreement applies syntactic constraints (e.g., binding, Principles A & B, feature checking of person, number and gender agreement) to select the appropriate referent.

The interpretation of overt and null subject pronouns in Portuguese is an area that has received modest attention and thus is in need of further examination. Research indicates that BP is evolving linguistically: it apparently contains two grammars that are partially +NSL and partially –NSL; that is (1) a grammar with null subjects and (2) a grammar with overt subjects (Duarte, 1995, Barbosa et al. 2005). Similar claims are found in Puerto Rican Spanish (Morales, 1989) and Dominican Spanish (Toribio, 2000), which share with BP dissimilar subject-verb agreement conjugation from their European counterparts (e.g., the phonological loss of the second person singular bound morpheme /–s/ which is replaced by third person singular morphology /-Ø/, a non-inflected finite form) in the present indicative. ¹

¹. The non-inflected morphological variant can be characterized by a ‘theme vowel’ which attaches to the verb stem and can be analyzed as determining the inflection (e.g., verb classes in Romance languages are identified by the theme vowels: /a/, /e/, /i/).
1.3 PRONOUN-ANTECEDENT BINDING in BP: TESTING the PAH

Previous research on Spanish (Alonso-Ovalle et al. 2002, Sorace et al. 2009, Filiaci, 2010) has revealed that the PAH seems to make predictions that apply to languages other than Italian, which follows Carminati’s prediction that the PAH would apply cross-linguistically. By providing new data which contributes to previous findings (Duarte, 1995, Modesto, 2000, Carminati, 2002, Barbosa et al. 2005, Filiaci, 2010), this study empirically tests whether the referring preferences of null and overt subject pronouns are determined by syntactic (linguistic, language specific) or pragmatic (non-linguistic, setting specific) factors; such preferences can be measured by manipulating the syntactic structure of the clauses (independently of situational context) through the use of either a null pronoun or an overt pronoun in a finite embedded and coordinate clause.

Pronominal reference is restricted by certain morphosyntactic (inflectional agreement) constraints, syntactic (configurational) constraints on co-reference (e.g., Principle B of Binding Theory, person, number and gender agreement), and pragmatic restrictions which limit pronominal distribution; morphosyntactic, syntactic, and pragmatic constraints influence pronoun-antecedent ambiguity resolution by filtering potential antecedents to select an appropriate antecedent. In BP the choice between a subject and an object antecedent for a null pronoun in a finite embedded or coordinate clause is dependent on syntactic knowledge (i.e. the position of the grammatical subject) which regulates pronoun-antecedent interpretations since null pronouns act as anaphors (Modesto, 2000, Ferreira, 2004).
The proposal of this thesis has implications for linguistic theory. First, it accounts for binding in BP by providing a syntactic account of the distribution of overt and null referential subjects in finite embedded and coordinate clauses. Second, it provides further evidence for current claims (Carminati, 2002, Filiaci, 2010) that syntax (i.e. binding is based exclusively on the syntactic configuration of the sentence) and pragmatics (setting specific knowledge) are responsible for pronoun-antecedent ambiguity resolution. Finally, the findings in this thesis have broad implications for colonial varieties of European +NSLs because the proposal in this study predicts that cross-linguistically languages with divergent subject-verb agreement conjugation that permit null and overt pronoun alternations should deviate from their European counterparts since overt pronouns do not always signal a preference to detach from the syntactic subject.

1.4 OUTLINE OF THE THESIS

This thesis is organized as follows. In Chapter 2, I discuss pronoun-antecedent binding by providing data in EP, Spanish and BP on the distribution of overt and null pronominal subjects in embedded clauses. I present findings related to the null subject parameter which demonstrates BP’s divergent behavior from +NSLs. Chapter 3 addresses uniform verbal agreement inflectional paradigms encoding person and number agreement features which being enclitic on the verb allow for subject recovery in +NSLs; the different behavior of null subjects in BP compared to EP and Spanish is accounted for morphologically by focusing on person and number agreement features which directly affect the NSP. Chapter 4 presents the participants, describes the stimuli/materials, and describes the data collection method for the empirical design that tests the cross-linguistic validity of the Position of the Antecedent Hypothesis (Carminati, 2002) which claims that pronoun-antecedent binding is regulated by syntactic factors. Chapter 5 presents descriptive statistics based
on participants’ construal of subject and object antecedents in the pilot study; results for the mean, median, and mode scores of the dependent variables (subject and object) and independent variables (null and overt) are determined which illustrate the strong tendency for anaphoric behavior in BP for null subjects in both coordinate and embedded clauses. Chapter 6 presents a detailed analysis of the results. Previous research which questions the validity of the PAH is incorporated into an investigation of pilot study data. The interaction of syntactic, semantic and pragmatic interfaces in resolving pronoun-antecedent ambiguity is presented by incorporating a MP approach which recognizes that syntax can only be understood with reference to the morphosyntactic (inflectional AGR) and semantic systems (LF) of the grammar. Chapter 7 discusses the conclusions of this thesis on pronoun-antecedent ambiguity resolution in BP finite embedded and coordinate clauses for third person singular subjects: a summary of the thesis is provided, the limitations of the pilot study are discussed, and issues for further research are reviewed.
2. BINDING in BP

In this chapter I discuss the current status of pronoun-antecedent binding in BP. In §2.1 I review the relevant literature regarding previous accounts of Principle and Parameters theory, a generative grammar model, which describes the typology of overt and null categories. A theoretical background which defines Binding Theory, Principles A, B, & C, and c-command (a necessary condition for binding) are discussed in §2.2. In §2.3 I discuss the literature on the distribution and co-indexation of overt and null pronominal subjects in finite embedded clauses in BP, EP and Spanish. I present data that displays BP’s anaphoric relationship that permits null referential subjects to occur only in embedded clauses; also undergoing examination are data that receive the marked (less natural) reading for prototypical +NSLs like EP, a language which displays co-reference where an overt pronominal in the embedded clause is bound to the main clause subject. Another area of examination, in §2.4, the Position of the Antecedent Hypothesis (PAH) (Carminati, 2002), predicts that null and overt subjects retrieve antecedents in different structural positions. §2.5 poses two research questions that are addressed in this study: (1) to investigate whether the PAH can predict similar results for BP which has a null and overt pronominal alternation in its system, and (2) to examine whether null and overt pronouns have different functions in binding relations.
2.1 THEORETICAL BACKGROUND: PRINCIPLES & PARAMETERS

Chomsky (1981) posits that children are born with internal knowledge of language that is said to be innate to the human species called Universal Grammar (UG) which contains universal parameters that are set based on experience (input). Principles and Parameters (PP) theory is based on the existence of fixed general principles and language-specific setting of parameters that are common to all natural human languages and that predispose children to organize the input in certain ways (Chomsky & Lasnik, 1993). The principles are thought to be innate; parameters impose universal restrictions because they determine structural choices available to languages, thereby ensuring that all languages select from a universal inventory of options (i.e. the co-occurrence of null and overt pronominal subjects in finite clauses or overt subject pronouns in finite clauses). PP theory allows for having a model of grammar which entails a finite and potentially relatively simple UG, yet explains cross-linguistic variation by a minimal set of parameters which account not only for the apparent diversity of syntactic structures, but also for how these could have been successfully acquired given the constraints under which child language acquisition takes place.

2.1.1 NULL & OVERT ELEMENTS

PP theory, within the framework of Government and Binding (GB) theory (Chomsky, 1981), provides a typology of overt and null NPs and constraints on their distribution and interpretation. The basis for this typology are the features [+/- anaphoric] and [+/-pronominal] which are summarized in Table I.
Table I Overt and Empty Categories

<table>
<thead>
<tr>
<th>Overt Elements</th>
<th>Null elements</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. [+anaphor, -pronominal] anaphor</td>
<td>NP-trace</td>
</tr>
<tr>
<td>b. [-anaphor, +pronominal] pronoun</td>
<td>pro (Ø)</td>
</tr>
<tr>
<td>c. [+anaphor, +pronominal] n/a</td>
<td>PRO</td>
</tr>
<tr>
<td>d. [-anaphor, -pronominal] R-expressions, variables (e.g., quantified phrases, “every student”)</td>
<td>WH-trace</td>
</tr>
</tbody>
</table>

(Chomsky, 1982a: 78)

Empty categories are phonetically null elements which are present whenever a theta-role is involved. The presence of an empty category in (b & c) is motivated by the Extended Projection Principle (EPP) (Chomsky, 1982), a universal principle of grammar, requiring all clauses to have an interpretable associated, null or overt, subject. Consider the following examples of anaphors and pronouns in English:

(3)  a. John, likes himself$_{i/*i}$.  
b. John, likes him$_{i/*i/k}$.  
c. John, told Tom$_{i}$ that he$_{i/*i/k}$ likes coffee.

The reflexive *himself* is an example of an anaphor which is co-referential with the antecedent *John* that it matches with in features [+masculine, +singular]. In (3b), *him* is an example of an overt pronoun. A referential expression such as *John* (3c) is labeled an R-expression which points to a specific entity in the world.
Co-indexation (co-reference) can occur when two participants in a syntactic structure are assigned the same reference (e.g., two NPs may be interpreted as identical). In (3a) the NP John and himself are co-referential which are indicated by the same index (1) which specifies that the anaphor himself is interpreted as bound to the antecedent John.

The crux of this thesis focuses on binding of null referential pronouns (Ø) and overt pronouns. A null pronoun is a phonetically empty category that can occur in the grammatical subject position of finite clauses and is found only in +NSLs (Chomsky 1981, 1982). Consider (1) reinterpreted as (4):

(4) a. O Joãoi disse que ele/i comprou um computador. (EP/BP)
John say-3sg-pst that he/i buy-3sg-pst a computer
‘John said that he bought a computer.’

b. O Joãoi disse que Ø/i comprou um computador. (BP)
Johni say-3sg-pst that Ø/i buy-3sg-pst a computer
‘John said that (he) bought a computer.’

c. O Joãoi disse que Ø/i comprou um computador. (EP)
Johni say-3sg-pst that Ø/i buy-3sg-pst a computer
‘John said that (he) bought a computer.’

(Barbosa et al. 2005:3)

2. Co-indexation also takes place when an element undergoes movement (e.g., all elements in a chain bear the same index) in the case of traces in PP; if two overt NPs co-refer, they each get distinct theta-roles yet indicate the same (co-indexed) entity in the universe of discourse.
Once a referent has been established it becomes pragmatically marked in +NSLs to use overt pronominal subjects to refer to the same referent, unless they are stressed or required for contrastive purposes (Luján, 1987). BP diverges from EP by generating a characteristic (more natural, less marked) reading which permits both null and overt pronouns to be bound to a sentential subject antecedent; an overt pronoun bound by a main clause subject is not predicted by the PAH which motivates this empirical investigation. Barbosa et al. (2005) claim that in BP the characteristic (unmarked) reading for an overt subject in an embedded finite clause is associated with a sentential subject antecedent which would produce a less natural (marked) reading in EP; the unmarked reading in EP of an overt pronoun in an embedded finite clause refers to either a sentential object antecedent or a discursive antecedent. The characteristic (unmarked) reading in BP allows null referential subjects to behave like anaphors (e.g., BP abides by morphosyntax: c-command/inflectional AGR) which require a sentential subject (Modesto, 2000, Ferreira, 2004); whereas, in EP and Spanish the characteristic reading for a null subject in an embedded finite clause is associated with a previously mentioned sentential subject antecedent or a discursive antecedent (EP and Spanish tolerate cross-clausal references).

The Subset Principle (Berwick 1985, Manzini and Wexler 1987) can be used to describe markedness properties in terms of a subset/superset relation; unmarked/marked properties of a linguistic phenomenon (e.g., overt/null pronoun use) can be explained in terms of a subset/superset relationship. Based on the Subset Principle, unmarked (characteristic, more natural) values are expected to be the ones which produce the narrowest possible grammar (the subset). Take for instance the distribution of null and overt pronouns cross-linguistically:
Figure I: Subset/Superset Relation for +NSLs/-NSLs

EP, BP and Spanish represent the superset parameter value (the marked value) which generates the widest grammar compared to the –NSL (e.g., English) subset value (the unmarked value) because EP, BP and Spanish allow null and overt pronominal subjects, whereas overt subject pronouns are the only option in –NSLs like English.
2.2 GOVERNMENT & BINDING THEORY

The minimal formation of a clause is determined by the argument structure (lexical information about the arguments) and the theta grid of the predicate. A clause must have a subject regardless of its argument structure. This property derives from the EPP, a universal principle of grammar, which requires that all clauses build a grammatical subject position; as a result, every clause has a subject (null or overt) since the subject position [Spec, IP] must be instantiated to satisfy the EPP requirement.

Under PP theory, within the framework of Government and Binding (GB), a phonetically null nominal element (∅) is a syntactically present category whenever a theta-role is discharged even if the corresponding position contains no lexical material. The presence of an empty category is motivated by the EPP. In +NSLs, an empty category fills the main clause [Spec, IP] position and satisfies the EPP; in -NSLs, the EPP is satisfied by an overt argument or by an expletive (an element in a NP position which is not an argument and to which no theta-role is assigned). Consider (5) in which the co-occurrence of null and overt pronominal subjects in finite clauses is allowed in +NSLs like BP:

(5)  

a.  Eu falo o português.  (BP)  
    I speak-1st-sg-prs det-masc Portuguese.  
    ‘I speak Portuguese.’

b.  Ø falo o português.  
    Ø speak-1st-sg-prs det-masc Portuguese  
    ‘(I) speak Portuguese’
In (5b) a semantically implied argument of a verb that is not phonetically realized is represented as an empty category. In +NSLs the grammatical subject characteristically is morphologically null because the subject is encoded on the bound inflectional morphology; in other words, there is no overt argument in the subject position. BP differs from prototypical +NSLs like EP and Spanish due to three features: (1) BP has a strong EPP feature for third person singular which requires the use of an overt pronoun in a finite main clause (see §3.2.3), (2) BP allows overt pronominal subjects that do not carry emphatic force, and (3) BP prefers overt pronominal subjects over null subjects in finite clauses (Duarte 1995, Figueiredo-Silva, 1996, Kato, 1999, 2000). The presence of a (null or overt) subject is exclusively determined by the theories of thematic (theta) roles and Case. Theta theory determines the semantic relationship between constituents in a structure (i.e. to determine which NP can be an argument of a verb). Case Theory insures that every overt NP in a clause is marked as possessing a case (e.g., nominative, accusative, etc.) as required by the Case Filter (all NPs must occupy a Case position).

2.2.1 THETA THEORY

There are certain thematic relations that relate arguments in a structure. Theta theory is a sub-theory of UG, which deals with the valency requirements of verbs (Radford, 1988). Theta-theory accounts for the semantic relationships between a verb and its arguments through the assignment of participant roles called theta-roles (Haegeman, 1991). The distribution of theta-roles in a clause is mediated chiefly by the EPP and the Theta-Criterion. The Theta-Criterion requires that each argument (a lexical or null NP) bears only one theta-role and each theta-role must be assigned to one argument (Chomsky, 1981). Theta roles are associated with the Projection Principle (Chomsky, 1981) which requires all lexical information (valency) to be projected into the syntax. Additionally, theta roles are necessary to represent the argument structure of the verb; every
predicate comes with a predefined set of theta-roles, which it requires to be expressed if the clause is to be grammatical. In other words, a predicate that has a theta-role to discharge to its argument must do so or a clause will not be generated nor will it reach convergence.

Under GB, argument structure and thematic roles come from the lexicon and lexical representation as per Projection Principle; predicate heads are listed in the lexicon with a theta-grid, an ordered (non-hierarchical, non-structural) list of theta-roles which is part of a speaker’s lexical knowledge. Consider the following example in (6a &b):

(6)  a. Ele quer um cafezinho,  (BP)
      He wants coffee.

       *Ele quer.
       *He wants.

want: Theta–grid

<table>
<thead>
<tr>
<th>Agent</th>
<th>Theme</th>
</tr>
</thead>
<tbody>
<tr>
<td>NP</td>
<td>NP</td>
</tr>
<tr>
<td>i</td>
<td>j</td>
</tr>
</tbody>
</table>

Theta theory requires that the above structures in (6) are built up on certain semantic relationships; two NP’s are related to each other on the basis of abstract thematic relationships which are established through the assignment of theta-roles (e.g., every NP receives a specific theta-role). The meaning of want, a two place predicate, is such that it requires someone who does the wanting (a subject) as well as specification of what is being wanted (e.g., a direct object or an
embedded clause); want discharges an external argument (the subject) and assigns an internal argument (the object). Thus, in (6a) the NP he receives the thematic role of agent, while the NP coffee carries the role of theme. Example (6a) follows the Theta-Criterion since there is a one-to-one correspondence between arguments and the theta-roles that they receive; (6b) violates the Theta-Criterion because one argument, ele ‘he’, gets two theta-roles (one variable with two definite values makes the predication procedure, like the algebra of solving for x, impossible).

Radford’s (1997) VP-internal subject hypothesis (VISH) claims that subjects are base-generated in the specifier of the verb phrase [Spec, VP] and are raised to the subject position [Spec, IP] via subject raising (V-to-I). Movement is claimed to be induced by the EPP that requires the grammatical subject position [Spec, IP] to be constructed independently of semantics. Within the GB framework theta-roles are assigned within the maximal projection of the head that assigns those roles. If the verb phrase (VP) assigns theta-roles, all roles will be assigned within the VP. Take for instance (6) reinterpreted as (7) which has the transitive verb want:

(7)  Ele quer um cafezinho.  
He want-3sg-prs det-masc coffee 
‘He wants coffee.’
In (7), the V-to-I raising phenomenon is represented. The grammatical subject \([\text{Spec, IP}]\) position is occupied by the Agent argument (the syntactic subject) \(\text{ele}\) and Complement-V position contains the theme argument (the direct object) \(\text{um cafezinho}\) (c-commanding its sister).

2.2.2 C-COMMAND

C-command is a relationship that holds between two categories (nodes). The definition of c-command is found in (8):

(8) C-command

Node A c-commands node B iff:

(i) A does not dominate B and B does not dominate A; and

(ii) The first branching node dominating A also dominates B. (Reinhart 1981:22/620)

The procedure to determine which nodes \(\text{YP}\) c-commands is determined in (9): starting from \(\text{YP}\) move upward until the first branching node dominating \(\text{YP}\) is reached, namely \(\text{XP}\); then move
down following the branches of the tree and every node that is located on the branches is c-commanded by YP.

(9) |
   /|
  XP-root node
 /  \|
terminal syntactic node-YP ZP-terminal syntactic node
   I / \ .
terminal syntactic node-Y Z   WP-terminal syntactic node
   I I I
ultimate constituents- y z W-terminal syntactic node
   I
   w-ultimate constituents or lexical elements

Under the definition of c-command, there can be two nodes in a given phrase marker such that neither dominates the other. For example, the two terminal syntactic nodes, YP and ZP, c-command each other: YP c-commands ZP since every category that dominates YP, namely XP, also dominates ZP; the terminal syntactic node ZP also c-commands YP since the category that dominates ZP, namely XP, also dominates YP. The terminal syntactic node YP does not dominate ZP and vice versa.

Government is a grammatical relation making reference to c-command, with two types of restrictions:

(10) Government
A governs B iff:
(i) A is a governor (e.g., lexical heads: N, V, P, and A); and
(ii) A c-commands B and B c-commands A.            (Haegeman 1991:135)
The following example (11) demonstrates the head-government relation; the head I governs its complement VP. From the definition of c-command it follows that I, the governor, c-commands VP, the governee; and conversely, VP, the governee, c-commands I, the governor. Government can be thought of as involving a mutual c-command relationship.

(11) Ele quer um cafezinho. (BP)

‘He wants coffee.’

Following the GB definition of c-command (Reinhart, 1976, 1981, Chomsky, 1981), an argument must c-command the V head (mutual c-command as defined on the previous page) from which it receives a theta role. The theme argument, node NP₃, would c-command node V since the first branching node that dominates NP₃, also dominates V. The Agent external argument (NP₁) asymmetrically c-commands V since NP₁ in [Spec, IP] c-commands V and V does not c-command NP₁.

3. The head I governs its specifier NP by m-command; the definition of m-command: the first Xmax that dominates A (head) dominates B (Spec).
2.2.3 CASE THEORY

Case Theory is one of the principal modules in GB which is responsible for insuring that every lexical NP in a sentence is marked as possessing a case (e.g., nominative, accusative, etc.) as required by the Case Filter. The Case Filter requires that all NPs must occupy a Case position. To clarify this claim, assess (11) reinterpreted as (12):

(12) Ele quer um cafezinho.
He wants coffee.

The head of a predicator assigns theta-roles (and Case if it’s a case-assigner) to the elements which depend on them; the agreement (AGR) element of INFL (I) assigns nominative case to the subject of a clause. In (12), the verb want assigns an accusative case to its NP object coffee, since this NP is governed of the verb want. At the same time, the VP ‘wants coffee’ assigns the theta role ‘agent’ to its NP subject he. There is a parallel between case assignment and theta-role assignment since a verbal element assigns case to an NP that it governs if and only if it assigns a theta role to its subject (Chomsky, 1981). Lexical NPs (external arguments) of a transitive verb move from the base-generated position in [Spec, VP] to [Spec, IP] to satisfy the EPP feature since the grammatical subject position is constructed independently of semantics. In English and BP a lexical NP moves from a finite embedded clause to the subject position [Spec, IP] in the main clause for morphological reasons (e.g., strong EPP feature, Case assignment, etc.). A null referential subject in a finite embedded or coordinate clause will be construed as a trace since a trace must enter into a binding and a government (c-command) relation with its antecedent (the c-commanding structure that has left behind a trace).
2.2.4 TRACE THEORY

In GB theory, Chomsky (1981, 1982, 1986) proposes two distinct requirements which are necessary for proper government: lexical government (trace identification) or antecedent government (pronoun-antecedent government at a distance, or a discontinuous dependency). Proper government occurs either if an empty category (e.g., a trace) is governed by a lexical category (a head lexically governs its complements) or if it is co-indexed with a moved $X_{\text{max}}$ which c-commands it because an antecedent is a $X_{\text{max}}$ (i.e. the antecedent asymmetrically c-commands its trace, but not vice-versa in antecedent government). Only a proper subset of governors (=heads) can license a trace by lexical government. Languages can vary cross-linguistically with respect to which heads belong to the set of proper governors. Only lexical NPs (those arguments that refer to a participant in an event) which receive a theta-role are assigned a referential index which they will be able to bear when moved (Rizzi, 1990). The availability of a referential index allows for the possibility of traces (of referential arguments) to enter both a binding and an antecedent government (c-command) relation with their $X_{\text{max}}$ counterparts.

Trace Theory is concerned with the empty category left behind in a particular location by the movement of some element out of that position. GB recognizes two types of traces when constituents move: NP-traces and WH-traces. Consider the NP-trace in (13):

(13) Professors seem to like coffee.
In (13), the NP *professors* raises subject-to-subject overtly since the empty subject position in the main clause is not assigned a theta-role by the predicate *seem*. The only NPs which can appear in the subject position [Spec, IP] are those which are assigned a theta-role by a predicate other than *seem*; in (13) the NP *professors* receives a theta-role from the verb ‘like.’ The NP ‘*professors*’ gets indexed upon moving into a Case position; the NP’s theta-role remains discharged to the subject of ‘like.’

The Empty Category Principle (ECP) requires that all traces must be properly governed; the ECP maintains that INFL must be the proper governor in +NSLs (bound inflectional morphology variant in head I position), but not in -NSLs (Chomsky, 1981, 1982). In +NSLs, INFL can properly govern an empty category because INFL has pronominal features (i.e. lexical content) (Rizzi 1982). However, in -NSLs, the INFL position can be filled by functional categories (e.g. modal auxiliaries like *will, should, etc.* ) or otherwise nothing (bound inflectional morphology of an invariant sort, like modals, do not liberally inflect); INFL does not have lexical properties and is understood by the ECP as not having lexical properties is equated with not having proper government.

The ECP provides a licensing requirement on an empty category and its antecedent. The empty category has the same features of the moved element, its same theta-role but no phonetic realization. Consider (1b) reinterpreted as (14):

(14) *O João* disse que *∅i/*j comprou um computador.  
(1b) The John say-3sg-pst that *∅i/*j buy-3sg-pst a computer
‘John said that (he) bought a computer.’  
(BP)  
(Barbosa et al. 2005:3)
In order for a null pronoun to be licensed, it has to be governed by head I (Tense & AGR). A null pronoun is licensed by the head I under lexical government by *comprou* ‘bought’ and the empty category inherits features from the licensing head I (Rizzi, 1986). The empty category (∅) in (14) is licensed by the ECP because it is governed by the predicate *bought*. Recall that the theta-role is assigned to the trace position. The actual element that moves, such as *John* in (14) cannot receive a theta-role again (per Theta Criterion) in [Spec, IP] since there is only one theta-role per chain, where a chain is represented as the moved element and its trace. In (14) the head of IP is the bound inflectional morpheme –ou (once V-to- I movement occurs) which carries precise lexical (person and number) properties, and properly governs the empty category ∅ (Rizzi, 1982).

A null referential subject must be licensed (head-governed) and identified (i.e. associated with person and number agreement features) to establish reference to the argument (Rizzi, 1982, 1986). Licensing and identification are distinct requirements. The ECP is a licensing condition, whereas the identification requirement for empty categories is separate from the ECP. The identification requirement is necessary since empty categories must be interpreted (a procedure which involves indexation once arguments have been assigned theta-roles and Case) and the content of an empty category must be identified (either by theta-government or antecedent-government). The identification requirement means that independently from the ECP, a moved argument cannot move to another theta position as per Theta Criterion; a moved argument must be associated with its trace by one of two strategies: binding ([Spec, IP] position) or antecedent-government (e.g., a site higher than [Spec, IP] like [Spec, CP] position). Pronoun-antecedent binding is only available for a lexical subject because binding requires a landing site that is in the subject [Spec, IP] position.
2.2.5 BINDING THEORY

Binding theory (BT), a sub-theory of GB theory, aims to determine which NPs in a given syntactic domain point to the same entity (co-indexation) in the universe of discourse. Under PP theory, binding requires two conditions: co-indexation and c-command regulate the distribution between anaphors, pronouns, R-expressions and their antecedents (Chomsky, 1981, 1982, Rizzi, 1990, Ouhalla 1999). The definition of binding is presented in (15):

\[
\text{(15) Binding}
\]
\[
\alpha \text{ binds } \beta \iff:
\]
\[
(i) \ \alpha \text{ is co-indexed with } \beta
\]
\[
(ii) \ \alpha \text{ c-commands } \beta
\]
\[(\text{Ouhalla 1999:230})^5\]

2.2.6 Principles A, B, & C of Binding Theory

BT is a constraint that restricts co-referential and distributional properties between an antecedent, a pronominal or an anaphor. There are distinct structural constraints that determine the binding possibilities for the three types of NPs: anaphors, pronominals and R-expressions are subject to Principles A, B and C of Binding Theory (Chomsky, 1986, Chomsky & Lasnik, 1993).

\[
\text{(16) Binding Theory}
\]
\[
\text{Principle A: An anaphor must be bound in its Binding Domain (BD).}
\]
\[
\text{Principle B: A pronominal must be free in its BD.}
\]
\[
\text{Principle C: An R-expression must be free (i.e., not bound).}
\]

5. Reinhart (1976) first proposes c-command for pronoun-antecedent agreement (binding).
Principles A, B and C limit the interpretation of anaphors, pronominals and R-expressions. Anaphors and pronouns require different binding conditions in their binding domains and are subject to language specific requirements. In BP, a null subject [-anaphor, +pronominal] appears to behave more like a NP-trace [+anaphor, -pronominal] since a null subject can only retrieve a c-commanding antecedent in the subject position of the main clause (Modesto, 2000, Ferreira, 2004).

2.2.7 PRONOUN-ANTECEDENT BINDING

Principle B specifies that a pronoun must be free in its binding domain. C-command is a necessary condition for binding. If two arguments are bound, they have the same reference.

Consider the following BP sentence which is diagrammed below.

(17) João diz que ele quer café.         (BP)
    John say-3sg-prs that he want-3sg-prs coffee
    ‘John says (that) he wants coffee.’

6. The empty categories, NP-trace [+anaphor,-pronominal], ∅ [-anaphor, +pronominal], Wh-t [-anaphor, -pronominal], are also subject to binding.
The NP João c-commands ele as the first branching node that dominates João, namely IP, also dominates ele; João and ele are also co-indexed, therefore João binds ele. The sentence in (17) obeys Principle B as ele is free in its binding domain; to calculate the binding domain: α=ele, α’s governor=I, α’s (most) local accessible antecedent=ele; the node that exhaustively dominates α and α’s governor is the embedded IP, and α’s antecedent is outside of the binding domain. Pronominals must be free (under Principle B) in their binding domain, but they must bound by an antecedent outside of their binding domain.

I assume that binding conditions entail language-specific parameter settings (Manzini and Wexler, 1987). In BP (as well as EP, Spanish and English) the embedded clause is defined as the binding domain which includes the pronominal (α: the NP targeted for binding), finite Tense (α’s
governor: what assigns Case), and satisfies Principle B of BT because the pronoun is not c-commanded by any potential binder within that Binding Domain (IP in the embedded clause) only if ele functions as its own subject/antecedent; hence, co-indexation is possible with the main clause subject (α’s most local accessible antecedent) since the antecedent is not contained in the pronoun’s binding domain.

Syntactic constraints (e.g., c-command, Principles A & B, feature checking of person, number, and gender agreement) are required under BT in order to select an appropriate referent. The syntactically determined aspects of BT affect semantic interpretation because BT facilitates reference to one antecedent over another referent which causes the existence of preferred interpretations conditioned by syntax independent of sentence processing or pragmatic constraints (e.g., Principles A, B & C, c-command, person, number and gender constrain co-reference and limit the distribution of pronouns). Take for instance example (20) which limits pronoun interpretation.

(20) John, says that she*i/j wants coffee.

The sentence in (20) cannot be interpreted as co-referential with the R-expression John because the pronoun she does not agree in gender with the c-commanding NP John, thereby restricting co-indexation between the antecedent and pronoun; the two arguments, John and she, refer to two individual entities since, although John c-commands she, the two NPs cannot be co-indexed due to the lack of agreement (AGR) properties; binding is an AGR relation based on c-command, person, number and gender features.
2.2.8 SYNTACTIC, SEMANTIC & PRAGMATIC INTERFACE

In natural human languages syntactic, semantic, and pragmatic constraints can be interconnected in pronoun-antecedent ambiguity resolution. Cross-linguistic research (Rizzi, 1986a, 1997, Luján, 1987, Wexler & Manzini, 1987, Alonso-Ovalle et al. 2002, Filiaci, 2010) has investigated how pronouns retrieve their antecedents. A variety of syntactic constraints in conjunction with pragmatic principles contribute in determining the choice and interpretation of null and overt subject pronouns for +NSLs; ultimately, these researches lead to either grammar or processing as factors which constrain the use of pronouns in finite embedded clauses.

Syntactic knowledge about licensing conditions and language specific restrictions regarding the types of anaphoric expressions need to be integrated with pragmatic constraints to determine a referent or referents (Filiaci, 2010). In some languages (e.g., EP, Spanish, etc.) the realization and position of subjects are determined by syntactic constraints and pragmatic restrictions. In BP the choice between a subject and an object antecedent for a null pronoun in a finite embedded clause is dependent on syntactic knowledge since the position of the grammatical subject regulates pronoun-antecedent interpretations because null pronouns are anaphors.

Pragmatic restrictions and distinct bound inflectional morphology associated with lexical constraints (e.g., the licensing and identification of a null pronoun) controlling co-indexation in EP (Spanish, Italian, etc.) and BP pronoun-antecedent binding constructions function quite differently. The distinct bound inflectional morphology associated with lexical constraints and pronoun-antecedent binding in EP requires the use of a null pronoun (Barbosa et al. 2005). A null pronoun in a finite embedded clause can alternate freely in BP with an overt pronoun which contrasts with EP
and Spanish where a null subject is obligatory. Overt referential subjects are used for pragmatic reasons in conditioned environments in EP (e.g., switch reference, change of topic, etc.). BP has some degree of pragmatic restrictions or lexical constraints as required in EP. In EP and Spanish, pragmatic constraints controlling co-indexation of potential referents may facilitate to limit pronominal binding.

2.3 PRAGMATIC CONSTRAINTS in EP

The use of null and overt pronominal subjects in +NSLs has been proven to be regulated by multiple pragmatic variables including: topic continuation (whether the subject has been mentioned), new information, switch-reference (e.g., a previously mentioned subject required for contrastive purposes), Tense/Aspect/Mood (TAM) continuity, person and number, and clause type (Luján, 1987, Silva-Corvalán 1982, 1994, Otheguy et al. 2007). A primary function of overt pronominal subjects is to remove referential ambiguity when new referents are introduced in the discourse. Once a referent has been established it becomes pragmatically marked in +NSLs to use overt pronominal subjects to refer to the same referent unless they are stressed or required for contrastive purposes (Luján, 1987). In Spanish and EP null subjects are typically associated with continuity to a previously mentioned c-commanding sentential subject. Compared to EP and Spanish one finds more overt pronouns in BP in contexts where a null subject would appear in EP or Spanish, specifically when overt pronouns retrieve a sentential subject antecedent (Duarte, 1995).
2.3.1 CO-INDEXATION of PRONOUNS in EMBEDDED CLAUSES

A property that distinguishes +NSLs from –NSLs is that in +NSLs overt pronouns in an embedded clause do not characteristically co-refer with a main clause subject. For example, in (21d) English requires an overt pronoun in the embedded clause to refer to the potential (subject or object) antecedents, whereas +NSLs like Spanish and EP would use a null pronoun to retrieve the antecedent (21b & e).

(21)  
   a. O Joãoi convenceu o Pedroj que ∅i/*j/*k é inteligente.   (BP)
      the Johni convince-3sg-pst the Pedroj that ∅i/*j/*k be-3sg-prs intelligent.
      ‘John convinced Pedro that he is intelligent.’

   b. O Joãoi convenceu o Pedroj que ∅i/j/k é inteligente.   (EP)
      the Johni convince-3sg-pst the Pedroj that ∅i/j/k be-3sg-prs intelligent.
      ‘John convinced Pedro that he is intelligent.’

   c. O Joãoi convenceu o Pedroj que elei/j/k é inteligente.   (BP/EP)
      the Johni convince-3sg-pst the Pedroj that hei/j/k be-3sg-prs intelligent.
      ‘John convinced Pedro that he is intelligent.’

   d. Johni convinced Pedroj that hei/j/k is intelligent.   (English)
      Johni convince-3sg-pst Pedroj that hei/j/k be-3sg-prs intelligent.
      ‘John convinced Pedro that he is intelligent.’

   e. Juani convenció a Pedroj de que ∅i/j/k es inteligente    (Spanish)
      Johni convince-3sg-pst to Pedroj that ∅i/j/k be-3sg-prs intelligent.
      ‘John convinced Pedro that he is intelligent.’

   f. Juani convenció a Pedroj de que él i/j/k es inteligente (Spanish)
      Johni convince-3sg-pst to Pedroj that hei/j/k be-3sg-prs intelligent.
      ‘John convinced Pedro that he is intelligent.’    (Modesto 2000:2,3)
Previous research in BP (Duarte, 1995, Rodrigues, 2004, Barbosa et al. 2005) observes that overt pronominal subjects are allowed in positions where they lack emphatic force (e.g., embedded subject co-referential with the subject of the main clause); in EP or Spanish, an embedded subject co-referential with the subject of the main clause requires a null pronominal subject. Barbosa et al. (2005) claim that in EP the unmarked (more natural) reading for (21c) is interpreted as not co-referential with the main subject (e.g., someone other than John is intelligent); in BP the unmarked reading for (21c) is the one in which John is intelligent (e.g., the embedded pronoun is preferably interpreted as co-referential with the main subject). In EP and BP, as in (21a & b), the unmarked reading for a null pronoun in an embedded clause is interpreted as co-referential with the main clause subject. BP diverges from English and prototypical +NSLs like EP and Spanish because a null subject pronoun can appear in a finite embedded clause and it must be bound to the main clause subject. In other words, in BP a null embedded subject cannot co-refer with the main clause object or a discursive antecedent, as in (21a), only the sentential subject antecedent (Modesto, 2000, Ferreira, 2004).

English, Spanish, EP and BP permit sentential (within the main clause) antecedents and discursive (previously mentioned) antecedents to bind overt subject pronouns. Consequently, a lexical NP as the main clause subject which contains an overt subject in the embedded finite clause is potentially ambiguous in meaning due to three possible interpretations: (1) co-referential (co-indexed) with a NP subject antecedent, (2) co-referential with a NP object antecedent and (3) free (disjoint) reference which relates to a previously mentioned referent. Spanish and EP allow sentential and discursive antecedents to bind null subject pronouns. The same three possible ambiguous interpretations for overt pronouns can be applied to null subjects in EP and Spanish.
Table II Cross-Linguistic Analysis of Pronoun-Antecedent Binding in Finite Embedded Clauses

<table>
<thead>
<tr>
<th></th>
<th>EP/Spanish Null pronouns</th>
<th>EP/SP Overt pronouns</th>
<th>BP Null pronouns</th>
<th>BP Overt pronouns</th>
<th>English Overt pronouns</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sentential Antecedents:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Subject</td>
<td>yes</td>
<td>yes</td>
<td>yes</td>
<td>yes</td>
<td>yes</td>
</tr>
<tr>
<td>Object</td>
<td>yes</td>
<td>yes</td>
<td>no</td>
<td>yes</td>
<td>yes</td>
</tr>
<tr>
<td>Discursive Antecedents</td>
<td>yes</td>
<td>yes</td>
<td>no</td>
<td>yes</td>
<td>yes</td>
</tr>
</tbody>
</table>

Table II demonstrates that in some languages (e.g., English) all subjects must be overtly expressed in finite clauses, while in others, +NSLs, (e.g., EP, Spanish, and BP) pronominal subjects can either be null or overt. Spanish, EP and BP, unlike English therefore have the syntactic possibility of permitting overt and null pronominal subjects. BP only allows for null subjects to be bound by sentential antecedents which are in the subject position in a sentence constituency (not beyond the sentence or discourse). 7 EP and Spanish permit null subjects to be bound by sentential antecedents (subjects or objects) or discursive antecedents (beyond the sentence or discourse). In other words, a null pronoun requires a sentential antecedent in the subject position in BP, but a null subject may refer freely in EP.

7. An AGR relation encoded on the head of a phrase whose specifier contains a subject.
The subject position is alleged to resolve pronoun-antecedent ambiguity in finite clauses. Carminati (2002) claims pronoun-antecedent binding in finite clauses involves facets of syntax (subject-object positions) independently of word formation (i.e. the type of predicate involved). The Position of the Antecedent Hypothesis (PAH) (Carminati, 2002) predicts that null and overt subjects retrieve antecedents in different structural positions. Pronoun-antecedent agreement is based exclusively on the syntactic configuration of the sentence in which a null pronoun is bound to an antecedent that is in the grammatical subject position of the main clause; however, an overt pronoun is associated with an antecedent in a lower syntactic position, such as an object of the clause.\(^8\)

2.4 POSITION of the ANTECEDENT HYPOTHESIS (PAH)

Carminati’s (2002) PAH proposes that null and overt subjects retrieve their antecedents in different positions within the syntactic structure. The PAH is formulated as follows:

\begin{equation}
\text{(22) } \text{POSITION OF THE ANTECEDENT HYPOTHESIS:}
\end{equation}

The null pronoun finds an antecedent in the highest [Spec, IP] position, while the overt pronoun prefers an antecedent elsewhere. (Carminati 2002: 109)

Carminati (2002) provides empirical evidence in Italian that null pronouns retrieve subject antecedents more than overt pronouns do; in other words, syntactic (subject-object) position resolves pronoun-antecedent ambiguity. Consider the following data in Italian:

\(^8\) The PAH needs to be more precise about the nature of association; how preponderant is such a preference?
(23) a. Gianni ha detto a Mario che Ø è intelligente.
Gianni has told Mario that (he) is intelligent.

b. Gianni ha detto a Mario che lui è intelligente.
Gianni has told Mario that he is intelligent. (Carminati 2002:89)

The PAH makes the prediction that the hierarchical structure (the syntactic representation) of the clause determines the antecedent of a pronoun; a null pronoun will be bound to an antecedent as long as the antecedent is in the grammatical subject position (Carminati, 2002). In other words, the null pronoun in (23a) will refer only to the subject Gianni; the overt pronoun lui ‘he’ in (23b) may refer to a previously mentioned referent (e.g., the direct object Mario or free reference related to a discursive antecedent).

Previous research for Spanish (Alonso-Ovalle et al. 2002, Sorace et al. 2009, Filiaci, 2010) has revealed that the PAH seems to make predictions that apply to languages other than Italian, which follows Carminati’s prediction that the PAH would apply cross-linguistically. The PAH has presumably predicted the relationship between overt and null pronouns in Italian and Spanish (Romance languages); it should find the same antecedent preference between the subject and the object position with respect to the ambiguity of null and overt pronoun alternation in BP since a null pronominal subject in an embedded clause is anaphorically related to the main clause subject as argued by previous research (Modesto, 2000, Ferreira, 2004).
2.5 RESEARCH QUESTIONS

Research indicates that BP is evolving linguistically: it apparently contains two grammars that are partially +NSL and partially –NSL; that is (1) a grammar with null subjects and (2) a grammar with overt subjects (Duarte, 1995, Barbosa et al. 2005). Similar claims are found in Puerto Rican Spanish (Morales, 1989) and Dominican Spanish (Toribio, 2000), which share with BP dissimilar subject-verb agreement conjugation from their European counterparts (e.g., the phonological loss of the second person singular bound morpheme /–s/ which is replaced by third person singular morphology; the leveling of morphological variants starting with third person singular non-inflected form).

Filiaci (2010) provides evidence which undercuts the PAH by demonstrating that there is micro-variation even within +NSLs that traditionally are postulated to function similarly; reading times in Spanish differ from Italian regarding null and overt pronoun-antecedent interpretation. To date, no research has investigated if the PAH can accurately predict pronoun-antecedent binding in BP; this thesis aims to fill the void by comparing BP to other Romance languages (e.g., Spanish, EP, Italian). The following research questions will be addressed in this study:

1. Does BP follow the PAH as a null pronoun prefers a subject antecedent over an object antecedent?

As a corollary:

2. Will overt pronominals in embedded clauses retrieve the subject antecedent of the main clause?
In Chapter 3, I discuss how BP’s verbal agreement paradigm is unable to encode subject-verb agreement, therefore prohibiting the identification (recovery) of a null subject; agreement in BP has become ambiguous for the feature [person] which requires the use of overt pronominal subjects (recoverable from forms) to satisfy the EPP. Data from Chapter 3 illustrates that BP does not have the same type of inflectional agreement compared to other Romance languages such as EP and Spanish; hence, null and overt subject pronouns in BP do not have a distribution and interpretation similar to EP and Spanish.
3. BP’S STATUS as a NULL SUBJECT LANGUAGE

As introduced in Chapter 2, research on pronoun-antecedent binding in Portuguese compares interpretive differences between EP and BP. §3.1 demonstrates that the co-occurrence of overt and null referential subjects in finite clauses and the presence of null expletive elements can be related to the NSP which categorizes BP as a +NSL. I discuss the identification and licensing conditions of null referential subjects for +NSLs and show how uniform verbal agreement inflectional paradigms (e.g., each tense has six forms, varying for first, second, and third person and for singular and plural number) encode agreement that is enclitic on the verb which precisely identifies the grammatical subject; BP’s eroded verbal inflectional agreement requires the use of overt pronominal subjects to satisfy the EPP. §3.2 shows that the Minimalist Program (MP) analyzes the NSP in terms of +/- strong AGR/EPP features of Tense due to the leading role of AGR in the investigation of syntactic structures. Data from Chapter 3 illustrates that BP does not have the same type of inflectional AGR compared to other Romance languages such as EP and Spanish; hence, null subjects in BP do not have a distribution and interpretation similar to EP and Spanish. A MP analysis based on checking of + strong EPP features can account for the data in BP since an explanation to justify why null subjects are confined to embedded contexts comes from the fact that the empty category is a copy of the noun phrase which moves (Copy + Merge=Movement) to the grammatical subject position; a Minimalist account is an optimal approach since Copy + Merge as movement explains cross-linguistic differences more perspicuously than GB theory reviewed in the previous chapter. BP’s restricted distribution and interpretation of referential null pronominal subjects can be explained by movement as an embedded null subject moves from [Spec, TP] of the embedded finite clause to [Spec, TP] of the main clause, satisfying the EPP feature, yet can be null (as per Nunes’ (1999) Chain Reduction which stipulates that a head of a chain in a c-commanding antecedent position is pronounced in relation to its copy/copies), by virtue of having an antecedent within the clause (Modesto, 2000).
3.1 THE NULL SUBJECT PARAMETER/+NSLs

The Null Subject Parameter (NSP) (Perlmutter 1971, Chomsky, 1981, Jaeggli, 1982, Rizzi, 1982, 1986) is a grammatical constraint that contains binary values which classifies the syntactic licensing of pronominal subjects in natural languages into two different typological groups: in +NSLs (e.g., Spanish, Italian, EP, BP, etc.) pronominal subjects can either be null or overt, while in –NSLs (e.g., English, German, etc.) subject pronouns must be overtly realized to satisfy the EPP. Linguistic research (Duarte, 1995, 2000, Kato, 1999; Kato & Negrão, 2000, Modesto, 2000, Barbosa et al. 2005) shows that BP has been experiencing substantial grammatical changes most notably losing referential null subjects in addition to the loss of subject-verb inversion. BP permits null referential (thematic) subjects in restricted environments, but does not display the full array of features associated with the NSP. Two features differentiate null referential subjects in BP from EP and Spanish: (1) only first person pronouns are able to be null in any finite clause in BP, and (2) a third person referential pronoun can be null in embedded finite or coordinate clauses when it is bound by a main clause argument (Duarte, 1995, 2000, Kato, 2000, Modesto 2000). Using a subset/superset relation, BP’s use of overt pronominal subjects and null referential subjects in restricted environments (e.g., embedded clauses) causes the language to be contained within the superset and subset (i.e. the midset—a value between the superset and the subset).
Figure II: Subset/Superset Relation for Null/Overt Pronoun Distribution

EP and Spanish represent the superset parameter value to the –NSL (e.g., English) subset value because EP and Spanish allow null and overt pronominal subjects, whereas overt subject pronouns are the only option (the narrowest distribution) in –NSLs like English. BP corresponds to a mid-set value which is between the superset and the subset since overt pronominal subjects and null subjects occur in conditioned environments (e.g., third person null referential subjects are found only in embedded clauses, null expletives occur freely in main and embedded clauses, etc.).
3.1.1 NSP FEATURES

The NSP will be described in the context of PP theory as a clustering of unrelated features that appear to correlate with the possibility of having null subjects (Perlmutter, 1971, Chomsky, 1981, Jaeggli, 1982, Rizzi, 1982, 1986). Example (27) represents the cluster of features with corresponding examples in (28-30).

(27) a. The co-occurrence of null and overt pronominal subjects in finite clauses
    b. Obligatory null expletive subjects
    c. Free subject-verb inversion

(28) EP
a. Eu falo o português.          Ø falo o português.
   speak-1sg-prs det-sg-masc Portuguese. Ø speak-1sg-prs det-sg-masc Portuguese
   ‘I speak Portuguese.’               ‘(I) speak Portuguese.’

b. Ø faz calor.                  *Ele faz calor.
   Ø -make-3sg-prs heat             It-make-3sg-prs heat
   ‘(It) is hot.’                    ‘*It is hot.’

c. Eles se foram.               Se foram eles.
   They cl-go-3pl-pst.           Cl-go-3pl-pst they
   ‘They left.’                    ‘They left.’

(29) BP
a. Eu falo o português.          Ø falo português.
   I speak-1sg-prs det-sg-masc Portuguese. Ø speak-1sg-prs det-sg-masc Portuguese
   ‘I speak Portuguese.’            ‘(I) speak Portuguese’
b. \( \emptyset \) faz calor.
- make-3sg-prs heat
'(It) is hot.'

\*Ele faz calor.
It-make-3sg-prs heat
'*It is hot.'

c. Eles se foram.
They cl-go-3pl-pst.
'They left.'

\*Se foram eles.
Cl-go-3pl-pst they
'They left.'

(30) Spanish

a. Yo hablo el español.
I speak-1sg-prs det-sg-masc Spanish.
'I speak Spanish.'

\*hablo el español.
speak-1sg-prs det-sg-masc Spanish
'(I) speak Spanish.'

b. \( \emptyset \) hace calor.
- make-3sg-prs heat
'(It) is hot.'

\*Ello hace calor.
It-make-3sg-prs heat
'*It is hot.'

c. Ellos se fueron.
They go-3pl-pst.
'They left.'

Se fueron ellos.
Cl-go-3pl-pst they
'They left.'

As the examples in (28a, 29a & 30a) reveal, EP, BP and Spanish comply with the EPP either
by the presence of an overt pronoun (e.g., eu-Portuguese, yo-Spanish) as the subject or they allow
for a null pronoun contrasting with -NSLs which require an overt pronominal subject. Thus, +NSLs
have a distinct status which consists minimally of two features: (1) the co-occurrence of null and
overt pronominal subjects in finite clauses, and (2) obligatorily null expletive subjects. Conversely,
–NSLs have neither of these properties.
3.1.2 VERBAL AGREEMENT PARADIGMS

Traditional grammars of EP and Spanish observe that all finite verbs agree with their subjects in person and number which mean that EP and Spanish display uniform verbal agreement morphology; the present indicative has five inflected forms (third person singular, a theme vowel, is considered a non-inflected form), varying for first, second, and third person and for singular and plural number which precisely identifies the grammatical subject (Duarte, 1995). BP and EP differ as BP makes very few distinctions in terms of person and number, a phenomenon related to impoverished verbal agreement (Galves, 1993, 1997).

1) *Verbal agreement paradigm in Spanish for comprar* ‘to buy’: present indicative

<table>
<thead>
<tr>
<th>Person</th>
<th>Pronoun</th>
<th>Singular</th>
<th>Person</th>
<th>Pronoun</th>
<th>Plural</th>
</tr>
</thead>
<tbody>
<tr>
<td>1st:</td>
<td>yo ‘I’</td>
<td>comprar</td>
<td>1st:</td>
<td>nosotros ‘we’</td>
<td>compramos</td>
</tr>
<tr>
<td>2nd:</td>
<td>tú ‘you’</td>
<td>compras</td>
<td>2nd:</td>
<td>vosotros ‘you’</td>
<td>compráis</td>
</tr>
<tr>
<td>3rd:</td>
<td>él ‘he (masc)’</td>
<td>compra</td>
<td>3rd:</td>
<td>ellos ‘they (masc)’</td>
<td>compran</td>
</tr>
<tr>
<td>3rd:</td>
<td>ella ‘she (fem)’</td>
<td>compra</td>
<td>3rd:</td>
<td>ellas ‘they (fem)’</td>
<td>compran</td>
</tr>
<tr>
<td>3rd:</td>
<td>usted ‘you (form)’</td>
<td>compra</td>
<td>3rd:</td>
<td>ustedes ‘you (pl. fl)’</td>
<td>compran</td>
</tr>
</tbody>
</table>

2) *Verbal agreement paradigm in EP for comprar* ‘to buy’: present indicative

<table>
<thead>
<tr>
<th>Person</th>
<th>Pronoun</th>
<th>Singular</th>
<th>Person</th>
<th>Pronoun</th>
<th>Plural</th>
</tr>
</thead>
<tbody>
<tr>
<td>1st:</td>
<td>eu ‘I’</td>
<td>comprar</td>
<td>1st:</td>
<td>nós ‘we’</td>
<td>compramos</td>
</tr>
<tr>
<td>2nd:</td>
<td>tú ‘you’</td>
<td>compras</td>
<td>2nd:</td>
<td>vos ‘you’</td>
<td>comprais</td>
</tr>
<tr>
<td>3rd:</td>
<td>ele ‘he (masc)’</td>
<td>compra</td>
<td>3rd:</td>
<td>eles ‘they (masc)’</td>
<td>compram</td>
</tr>
<tr>
<td>3rd:</td>
<td>ela ‘she (fem)’</td>
<td>compra</td>
<td>3rd:</td>
<td>elas ‘they (fem)’</td>
<td>compram</td>
</tr>
<tr>
<td>3rd:</td>
<td>você ‘you (form)’</td>
<td>compra</td>
<td>3rd:</td>
<td>vocês ‘you all (form)’</td>
<td>compram</td>
</tr>
</tbody>
</table>

Contemporary BP’s verbal agreement paradigm simultaneously encodes person and number features only for first person; the other person and number specifications involve either third person singular (a non-inflected, default form) or third person plural (Duarte, 1995, Nunes, 2007).
3) **Verbal agreement paradigm in contemporary BP for comprar ‘to buy’: present indicative**

<table>
<thead>
<tr>
<th>Person</th>
<th>Pronoun</th>
<th>Singular</th>
<th>Person</th>
<th>Pronoun</th>
<th>Plural</th>
</tr>
</thead>
<tbody>
<tr>
<td>1st:</td>
<td>eu ‘I’</td>
<td>comprar</td>
<td>1st:</td>
<td>(nós ‘we’</td>
<td>compramos</td>
</tr>
<tr>
<td>2nd:</td>
<td>você ‘you’</td>
<td>compra</td>
<td>2nd:</td>
<td>vocês ‘you all’</td>
<td>compra</td>
</tr>
<tr>
<td>3rd:</td>
<td>ele ‘he (masc)’</td>
<td>compra</td>
<td>3rd:</td>
<td>eles ‘they (masc)’</td>
<td>compra</td>
</tr>
<tr>
<td>3rd:</td>
<td>ela ‘she (fem)’</td>
<td>compra</td>
<td>3rd:</td>
<td>elas ‘they (fem)’</td>
<td>compra</td>
</tr>
<tr>
<td>3rd:</td>
<td>a gente ‘we’</td>
<td>compra</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The differences between Paradigm 2 and Paradigm 3 are caused by the loss of second person pronouns and the corresponding bound inflectional morphemes. Paradigm 3 shows that contemporary BP has no agreement markers for the second person singular você ‘you’, with an exclusive verbal morphology /-as/ for the present indicative and second person plural vocês ‘you’ plural, with an exclusive verbal morphology /-ais/ for the present indicative for the theme vowel /–a/ because the second person pronouns have been replaced by the pronouns você and vocês which require third person singular and third person plural agreement morphology, respectively; first person plural nós ‘we’ can be replaced with the nominal expression a gente ‘we, inclusive’ which also receives third person singular agreement morphology. As a result, each tense has three forms (potentially, four forms if first person plural is counted) varying for first or third person and for singular and plural number.

Paradigm 3 demonstrates that BP’s impoverished verbal paradigm includes both inflected and non-inflected forms thereby losing the definite person and number agreement inflection on a finite verb which encodes a pronominal subject. As a result, the pronominal system of contemporary BP compared to EP is distinctive since BP only permits null referential subjects in conditioned environments (e.g., third person null subjects are allowed in embedded or coordinate clauses), whereas EP prefers null subjects in all clauses (main, embedded, coordinate, etc.). The
occurrence of null pronominal subjects within the PP framework can be explained by the ECP which utilizes the AGR properties of languages to explain whether they allow null subjects or not.

3.1.3 LICENSING

Languages vary with respect to whether the INFL features (Tense (T) and AGR) are overtly realized on the verb. AGR features (also known as the φ- features of INFL) including person, number, and Case are linked to the subject of a clause (Chomsky, 1982); if AGR has features to assign, it must discharge them (i.e. AGR must obligatorily assign its person, number and Case features).

The basic assumption characterizing the NSP is that referential null arguments have to satisfy the licensing conditions (e.g., what allows the appearance of a null subject) as well as identification conditions which determine how the referent of a null subject is semantically recovered (Chomsky, 1981, Jaeggli, 1982, Jaeggli and Safir, 1989). Identification and licensing conditions for null subjects are language specific, however there must be a morphosyntactic mechanism (AGR) that identifies and licenses null pronominals.

Rizzi (1982, 1986) makes the claim that +NSLs differ from -NSLs in that +NSLs have verbal inflections characterized by a [+pronoun] feature with clitic-like properties. The subject pronoun attaches to the verb like a clitic which allows for identification (recovery) of person and number features; the structure is assumed to be such that subject clitics (shown as cl) can be proper licensers of a null pronoun as shown in (31):
Recall from §3.1.1, EP and Spanish allow for either null or overt subject pronouns in finite clauses; within the PP framework, this is explained by the EPP. The EPP stipulates that the I’ projection which constitutes the predicate of the clause must build a specifier [Spec, IP] position. The relation of head-government can be exemplified by saying that the head I governs its complement (VP), where government is defined in terms of c-command. In (31), a null pronoun fills the [Spec, IP] position, receiving its licensing by the clitic under AGR; the subject clitic properly governs (m-commands) the NP in the [Spec, IP] position. Rizzi’s (1982, 1986) analysis provides an explanation for the licensing of a null pronoun in +NSLs which have uniform verbal agreement paradigms. Take for instance the simplified derivation of the EP clause, ‘Ø quer um cafezinho’ with head- to- head movement; the V-to-I raising of a predicate and movement from [Spec, VP] to the subject position [Spec, IP] of an external argument is represented in (32).

(32) ‘Ø quer um cafezinho.’ (EP)
want-3sg-prs det-sg-masc coffee
‘(He) wants coffee.’
In +NSLs like EP and Spanish the verbal inflection (i.e. AGR) is able to license a null referential pronoun. In (32), the null pronoun receives the features [3-person] and [singular-number] which are recoverable from the bound inflectional suffix (-∅). Movement of an argument from [Spec, VP] to the subject position [Spec, IP] via subject raising (V-to-I) is claimed to be induced by the EPP that requires the grammatical subject position [Spec, IP] to be constructed independently of semantics.

Jaeggli and Safir’s (1989) Morphological Uniformity Principle (MUP) relates uniform morphological agreement paradigms (e.g., inflected verb forms) with null subjects; the MUP is responsible for the licensing of null subject by asserting that a null pronoun has to be governed by head I: a null subject is permitted in all and only those languages that have morphologically discrete (uniform) inflectional paradigms. In other words, languages like EP or Spanish that have five fully inflected forms for person and number in the present indicative are uniform as well as languages like Chinese or Japanese that have no inflectional agreement morphology which can also license a null topic. Languages with uniform verbal agreement paradigms tend to allow null subjects to occur in unrestricted environments while languages with paradigms that include both inflected (i.e.
associated with robust encliticization) and non-inflected forms (i.e. associated with a lack of morphological variants like BP) have a limited distribution of null subjects (Huang, 1984, 1989, Rizzi, 1986, Jaeggli and Safir, 1989, Speas, 1994).

3.1.4 IDENTIFICATION CONDITIONS

Null pronouns are always generated without an index, requiring the constraint for identification. The identification of a null subject is represented by means of co-indexation. Identification is achieved in EP and Spanish through uniform verbal agreement paradigms (AGR with overt person and number features) which provide the null subject with a referential value since a theta-role is discharged by the predicator. In other words, the null subject acquires person and number agreement features from the verb and thus, an index. Following the analysis provided by Rizzi (1982, 1986) and Jaeggli & Safir (1989), the content of a null pronoun is recovered by virtue of the inflection (AGR), which identifies the empty category. Jaeggli and Safir (1989) distinguish the manner in which a null referential pronoun can be identified: (1) AGR which must include Tense, (2) a c-commanding nominal, or (3) a topic. A null subject can be identified in a language by following an incremental process: first, by reference to inflectional agreement morphology (+ strong inflectional AGR=identification of a null pronoun); then if the verbal agreement paradigm is not uniform, by reference to an available antecedent (a c-commanding lexical NP) in the clause; and, finally, to recovery of a preferred interpretation (see § 6.1.2 +/- anaphoric interpretive AGR); an overt pronominal subject must be used if null referential subjects cannot be identified by any these methods.
Modesto (2000) argues that sufficient inflected forms license null referential subjects (e.g., third person singular in BP) but do not necessarily identify them (i.e. recover their reference). In BP AGR licenses null subjects that require no identity (e.g., expletive null subjects); the subjects that require their identity, referential pronominals, are rarely null in BP main finite clauses except first person singular which can be recovered through the distinct inflectional morphology.

### 3.1.5 Expletives

§3.1.1 demonstrates that Spanish, EP and BP allow for either null or overt subject pronouns in finite main clauses. With respect to the EPP, the canonical subject position, [Spec, IP] must be built regardless of semantics. This element is either an argument with semantic content (e.g., a lexical NP) or an expletive with no semantic content (e.g., it or there in English). Expletives are elements in NP positions which are not arguments and to which no theta-role is assigned; expletives occur only in clausal subject position which is projected syntactically and not thematically. For example, in English the grammatical subject position must be filled with an expletive (it or there) when it has no semantic meaning to comply with the EPP.

EP, BP and Spanish differ from English by allowing null expletives to occur in finite clauses (i.e. the replacement of a null pronoun by an overt pronoun results in ungrammaticality); null subjects must be used with quasi-arguments (e.g., weather predicates), inanimate (non-referential) subjects, and the existential verbs (e.g., haber-Spanish/haver-EP & BP and ter-BP). Two types of expletive elements can be distinguished: null expletives (e.g., EP, BP and Spanish) and overt expletives (e.g., English), as exemplified in (33-36):
Weather predicates like *chover* (EP/BP) and *llover* (Spanish) ‘to rain’ require non-referential null subjects. English presents two different expletive forms (e.g., *it* and *there*) while in Spanish, EP and BP a null pronoun is maintained regardless of the syntactic nature of the clause. The only NPs which can appear in the subject position in English are those which can have no semantic relation, as in (33-36). BP’s use of null pronouns for non-referential subjects and quasi-arguments (weather predicates) in finite clauses is similar to EP and Spanish. Under PP theory, +NSLs have null expletives since any language which can license empty referential subjects will be capable of licensing empty non-referential subjects to comply with the ECP (Rizzi, 1982, 1986). Null expletives in Spanish, EP
and BP differ from null referential pronouns in that the latter is obligatory to satisfy the Theta-Criterion which requires each argument (a lexical NP) to bear only one theta-role (Chomsky, 1981).

3.1.6 EP & BP NULL REFERENTIAL PRONOUNS in MAIN CLAUSES

The distribution of null and overt referential subjects is different in BP compared to EP. In EP and Spanish, null subjects are the unmarked form; ‘the overt pronoun is avoided [in all contexts] unless the identification of a null subject is impaired’ (Barbosa et al. 2005:12). The null subject pronoun which is lexically unspecified for EP is preferred in main clauses, as in (37):

(37) Encontrou a Maria ontem (EP)
    Met-3sg-pst Mary yesterday
    ‘(He) met Mary yesterday.’

In (37), the verb *encontrou* has the suffix -ou on the finite verb which carries the meanings of indicative mood, active voice, preterite, and third person singular subject. BP and EP diverge in the behavior of null pronominal subjects as BP’s impoverished verbal agreement morphology causes person and number agreement features to be ambiguous (except for first person singular and plural bound inflections), and thus allows BP to pattern with English by requiring an overt pronominal subject to occupy the grammatical subject position in main clauses. BP has a + strong EPP feature which disallows verb-initial sentences except when the subject is a first person singular or plural pronominal in any clause or a third person singular pronominal in an embedded clause (Duarte, 1995, 2000, Figueiredo-Silva, 1996, 2000, Kato, 2000, Modesto 2000). BP does not allow third person null subjects in pragmatically neutral contexts (e.g., the subject is defined by the
setting of use between both a speaker and an interlocutor which is achieved through recoverability by means of a situational context).

(38)  

a.  Encontrei a Maria ontem.  (BP)  
    Met-1sg-pst  the Mary yesterday  
    ‘I met Mary yesterday.’

b.  *Encontrou a Maria ontem  (BP)  
    met-3sg-pst Mary yesterday  
    ‘(he) met Mary yesterday.’

c.  Ele encontrou a Maria ontem  (BP)  
    He met-3sg-pst Mary yesterday  
    ‘He met Mary yesterday.’

(Figueiredo-Silva 2000:134)

The data in (38a) illustrates that the verb *encontrei* has the suffix *-ei* on the finite verb that encodes indicative mood, active voice, preterite, and first person singular subject which provides definite person and number bound inflectional agreement morphology since the suffix *-ei* on the predicate allows for the identification of the features [person-1] and [number-sg]. In (38b) the subject cannot be determined by means of a situational or discourse context, only syntactic structure; the verb *encontrou* has the suffix *-ou* on the finite verb encoding the meanings of indicative mood, active voice, preterite, but AGR is ambiguous for the feature [person]. BP diverges from EP and Spanish by requiring an overt pronoun in a main clause (38c).
The distribution and interpretation of referential subjects (null and overt) varies in EP compared to BP in main clauses. Consider the following finite main clauses: in EP (39a) is an unmarked option which produces an ungrammatical construction in BP (39a’); (39b) is the marked option in EP, but is required in BP; in EP overt pronouns can be used for emphasis or contrastive focus as in example (39c); BP doesn’t follow +NSLs like EP and Spanish since BP prefers overt pronominal subjects over null subjects that do not carry emphatic force (Duarte 1995); in the case of expletives an overt pronoun is ungrammatical in EP and BP as shown in (40b):

(39)  a.  ∅ encontrou a Maria ontem             (EP)
       Met-3sg Mary yesterday
       ‘(He) met Mary yesterday.’

       a.’  * ∅ encontrou a Maria ontem            (BP)
       Met-3sg Mary yesterday
       ‘(He) met Mary yesterday.’

       b.  Ele encontrou a Maria ontem              (EP/BP)
       Met-3sg Mary yesterday
       ‘(He) met Mary yesterday.’

       c.  Ele encontrou a Maria ontem, mas eu não  (EP)
       Met-3sg Mary yesterday but I no
       ‘He met Mary yesterday, but I didn’t.’

(40)  a.  ∅ Chove muito no verão.          (EP/BP)
       Ø rain-3sg-prs a lot in the summer
       ‘It rains a lot in the summer.’
b. *Ele chove muito no verão. (EP/BP)
   He rain-3sg-prs a lot in the summer
   ‘It rains a lot in the summer.’

c. *Rains a lot in the summer. (English)

d. It rains a lot in the summer. (English)

The constructions in (39-40) contain two potential subjects: a non-referential subject (the
expletive which serves syntactic purposes (e.g., it in English or a null pronoun in EP and BP) and a
lexical subject (the NP that carries the semantic content of the clause). Lexical NPs are arguments in
a structure which allow for theta-role assignment to satisfy the Theta-Criterion. Only lexical
arguments can be co-indexed and c-commanded by an antecedent which in turn allows for binding
to occur between the two NPs; binding is an AGR relation based on c-command, person, number
and gender features. Pronoun-antecedent binding applies syntactic constraints (e.g., Principle B, c-
command, person, number and gender agreement) to select an antecedent. Pronoun-antecedent
binding can occur intra-sententially (e.g., in an embedded clause) or inter-sententially (e.g., in a
coordinate clause) in BP.

3.1.7 EP & BP NULL REFERENTIAL PRONOUNS in EMBEDDED CLAUSES

Co-indexation in BP binding constructions varies substantially and operates differently than
EP. Compared to EP and Spanish, overtly realized pronouns in BP are found in contexts (e.g., finite
embedded clauses, coordinate clauses, etc.) where a null subject would show up in EP or Spanish,
specifically when they are anaphorically related to a subject in a main clause (Duarte, 1995, Barbosa et al. 2005).

(41) a. O Joãoi disse que ele\textsubscript{i/j} comprou um computador. (EP/BP)
John say-3sg-pst that he\textsubscript{i/j} buy-3sg-pst a computer
‘John said that he bought a computer.’

b. O João, disse que \emptyset\textsubscript{i/j} comprou um computador. (BP)
John, say-3sg-pst that \emptyset\textsubscript{i/j} buy-3sg-pst a computer
‘John said that (he) bought a computer.’

c. O Joãoi disse que \emptyset\textsubscript{i/j} comprou um computador. (EP)
Johni say-3sg-pst that \emptyset\textsubscript{i/j} buy-3sg-pst a computer
‘John said that (he) bought a computer.’ (Barbosa et al. 2005:3)

BP diverges from EP since a null pronoun and an overt pronoun in an embedded clause can characteristically retrieve a sentential subject antecedent of the main clause. BP exhibits overt subject pronouns where a null pronoun would be expected in EP and Spanish. In EP a null subject in an embedded clause characteristically retrieves a sentential subject antecedent of the main clause or a discursive antecedent which refers to a previously mentioned antecedent; an overt pronoun in an embedded clause is preferably interpreted as not retrieving a sentential subject antecedent. Neither the distribution nor the interpretation of null subjects in BP is similar to EP or Spanish; in EP null subjects are free to refer deictically, to have a sentential or a discursive antecedent. Conversely
null subjects are not autonomous in reference because they cannot refer deictically nor have a discursive antecedent; null subjects in embedded clauses behave anaphorically by retrieving a c-commanding subject antecedent (Modesto, 2000, Ferreira, 2004). However, the types of clauses tested by Carminati (2002) and this thesis (out of context finite embedded and coordinate clauses) show that null pronouns in embedded and coordinate clauses characteristically are bound to subject antecedents.

**Table III: The EPP: Main Finite Clauses in English, Spanish, EP and BP**

<table>
<thead>
<tr>
<th></th>
<th>English</th>
<th>Spanish</th>
<th>EP</th>
<th>BP</th>
</tr>
</thead>
<tbody>
<tr>
<td>Non-referential subjects, Quasi-arguments</td>
<td>It</td>
<td>Ø</td>
<td>Ø</td>
<td>Ø</td>
</tr>
<tr>
<td>Pronouns in Finite main clauses (unmarked interpretation)</td>
<td>He,She,It</td>
<td>Ø</td>
<td>Ø</td>
<td>Ele,Ela</td>
</tr>
<tr>
<td>Pronouns in embedded clauses taking sentential subject antecedent (unmarked interpretation)</td>
<td>He,She,It</td>
<td>Ø</td>
<td>Ø</td>
<td>Ø,Ele,Ela</td>
</tr>
<tr>
<td>Pronouns in embedded clauses taking sentential object antecedent (unmarked interpretation)</td>
<td>He,She,It</td>
<td>Ø, Él, Ella</td>
<td>Ø, Ele, Ella</td>
<td>Ø,Ele,Ela</td>
</tr>
<tr>
<td>Pronouns in embedded clauses taking discursive antecedent (unmarked interpretation)</td>
<td>He,She,It</td>
<td>Ø,Él, Ella</td>
<td>Ø, Ele,Ela</td>
<td>Ele, Ela</td>
</tr>
</tbody>
</table>
BP patterns with prototypical +NSLs like EP and Spanish by permitting null expletive subjects. To some extent BP is similar to EP and Spanish because null and overt sentential subjects co-occur in finite clauses. The fact that BP allows null expletive subjects, as well as null subjects in embedded clauses indicates that null pronouns are licensed in the subject position of this language. However, BP follows English by requiring the presence of an overt pronominal subject in main clauses (except for first person singular subjects due to distinct inflectional morphology which allows for identification). BP diverges from English because it permits null referential subjects. BP also deviates from EP and Spanish since a null pronoun in a finite embedded clause must be bound to a sentential subject antecedent.

This section demonstrates that the presence of null expletive elements and the co-occurrence of overt and null referential subjects in finite clauses can be related to the NSP which classifies BP as a +NSL (i.e. recall from § 3.1.1 that the two defining properties of +NSLs are the use of obligatorily null expletive subjects and the co-occurrence of null and overt referential subjects). Current generative models, such as the Minimalist Program (MP) (Chomsky, 1993, 1995, 2000), analyze the NSP in terms of +/- strong AGR/EPP features of T due to the leading role of AGR and the EPP in the investigation of syntactic structures.

3.2 The MINIMALIST PROGRAM (MP)

The MP asserts that natural languages can be described by determining universal features that control languages in the domain of the lexicon. Research in the MP framework recognizes parametric disparity as a consequence of variation associated with inflectional AGR morphology which targets a terminal node (e.g., DP, VP, etc.) and functional heads (e.g., T, V, C) reflected in
syntax; grammatical knowledge is reduced to feature selection from a universal inventory which can be assembled into language-specific lexical items (i.e. as inflections or free functional elements) that influence cross-linguistic variation. The well-formedness of constructions is seen to be a function of language-independent universal principles, combined with parameters revealed in the acquisition of the lexicon, such as whether a language has +/- strong AGR or EPP features. MP maintains that derivations and representations are minimal (reducing the machinery observed in Chapter 2), according to principles of economy (e.g., Full Interpretation, Least Effort, Inclusiveness) which involve the fewest possible movements in the shortest possible steps (Chomsky, 1993, 1995).

3.2.1 FEATURE CHECKING

Chomsky (1995, 2000, 2001) posits that formal features such as φ-features (e.g., person and number) may be either interpretable or uninterpretable: φ-features (e.g., person, number and gender) on a noun or pronoun are interpretable because they map onto λ-features at LF since φ-features have a role to play in the semantics of the noun or pronoun since a pronoun with the features [fem, pl] refers to a different element than a pronoun with [masc, sg] features; however, these same features on the finite verb are uninterpretable because they have to be valued because inflectional AGR on a finite verb is uninterpretable. Uninterpretable features are formal features which cannot be interpreted at Logical Form (LF) and Phonetic Form (PF), and because they have no semantic value, uninterpretable features must be valued before the LF interface.

A linguistic structure has two structural representations: LF and PF. LF is the representation from which the semantic value of the phrase is computed (e.g., theta-role assignment, predication) which is used by the syntactic system in its interaction with the semantic system: the syntactic
system creates a syntactic structure (Case assignment, AGR) and forms an LF of it, which is then passed on to the semantic system so that it can compute the semantics of the phrase (e.g., \( \phi \)-features may or may not be morphologically encoded; in English Case assignment is distinct: he=nominative case and him=accusative case). The syntactic system creates another representation once the \( \phi \)-features are valued, the remaining \( \phi \)-features are delivered to PF, where it will be ‘Spelled Out’ which means that the hierarchical structure is mapped onto a linear structure that contains only the features needed for further phonological processing of the phrase. Once Spell Out takes place, there is one derived syntactic representation for PF and one derived syntactic representation for LF. The sound-meaning pairs have to meet a condition of Full Interpretation (FI) at PF and LF interfaces since FI prevents introducing material with phonological content at LF or semantic material at PF; all uninterpretable features are valued once they are in a checking relationship with a head which fulfills FI. A derivation that reaches LF without violating any principles is said to converge at LF; a derivation crashes if FI is not satisfied because the structure is ungrammatical if the uninterpretable features are not valued. In other words, LF is the level of representation which determines the semantics of a clause that does not have any phonetic realization (e.g., anaphors in BP finite embedded clauses which are created by Copy + Merge) and PF is the level of representation in which clauses are assigned a phonetic representation which is articulated by a speaker; both LF and PF are ‘conceptually necessary’ because the articulatory-perceptual system (as per \( \phi \)-features, one member of a chain is pronounced) and conceptual-intentional system (as per \( \lambda \), two members of a chain are valued) reflect the fact that clauses are a mapping function of sound-meaning pairs.
3.2.2 +/ – STRONG AGREEMENT (AGR)

Minimalist accounts are mainly based on predicates checking their uninterpretable features with subjects (if lexically realized). Within the MP, a verb is taken from the lexicon which is inflected and its morphological features must be checked against the abstract features of the head T which also has a set of φ-features (e.g., a finite verb, having a set of uninterpretable φ-features, will try to agree with a lexical DP). The derivation converges if an AGR relation is successfully established; the uninterpretable features on the verb are valued (made invisible) when checked off.

+ Strong AGR features are responsible for triggering overt movement, prior to Spell Out, of lexical items to check features (e.g., an uninterpretable feature associated with inflectional morphology must be valued), whereas – strong AGR features are associated with covert movement, after Spell Out, which being invisible to PF (they contain syntactic features removed from λ-features) do not cause overt movement of lexical items.

+NSLs (e.g., Romance languages) are considered to have + strong AGR because these languages present a lexical variety of bound inflections on the verb that have exact person and number specifications (AGR is determined from a finite verb ) which morphologically encodes the subject since the identification of the subject can be recovered due to the uniform inflectional AGR morphology. For instance, EP has agreement markers for the second person singular tú ‘you’, with an exclusive verbal morphology /-as/ for the present indicative which distinguishes second person singular from third person singular with an exclusive verbal morphology /-∅/ for the present indicative. Alternatively, in -NSLs (e.g., English), which are considered to have– strong AGR, the information provided by the verb almost completely fails to discriminate among person and
number so that the subject can only be identified via lexical realization as the same verbal form corresponds to different pronominal subjects (e.g., I/you/we/they walk); therefore, an overt pronoun with interpretable AGR features is required.

BP has lost inflectional AGR for the second person singular tú ‘you’ due to the fact that second person pronouns have been replaced by the second person singular pronoun você which takes a non-inflected form in the present indicative. Consequently, in BP information about the feature [person] cannot be traced to the inflectional AGR morphemes. BP can be classified as a – strong AGR language because it does not present distinct bound inflections for each person due to morphological leveling. Additionally, BP can be classified as a + strong AGR language for first person singular because the bound inflectional AGR morphology is sufficient to identify the content of the subject. In other words, languages which have uniform verbal agreement morphology (e.g. Italian, EP, Spanish) are considered to have + strong AGR features and in turn allow for morphologically encoded subjects on the verb or unpronounced copies in embedded clauses, while languages which have inflected and non-inflected (non-uniform) verbal agreement morphology (e.g. English) are supposed to have – strong AGR features and only permit lexical subjects. BP fluctuates between +/– strong AGR depending on the [person] feature encoded morphologically on the verb which consequently affects the environments in which unpronounced copies surface.

3.2.3 + STRONG EPP FEATURE

In GB theory, the EPP expresses a principle which requires that all functions must be saturated (Chomsky, 1986); more specifically, given that all heads are required a specifier and a maximal projection (X’-theory), the EPP generates a [Spec, IP] position which otherwise is not
forced by the theta-related Projection Principle (lexical structure corresponds to each syntactic representation). The Minimalist Program breaks away from GB theory by establishing how structural relations such as the EPP, the adjoined branch of TP, where expletives and unpronounced copies (null pronominal subjects in GB) are positioned; in Minimalism the EPP is a feature which is reduced to a checking relationship. Merge or Move (=Copy + Merge) allow for checking relationships to occur, either in projections with a specifier or head-adjoined structures.

The MP analyzes the EPP as an uninterpretable and non-semantic feature (it determines positions not forced by the Projection Principle) that is satisfied by movement of a DP from its base-generated [Spec, VP] position to [Spec, TP]. In –NSLs (e.g. English) T has + strong EPP feature that must be valued in overt syntax which can be satisfied by two methods: (1) by movement and second Merge of the subject DP to [Spec, TP] position (the DP must be the external argument of a transitive finite verb), or (2) Merge of an expletive with T (e.g., it or there in English). In both cases, checking involves the realization of [Spec, TP]. On the other hand, in +NSLs the EPP feature of T is – strong, so the subject is not required to move out of the [Spec, VP] position (and if there is a subject, it raises covertly at LF). Example (42) demonstrates that T has + strong EPP feature that must be valued in syntax by movement (Copy + Merge) of the subject DP to [Spec, TP]:

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MP assumes that there is no Spec-Head agreement between the subject and the head T since specifiers are not obligatory (Chomsky, 1993, 1995). Instead, the subject DP is attracted to
[Spec, TP] solely by the + strong EPP uninterpretable feature on T which searches for a maximal projection to value its feature; T detects the first lexical DP that is in the subject [Spec, TP] position which values the EPP-feature.

Table IV NSP: +/- Strong AGR/EPP Features in Main Clauses

<table>
<thead>
<tr>
<th>NSP</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>a. [+NSL]: + Strong inflectional AGR features in T → Overt raising of V to T</td>
<td></td>
</tr>
<tr>
<td>b. [-NSL]: – Strong inflectional AGR features in T → Covert raising of V to T</td>
<td></td>
</tr>
<tr>
<td>c. [-NSL]: + Strong EPP feature in T → Overt raising of subject DP to [Spec, TP] to check off EPP feature.</td>
<td></td>
</tr>
<tr>
<td>d. [+NSL]: +Strong/– Strong EPP feature in T → Overt raising of lexical DP to check off EPP feature or, alternatively if there is no phonetically realized subject, no [Spec, TP] is projected.</td>
<td></td>
</tr>
</tbody>
</table>

Table IV reveals that +NSLs (Spanish, EP, etc.) have + strong AGR features and – strong EPP features when unpronounced copies appear in a main clause, or +NSLs have + strong AGR features and + strong EPP features when lexical DPs (e.g., pronouns, R-expressions, etc.) are phonetically realized. Conversely, -NSLs, like English, have – strong AGR features and + strong EPP features. A language which requires an obligatory overt subject is assumed to have T with a + strong EPP feature, which needs to be checked against the interpretable feature of the subject DP (Chomsky, 1995).

In MP, feature strength induces word-order variation in finite clauses; the EPP causes parametric disparity which is recognized to be lexically specified in transitive constructions. A strong
EPP feature establishes a category on the left-edge of a clause [Spec, TP] which causes a linearized word order of SVO; the + strong EPP feature in English requires a subject [Spec, TP] position that contains phonetic content, even with semantically vacuous elements like expletives. Main clauses in BP require a subject [Spec, TP] position containing a lexical DP (e.g., a pronoun, R-expression, etc.) like English which suggests that BP may possess a + strong EPP feature. Conversely, a + strong AGR feature leads to overt verb movement to head T that can generate VSO or VOS word orders, but only if the language phonetically realizes its subject.

3.2.4 + STRONG AGR in ROMANCE LANGUAGES

Under the MP, + strong features must be checked off by lexical elements (Chomsky, 1995). Romance languages (Italian, EP, Spanish, etc.) have bound inflections on the verb stem that have exact person and number specifications (AGR is encoded on a finite verb) which are considered like a lexical DP, thus allowing the inflections to check off the + strong AGR feature in T (Alexiadou et al. 1998, Kato, 1999). T furnishes interpretable [F] to value the uninterpretable feature on the finite verb for AGR. Romance languages do not project [Spec, TP] when there is no lexical subject. In EP and Spanish, T is involved in two processes: T assigns φ-features if the subject is morphologically encoded and T checks agreement if the subject is lexical. Evaluate (43):

(43)                              TP
   / \
  T   VP [uE]

[person, #] [F]

Example (43) demonstrates that in Romance languages which display a + strong AGR feature (and BP for first person subjects), no [Spec, TP] would be projected because there is no lexical
subject. The morphology licenses and identifies the logical relation for interpreting a subject since
the bound inflectional morpheme in T c-commands the clause. The + strong AGR features of T can
be checked when a verb moves overtly to T. Consider (44), where the role of T is to check the
uninterpretable feature on V:

\[(44) \text{ Quer um cafezinho.} \quad (\text{EP}) \]
\[\text{Want-3sg-prs det-sg-masc coffee} \]
\[\text{‘(He/she) wants coffee.’} \]

\[
\text{TP-[uEPP]} \\
/ \ \\
\text{VP} \\
/ \ \\
\text{T} \\
/ \ \\
\text{V} \\
/ \ \\
\text{V} \\
/ \ \\
\text{V} \\
/ \ \\
\text{[ϕ: 3sg]} [F] \\
/ \ \\
\text{V} \\
/ \ \\
\text{V} \\
/ \ \\
\text{[uF]-} \\
/ \ \\
\text{Quer} \\
/ \ \\
\text{um cafezinho} \\
/ \ \\
\text{quer - quer} \\
/ \ \\
\text{DP [F] VP} \\
/ \ \\
\text{V} \\
/ \ \\
\text{V} \\
/ \ \\
\text{V} \\
/ \ \\
\text{Copy + Merge=Move} \\
/ \ \\
\text{T} \\
/ \ \\
\text{V} \\
/ \ \\
\text{T} \]
In +NSLs, inflectional AGR morphology on finite verbs provides a distinct suffix for each person and number combination which identifies the $\phi$-features of a DP and values the EPP feature. In other words, EP and Spanish will tolerate the termination of the projection cycle of TP without a specifier when there is no lexically realized DP. A morphologically encoded subject in EP main clauses occurs since the $-\text{strong}$ EPP feature on T allows predication for the VP.

### 3.2.5 + STRONG EPP in BP

BP’s syntactic structure differs from EP as BP requires an obligatory overt subject in [Spec, TP] position (something numerated from the lexicon which contains elements with phonetic content) in main clauses in all forms except first person singular (Duarte, 1995, Figueiredo Silva, 1996, Kato, 2000, Modesto, 2000). Minimalism explains this requirement by a $+\text{strong}$ EPP-feature. In languages like BP and English, $-\text{strong}$ inflectional AGR (non-uniform verbal AGR morphology) prohibits T from assigning $\phi$-features (except for first person in BP). As a consequence, overt V-to-T movement cannot be activated which results in the realization of a lexical subject (e.g., a pronoun, R-expression, etc.) in [Spec, TP] that handles the checking relation. Consider the BP main clause:

(45) Ele quer um cafezinho.  (BP)
He want-3sg-prs det-sg- masc coffee
‘He wants coffee.’
In (45), BP has T with a + strong EPP-feature which needs to be checked against the
interpretable feature of the subject DP Ele. The subject generated in [Spec, VP] moves to [Spec, TP]
and checks off the EPP feature of T. Figure (45) demonstrates that feature strength is crucial
because strong features are responsible for triggering overt movement of lexical items to check
features; BP’s + strong EPP feature requires the DP Ele to move to eliminate the EPP-feature on T. In other words, the + strong EPP in BP is not checkable by the morphology of a non-inflected form, so the overt pronominal subject provides interpretable AGR to transmit to head T. BP diverges from EP since once TP projects, there is no V located in T which affects how the EPP is valued, hence the EPP cannot be checked like in EP (except for first person).

Subject-verb agreement is a prototypical example of feature checking. In BP, person and number features are uninterpretable on the verb and have to be valued. Therefore, the presence of a DP (e.g., an overt pronoun), which bears the respective interpretable feature, is obligatory. First, a lexical DP in [Spec, VP] moves to [Spec, TP] to value the + strong EPP feature on T; second, the DP enters the derivation with a valued set of φ-features (person, number and gender) and with an unvalued Case feature, whereas the verb enters the derivation with a set of unvalued φ-features and with a valued Case feature. The DP values the φ-features of the verb and the verb values the φ-features of the DP (Case). As an example, suppose the syntactic system is deriving a phrase such as in (46) for BP:

(46) LF: [TP João [vp João convenceu [vp Pedro convenceu [cp que [TP João [vp João é inteligente]]]]]].
[TP John [vp John convinced [vp Pedro convinced [cp that [TP John [vp John is intelligent]]]]]].

The following tree illustrates the checking process. Recall that since uninterpretable features have no semantic value, AGR properties on a finite verb must be valued during the derivation; valuing features can be done by establishing a checking relation with an interpretable DP that has the same features. The finite verb in the embedded clause é ‘is’, having a set of uninterpretable φ-features, will try to agree with a DP João (the subject) which also has a set of φ-
features valuing the uninterpretable features on the verb. The same process occurs with the finite verb in the main clause *convenceu* ‘convinced’, having a set of uninterpretable φ-features, will try to agree with the DP João which also has a set of φ-features valuing the uninterpretable features on the verb.
The embedded clause ‘que João é inteligente’ ‘that João is intelligent’ (a CP), is built before the main clause, and it is constructed (Spelled Out) first. T has an EPP feature and an uninterpretable set of \( \phi \)-features; the set of \( \phi \)-features of T and João establish a checking relation and the \( \phi \)-features of the former are valued; as a bonus, head T has a Case feature which it can check against the uninterpretable Case of the DP João. Verb raising leaves at T a set of uninterpretable \( \phi \)-features that are valued through covert movement by the interpretable \( \phi \)-features of the subject DP João; the subject moves to [Spec, \( \nu \)P] checking the theta features of \( \nu \)P. Then a checking relation establishes between its \( \phi \)-features and the \( \phi \)-features of the main clause T. As a result all uninterpretable features are eliminated.

As per Nunes’ (1999, 2001) chain formation, chains are representational syntactic elements provided that all of the copies of a chain are in a c-command relationship at the end of a derivation. The external argument, João, is phonetically realized since it c-commands lower copies in the main and embedded clause because it is the highest copy that has more features valued than the lower copies.

Example (46) demonstrates that both the external argument, João, and the internal argument, Pedro, are potential candidates for being interpreted as the subject of the embedded clause since both DPs are within the same minimal domain (\( \nu \)P); the Equidistance Principle of Chomsky (1993) allows elements to cross a position where they could have landed, provided the target position is in the same minimal domain as the position which is crossed. A possible
explanation for why João is the preferred antecedent emanates from the fact that once Pedro enters into a checking relation and is valued, Pedro is inert from further movement. The subject DP João is still active in the derivation and can move to [Spec, TP] which causes João to value more formal features (EPP) than Pedro.

Minimalism builds it foundation on Reinhart (1976) by assuming that the relative hierarchical position in the syntactic tree is influential in determining a preferred antecedent; as implemented by the notion of asymmetric c-command (Kayne, 1994), a lexical DP in the subject position [Spec, TP] which asymmetrically c-commands another DP establishes a precedence (dominance) relationship since an antecedent which is higher in the tree is more prominent than an antecedent in a lower syntactic position.

3.2.6 ASYMMETRIC C-COMMAND

Kayne’s (1994) phrase structure theory of linear asymmetry, the Linear Correspondence Axiom (LCA), claims that specifiers universally precede their heads, heads universally precede their complements, and that a head can only have one specifier; in other words, asymmetric c-command always implies a precedence relation. The definition of asymmetric c-command is found in (47):

(47) X asymmetrically c-commands Y iff:

X and Y are categories

X excludes Y (no segment of X dominates Y)

every category that dominates X dominates Y (Kayne 1994: 16)
Asymmetric c-command is a relationship that two categories (extended nodes) possess in which an extended node excludes all extended nodes not dominated by both its segments. If a terminal syntactic node D asymmetrically c-commands another terminal syntactic node T, all the terminal nodes dominated by D must precede all the terminal nodes dominated by T. DP asymmetrically c-commands T if every extended node that dominates DP also dominates T and DP excludes T (Kayne, 1994). The following tree illustrates the concept of asymmetric c-command:

(48)                                          TP-extended node
     /
    /  \                  Extended node -DP  TP-extended node
   I    /   \               I       /   \
Terminal syntactic node- D   T   VP-extended node
     I  I  I              I  I  I
Ultimate constituents- d     t V-terminal syntactic node
     I
       v-ultimate constituent or lexical element

TP does not asymmetrically c-command DP because it does not exclude DP; not every segment that contains DP dominates DP. DP asymmetrically c-commands VP since every extended node that dominates DP, namely TP, also dominates VP and excludes DP; therefore, DP asymmetrically c-commands VP.

In the LCA, hierarchical structure and the linear precedence relation of arguments in a clause are linked: surface order reflects hierarchical order and, conversely, hierarchical relations map onto precedence of constituents in a clause. The hierarchical position in a syntactic tree is
influential in determining a preferred antecedent; asymmetric c-command restricts interpretations because the subject in [Spec, TP] has a preferred interpretation since it precedes and dominates other syntactic positions.

3.2.7 MINIMALIST ACCOUNT of PARAMETERS

Examples from this section have shown that Minimalism analyzes the NSP in terms of +/- strong AGR/EPP features. AGR is + strong in EP and Spanish, but is – strong in English and – strong in BP (except for first person which has a + strong AGR). The difference between BP compared to EP and Spanish emerges from data in EP and Spanish that identification of unpronounced copies takes place through the person and number features in T, while in BP it does so via the antecedent in the subject position in the main clause which has person and number features. In BP, an unpronounced copy is identified by virtue of an anaphoric AGR (subject-oriented, subject of an embedded clause) as per Equidistance Principle. BP’s syntactic structure appears to resemble English because both languages require an obligatory overt subject in [Spec, TP] in main clauses which can be explained by a + strong EPP feature.

An account for the divergent distribution of unpronounced copies in EP and BP is that the inflectional AGR morphology in EP has a morphologically encoded subject on T which allows for identification, but not in BP. A – strong AGR feature and a + strong EPP feature in BP causes the subject position generally to be preferably filled by lexical DPs (e.g., overt pronouns, R-expressions, etc.); in contemporary BP, there is no way for an unpronounced copy (except first person) to agree with T and, thus, be identified (recovered) since there is no person feature (Galves, 1993, Duarte, 1995, Figueiredo Silva, 1996). Unpronounced copies in BP do not have the same referential
properties of overt pronouns since they are not identified by inflectional AGR (they can only be bound by a c-commanding antecedent). The processes of morphological leveling and phonological attrition prompts BP to diverge from its European counterparts since the impoverishment of the inflectional AGR morphology places constraints on the distribution of unpronounced copies. However, in conditioned environments (e.g., finite embedded, coordinate clauses, etc.) in which an unpronounced copy is not properly identified because AGR is – strong, the content may be recovered by a lexical DP in the main clause; in BP a + strong EPP feature requires a lexical DP, a c-commanding antecedent in the subject [Spec, TP] position, which can bind an unpronounced copy (Modesto, 2000, Ferreira, 2004).

3.2.8 SUMMARY

Data from Chapter 3 illustrates that BP does not have the same strength for AGR and EPP features compared to other Romance languages such as EP and Spanish; hence, BP does not have a distribution and interpretation similar to EP and Spanish. Minimalism allows for the ability to capture more of the data made complicated by the investigation in Chapter 2; a MP analysis based on checking of + strong EPP features can account for the data in BP since an explanation to justify why unpronounced copies are confined to conditioned environments (e.g., finite embedded, coordinate clauses) is because the copy of the DP moves to the grammatical subject position to check off the + strong EPP feature), yet can be phonetically unrealized because there is a c-commanding antecedent within the extended domain. Verbal AGR paradigms for Spanish and EP distinguish distinct person and number combinations for all person and number combinations. In
contrast, BP has – strong inflectional AGR, minimally consisting of two inflected forms, first person singular and third person plural, (recall that third person singular is a theme vowel which is a non-inflected form) which reduces the overt AGR properties of BP verbs.

In the next chapter I discuss the empirical design that tests the cross-linguistic validity of the Position of the Antecedent Hypothesis (Carminati, 2002) which claims that pronoun-antecedent binding is regulated by syntactic factors. Chapter 4 presents the participants, describes the stimuli/materials, and describes the data collection method.
4. METHODOLOGY

This chapter examines the cross-linguistic validity of the Position of Antecedent Hypothesis (Carminati, 2002), introduces the participants, describes the stimuli/materials and presents the data collection procedures used in the pilot study. To conclude, an explanation of the data coding and scoring used for analysis is presented.

4.1 THE POSITION of the ANTECEDENT HYPOTHESIS

Carminati’s (2002) theory, the Position of the Antecedent Hypothesis (PAH), proposes that null and overt subjects have distinct antecedent preferences (i.e. they retrieve antecedents in different positions (subject-object) within the syntactic structure). Pronoun-antecedent relations are based exclusively on two features, pragmatic constraints and the syntactic configuration of the clause which contains a pronoun and an antecedent. Carminati (2002) alleges that a null pronoun retrieves an antecedent in the grammatical subject position of the main clause, and an overt pronoun is preferably interpreted with an antecedent in a lower syntactic position, such as an object of the clause. Consider example (2) reinterpreted as (48):

(48)  

a. Gianni ha detto a Mario che ∅ è intelligente.

Gianni has told Mario that ∅ is intelligent.

b. Gianni ha detto a Mario che lui è intelligente.

Gianni has told Mario that he is intelligent.  (Carminati 2002:89)
In (48a), the PAH predicts that the interpretation of the null pronoun depends on the structural position [Spec, TP] of the main clause, and through this dependency the null pronoun comes to refer to the sentential subject antecedent Gianni. The interpretation in (48b) of the overt pronoun lui ‘he’ is associated with the sentential object antecedent Mario. To date, no research has investigated if the PAH can accurately predict pronoun-antecedent binding in BP; this thesis aims to fill the void by comparing BP to other Romance languages (e.g., Italian, Spanish, and EP).

4.2 PURPOSE

The goal of this study is examine overt and null referential subject pronoun interpretation in BP and thus contribute to previous research (Duarte, 1995, Modesto, 2000, Carminati, 2002, Alonso-Ovalle et al. 2002, Barbosa et al. 2005, Filiaci, 2010). By providing new data and findings, this thesis has as its primary goal testing whether the referring preferences of null and overt subject pronouns are determined by syntactic (linguistic, language specific) or pragmatic (non-linguistic, situational, setting specific) factors; such preferences can be measured by manipulating the syntactic structure of the clauses (independently of situational context) through the use of either a null pronoun or an overt pronoun in finite clauses: embedded clauses (intra-sentential binding) and coordinate clauses (inter-sentential binding). The following structures are representative of the project design:
(49) a. An embedded clause with a null pronoun:
O João diz ao Pedro que Ø deve sair da sala.  (BP)
‘John says to Pedro that (he) must leave the room.’

Quem deve sair da sala? Pode referir-se a outra pessoa?
Who must leave the room? Can the sentence refer to another person?

b. An embedded clause with an overt pronoun:
O João diz ao Pedro que ele deve sair da sala.  (BP)
‘John says to Pedro that he must leave the room.’

Quem deve sair da sala? Pode referir-se a outra pessoa?
Who must leave the room? Can the sentence refer to another person?

Within the framework of the PAH advocated by (Carminati, 2002), the null pronoun in (49a) will refer only to the subject João; the overt pronoun ele ‘he’ in (49b) may refer to a previously mentioned referent (e.g., the direct object Pedro or free reference related to a discursive antecedent).

4.3 METHODOLOGY: EXPERIMENT 1

Alonso-Ovalle et al.’s (2002) experiment on inter-sentential and intra-sentential binding of null and overt pronouns is adapted into Brazilian Portuguese (BP); verb-initial sentences are modified into coordinate clauses (inter-sentential binding) in order to account for BP’s language specific requirement which disallows verb-initial main clauses. Relative clauses are used as distractors/fillers which are taken from Filiaci (2010) and translated into BP. This experiment tests
to see if the PAH is in effect in BP. The clauses contain two independent variables: (1) overt and null
pronouns and (2) finite embedded clauses and finite coordinate clauses. The dependent variables
include whether the participants choose a subject or an object antecedent.

4.4 PARTICIPANTS

20 students at the Universidade Federal de São Paulo (UNIFESP), Brazil, over the age of
eighteen, male/female, participate in the experiment individually. Subjects are selected randomly
based on their affiliation with UNIFESP.

4.5 THE STIMULI/MATERIALS

The stimuli consist of fourteen clauses: three coordinate clauses, four embedded clauses,
and seven distractors/fillers. Each clause occurs in two forms, one with a null pronoun and another
with an overt pronoun, as illustrated in (46a) and (46b), respectively. Both a null pronoun and an
overt pronoun could legitimately refer to either of the two determiner phrases (DPs) in the main
clause (in particular, its reference is not disambiguated by gender). Each test item is followed by a
question eliciting the referent of the embedded or coordinate clause subject (e.g., Quem precisou
mudar de time? ‘Who needed to change teams?’). Two counterbalanced forms of the survey are
constructed. In each, half the items contain a null pronoun and half contain an overt pronoun. The
ordering of the DPs is cross-balanced in order to neutralize any effect of first appearance related to
gender.
4.6 PROCEDURE

The participants are given written instructions from an online questionnaire that asks them to read each item carefully and type the answer to the question that follows it.

4.7 METHODOLOGY: EXPERIMENT 2

Experiment 2 asks participants through multiple choice test items to select their preferred interpretation for null and overt pronominal subjects. The clauses contain two independent variables: 1) overt and null pronouns, and 2) finite embedded clauses and finite coordinate clauses. The dependent variables include whether the participants choose a subject, an object antecedent, both a subject and object, or another person not mentioned in the clause.

4.7.1 PARTICIPANTS/PROCEDURE

The same participants from Experiment 1 complete Experiment 2.

4.7.2 THE STIMULI/MATERIALS

Nine referentially ambiguous Brazilian Portuguese clauses are taken from Rede Globo, a Brazilian media website: five coordinate clauses and four embedded clause. Nine relative clauses are used as distractors/fillers which are taken from Filiaci (2010) and translated into BP. The verbs of the main clauses attempt to express no implicit causality and do not explicitly focus on either one of the referents. Both a null pronoun and an overt pronoun could legitimately refer to either of the two DP’s in the main clause. The resulting eighteen test items are combined with the written instructions and a practice item. Two counterbalanced forms of the survey are constructed, one with a null pronoun and another with an overt pronoun, as illustrated in (50):
(50) Zeca convenceu a Daniel que Ø/ele precisou mudar de time.

Quem precisou mudar de time?__________________________

Zeca convinced Daniel that Ø/he needed to change teams.
Who needed to change teams?

a. Zeca
b. Daniel
c. Zeca ou/or Daniel
d. Outra pessoa/another person
e.__________

4.8 CODING

After the completion of the questionnaires the data is coded to produce descriptive statistics. The data is coded to generate the following: (1) descriptive statistics (mean, median, and mode) at the individual level for scores of the dependent variables (subject and object); and (2) frequency (number and percent of total) for the antecedent.

4.8.1 SCORING USE OF THE DEPENDENT AND INDEPENDENT VARIABLES

In this pilot study, each instance of antecedent interpretation is given a value from one to zero on the basis of the preferred (initial) choice for an antecedent. The selection of a subject antecedent is coded 0 and the preference for an object antecedent receives 1; a clause containing a null pronoun is coded 0 and an overt pronoun 1.
5. RESULTS

This chapter presents the following descriptive statistics based on participants’ construal of subject and object antecedents in the pilot study. In §5.1 results for the mean, median, and mode scores of the dependent variables (subject and object) and independent variables (null and overt) are determined. Research questions 1 & 2 are discussed in §5.2 along with the study’s relevance. In §5.3 a description of the pilot study investigates how the PAH (Carminati, 2002) is tested. Results from Experiment 2 are illustrated in §5.4, and results from Experiment 1 conclude §5.5. Data from Experiment 2 is presented first because no participants considered a discursive antecedent (e.g., free reference is possible, yet no respondent considered the overt pronoun as referring outside of either the embedded or coordinate clauses); thus, in Experiment 1 when respondents only reply “yes” to the question asking if the clause can refer to another person, they might be selecting the alternative sentential antecedent. A complete analysis for the results is presented in Chapter 6.

5.1 PILOT STUDY SCORING

The coding is based on the dependent variables (subject=0 and object=1) and the independent variables (null pronoun=0 and overt=1). A clause with a subject as a dependent variable (0) and a null pronoun as an independent variable (0) should correspond, and a clause with an object as a dependent variable (1) and an overt pronoun as an independent variable (1) should coincide if the PAH accurately predicts pronoun-antecedent ambiguity resolution. Within the value scale established for scoring responses, uses of subject (0) and object (1) reference for null (0) and overt (1) pronouns could be assigned either a value of 0 to 1 depending on the interpretation of the clause.
In order to look into which interpretation of a null pronoun or an overt pronoun retrieving a subject or an object antecedent, I focus on the mean scores of use of both subject and object antecedents. The value scores from 1 to 0 are used to measure of each response based on the previously outlined coding. A score of 1 indicates a preference for an object, a score of 0 indicates a preference for a subject antecedent. As seen in Table VI, the participants’ mean score for subject antecedent preference in an embedded finite clause (.06) should approach statistical significance; while subject antecedent preference in a coordinate clause (.02) is noteworthy. The mean score for object antecedent preference (.75) in an embedded finite clause and (.70) in a coordinate clause demonstrates that pronoun accessibility is not conditioned purely by syntax.

Table V: Descriptive statistics of preference with null and overt pronouns

<table>
<thead>
<tr>
<th></th>
<th>Mean</th>
<th>Median</th>
<th>Mode</th>
</tr>
</thead>
<tbody>
<tr>
<td>Embedded clauses:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Overt pronoun retrieves an object</td>
<td>.75</td>
<td>.70</td>
<td>1</td>
</tr>
<tr>
<td>Null pronoun retrieves a subject</td>
<td>.06</td>
<td>.05</td>
<td>0</td>
</tr>
<tr>
<td>Coordinate clauses:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Overt pronoun retrieves an object</td>
<td>.70</td>
<td>.75</td>
<td>1</td>
</tr>
<tr>
<td>Null pronoun retrieves a subject</td>
<td>.02</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>
5.1.1 OBJECTIVES OF THE STUDY

The Position of the Antecedent Hypothesis (PAH) (Carminati, 2002) predicts that null and overt subjects retrieve antecedents in different structural positions. In finite embedded clauses, pronoun-antecedent agreement is based exclusively on the syntactic configuration of the sentence in which a null pronoun retrieves a sentential subject antecedent in the main clause; however, an overt pronoun is associated with an antecedent in a non-subject, lower syntactic position, such as an object of the clause. By providing new data which contributes to previous findings (Duarte, 1995, Modesto, 2000, Carminati, 2002, Barbosa et al. 2005, Filiaci, 2010), this study empirically tests whether the construal of null and overt subject pronouns are determined by syntactic or pragmatic factors.

5.2 RESEARCH QUESTIONS

The pilot study explores how null and overt pronouns in BP finite embedded and coordinate clauses retrieve subject and object antecedents by testing the validity of the PAH (Carminati, 2002) in BP. Research questions one and two from §2.5 are presented below:

Does BP follow the PAH as a null pronoun prefers a subject antecedent over an object antecedent?

As a corollary:

Will overt pronominals in embedded clauses retrieve the subject antecedent of the main clause?
5.3 EXPERIMENT

The experiment consists of test items (e.g., 51a & b) for finite embedded and coordinate clauses which are followed by questions in which participants have to choose their preferred interpretation for null and overt subject pronouns. Consider the coordinate clauses in (51):

(51) a. João bateu Rubens e ficou chateado.
    Quem ficou chateado?
    John hit Rubens and (he) got mad.
    Who got mad?

b. João bateu Rubens e ele ficou chateado.
    Quem ficou chateado?
    John hit Rubens and he got mad.
    Who got mad?

Examples (51a & 51b) could potentially refer to the subject or the object of a sentence. The participants indicate which interpretation of the clause or sentence they prefer (i.e. whether they think it is a statement about the subject or the object). The data collected is expected to falsify my hypothesis that Brazilian Portuguese patterns differently than Italian and Spanish. That is, the PAH predicts that in BP finite embedded clauses (intra-sentential binding) and coordinate clauses (inter-sentential binding) a null pronoun selects the subject and an overt pronoun retrieves the object or another referent identifiable from the discourse.
5.3.1 EXPERIMENT 2

Each sentence has a pronominal subject (overt or null) in an embedded clause (intrasentential binding) or a coordinate clause (inter-sentential binding) and an antecedent in the main clause. Participants indicate co-reference interpretations with the subject or the object antecedent. This experiment tests to see if the PAH is in effect in BP. The clauses contain two independent variables: (1) overt and null pronouns, and (2) finite embedded clauses and coordinate clauses. The dependent variables include whether the participants choose a subject or an object antecedent. In Experiment 2 eighteen referentially ambiguous BP clauses are used: five finite coordinate clauses, four finite embedded clauses (and nine relative clauses used as distractors/fillers). ⁹

Pilot study results are based on participants’ construal of sentential antecedents (subject and object) in the test items. No causality is intended to be implied by the predicates which attempt to not explicitly focus on either one of the referents; however, predicate argument structure which traverses the lexicon-syntax interface (i.e. the type of predicate involved such as causatives like tell or advise convey that an external argument (the subject) is implicitly responsible for an action) must be considered as a factor which can potentially influence the retrieval of a sentential antecedent. The ordering of clauses tested is as follows: coordinate clauses with a null pronoun, coordinate clauses with an overt pronoun, embedded clauses with a null pronoun, and embedded clauses with an overt pronoun. A methodical account of findings appears in Chapter 6.

⁹. One embedded clause is discarded for being mistakenly promoted without a null/overt distinction.
### 5.3.2 COORDINATE CLAUSES with a NULL PRONOUN

#### 49a. Amanda provoca Naomi e ∅ tem uma crise nervosa.

Amanda provokes Naomi and (she) has a nervous breakdown.

<table>
<thead>
<tr>
<th>Antecedent Type</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Subject</td>
<td>90%</td>
</tr>
<tr>
<td>Object</td>
<td>0%</td>
</tr>
<tr>
<td>Either</td>
<td>10%</td>
</tr>
</tbody>
</table>

#### 50a. Josué ataca Chico, mas ∅ foge.

Josué attacks Chico, but (he) runs away.

<table>
<thead>
<tr>
<th>Antecedent Type</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Subject</td>
<td>70%</td>
</tr>
<tr>
<td>Object</td>
<td>10%</td>
</tr>
<tr>
<td>Either</td>
<td>20%</td>
</tr>
</tbody>
</table>

#### 51a. Nicole expulsa Stéfany de casa e ∅ pede abrigo à Dona Mocinha.

Nicole throws Stéfany out of the house and (she) seeks refuge from Dona Mocinha.

<table>
<thead>
<tr>
<th>Antecedent Type</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Subject</td>
<td>100%</td>
</tr>
<tr>
<td>Object</td>
<td>0%</td>
</tr>
</tbody>
</table>
52a. Élcio pede para Xavier não contar para ninguém seus segredos e Ø impõe condições.
Élcio asks Xavier to not tell anyone about his secrets and (he) imposes restrictions.

<table>
<thead>
<tr>
<th>Subject antecedent</th>
<th>100%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Object antecedent</td>
<td>0%</td>
</tr>
</tbody>
</table>

53a. Bruna convida Marcela para voltar a morar em sua casa, mas Ø recusa
Bruna invites Marcela to return to live in her house, but (she) refuses.

<table>
<thead>
<tr>
<th>Subject antecedent</th>
<th>0%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Object antecedent</td>
<td>100%</td>
</tr>
</tbody>
</table>

5.3.3 COORDINATE CLAUSES with an OVERT PRONOUN

49b. Amanda provoca Naomi e ela tem uma crise nervosa.
Amanda provokes Naomi and she has a nervous breakdown.

<table>
<thead>
<tr>
<th>Subject antecedent</th>
<th>0%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Object antecedent</td>
<td>40%</td>
</tr>
<tr>
<td>Either subject or object antecedent</td>
<td>60%</td>
</tr>
</tbody>
</table>
50b. Josué ataca Chico, mas ele foge.
Josué attacks Chico, but he runs away.

<table>
<thead>
<tr>
<th>Antecedent</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Subject antecedent</td>
<td>0%</td>
</tr>
<tr>
<td>Object antecedent</td>
<td>40%</td>
</tr>
<tr>
<td>Either subject or object antecedent</td>
<td>60%</td>
</tr>
</tbody>
</table>

51b. Nicole expulsa Stéfany de casa e ela pede abrigo à Dona Mocinha.
Nicole throws Stéfany out of the house and she seeks refuge from Dona Mocinha.

<table>
<thead>
<tr>
<th>Antecedent</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Subject antecedent</td>
<td>0%</td>
</tr>
<tr>
<td>Object antecedent</td>
<td>40%</td>
</tr>
<tr>
<td>Either subject or object antecedent</td>
<td>60%</td>
</tr>
</tbody>
</table>

52b. Élcio pede para Xavier não contar para ninguém seus segredos e ele impõe condições.
Élcio asks Xavier to not tell anyone about his secrets and he imposes restrictions.

<table>
<thead>
<tr>
<th>Antecedent</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Subject antecedent</td>
<td>0%</td>
</tr>
<tr>
<td>Object antecedent</td>
<td>50%</td>
</tr>
<tr>
<td>Either subject or object antecedent</td>
<td>50%</td>
</tr>
</tbody>
</table>

53b. Bruna convida Marcela para voltar a morar em sua casa, mas ela recusa.
Bruna invites Marcela to return to live in her house, but she refuses.

<table>
<thead>
<tr>
<th>Antecedent</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Subject antecedent</td>
<td>0%</td>
</tr>
<tr>
<td>Object antecedent</td>
<td>100%</td>
</tr>
</tbody>
</table>
5.3.4 EMBEDDED CLAUSES with a NULL PRONOUN

54a. Lúcio insinua a Marcos que ∅ tem um compromisso urgente.

Lúcio insinuates to Marcos that (he) has an urgent engagement.

<table>
<thead>
<tr>
<th>Antecedent</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Subject antecedent</td>
<td>50%</td>
</tr>
<tr>
<td>Object antecedent</td>
<td>0%</td>
</tr>
<tr>
<td>Either subject or object antecedent</td>
<td>50%</td>
</tr>
</tbody>
</table>

55a. Norma fala com Jandira que ∅ precisa descobrir tudo sobre a família de Léo.

Norma talks to Jandira that (she) needs to find out everything about Leo’s family.

<table>
<thead>
<tr>
<th>Antecedent</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Subject antecedent</td>
<td>40%</td>
</tr>
<tr>
<td>Object antecedent</td>
<td>0%</td>
</tr>
<tr>
<td>Either subject or object antecedent</td>
<td>60%</td>
</tr>
</tbody>
</table>

56a. Wagner avisa a Cortez que ∅ pode usar o dinheiro guardado em sua casa.

Wagner warns Cortez that (he) could use the money stashed at his house.

<table>
<thead>
<tr>
<th>Antecedent</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Subject antecedent</td>
<td>0%</td>
</tr>
<tr>
<td>Object antecedent</td>
<td>40%</td>
</tr>
<tr>
<td>Either subject or object antecedent</td>
<td>60%</td>
</tr>
</tbody>
</table>
### 5.3.5 EMBEDDED CLAUSES with an OVERT PRONOUN

<table>
<thead>
<tr>
<th>Example</th>
<th>Translation</th>
<th>Subject antecedent</th>
<th>Object antecedent</th>
<th>Either subject or object antecedent</th>
</tr>
</thead>
<tbody>
<tr>
<td>54b. Lúcio insinua a Marcos que ele tem um compromisso urgente.</td>
<td>Lúcio insinuates to Marcos that he has an urgent engagement.</td>
<td>50%</td>
<td>0%</td>
<td>50%</td>
</tr>
<tr>
<td>55b. Norma fala com Jandira que ela precisa descobrir tudo sobre a família de Léo.</td>
<td>Norma talks to Jandira that she needs to find out everything about Leo’s family.</td>
<td>10%</td>
<td>0%</td>
<td>90%</td>
</tr>
<tr>
<td>56b. Wagner avisa a Cortez que ele pode usar o dinheiro guardado em sua casa.</td>
<td>Wagner warns Cortez that he could use the money stashed at his house.</td>
<td>10%</td>
<td>90%</td>
<td>0%</td>
</tr>
</tbody>
</table>
5.3.6 EXPERIMENT 2 RESULTS

Data from Experiment 2 reveals that no participants choose a discursive antecedent. There seems to be a preference, but the tendency to select an overt pronoun to retrieve a sentential antecedent (subject or object) is skewed since the participants have an option to select the alternative that the clause could refer to either the subject or the object antecedent. Results from Experiment 2 shows a bias for object antecedents or the preference for either sentential (subject or object) antecedents when an overt pronoun occurs in a finite coordinate clause. Data indicates that in BP there is a tendency to choose both the subject and the object for an overt pronoun in a finite embedded and coordinate clause. Consider (55b):

(55b) Norma fala com Jandira que ela precisa descobrir tudo sobre a família de Léo.

Norma talks to Jandira that she needs to find out everything about Leo’s family.

The overt pronoun *ela* ‘she’ in the embedded finite clause in (55b) is referentially ambiguous as being co-referential with the subject *Norma* or the object *Jandira*. Finiteness (tensed predicates inflected with φ-features) conditions clauses like (55b) to be potentially ambiguous in meaning due to three possible interpretations in BP, EP, Spanish, and English: (1) co-referential with a subject antecedent, (2) co-referential with an object antecedent, and (3) free reference (outside the main clause) which relates to a previously mentioned referent.
In BP finiteness (and c-command for embedded clauses) appears to be conditioning responses since findings from Experiment 2 show that no participants choose a discursive antecedent (e.g., free reference is possible, yet no respondent considered the overt pronoun as referring outside of either the embedded or coordinate clauses). Thus, the finite verb agrees with the potential antecedents in its morphological feature specification (e.g. number and person) which permits three interpretations for the study: (1) co-referential with a subject antecedent, (2) co-referential with an object antecedent, or (3) co-referential with a subject or an object antecedent. BP diverges from its European ancestors (e.g., EP, Spanish, Italian, etc.) because in BP finite clauses a null or overt pronoun may be interpreted as paraphrase (i.e. 2 forms=1 meaning, null and overt pronouns evoke the same mental connotation) which retains the sentential subject (a continuation of a referent or topic); however, in EP and Spanish an overt pronoun has pragmatic implications which signal a switch away from a c-commanding subject (e.g., switch reference adds another possible mental connotation because an antecedent can retrieve a sentential or discursive antecedent, or at LF represent two meanings with one form). BP has a language specific feature which permits a null pronoun to function anaphorically since there is a strong tendency to retrieve a sentential subject antecedent.

5.4 EXPERIMENT 1

The procedure for Experiment 1 follows Experiment 2 by testing referring preferences for inter-sentential (coordinate clauses) and intra-sentential (embedded clauses) binding of null and overt pronouns. The clauses contain two independent variables: (1) overt and null pronouns and (2) finite embedded clauses, and finite coordinate clauses. The dependent variables include whether
the participants choose a subject or an object pronoun. In Experiment 1 fourteen referentially ambiguous BP clauses are used: three finite coordinate clauses, four finite embedded clauses (and seven relative clauses used as distractors/fillers).

5.4.1 COORDINATE CLAUSES with a NULL PRONOUN

Total % = total % of respondents
% say yes = % who say the clause can refer to another person

<table>
<thead>
<tr>
<th>57b. María acolhe a Ana mas ∅ não está contente.</th>
<th>Total</th>
<th>% say</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maria greets Ana, but (she) is not happy.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Subject antecedent</td>
<td>100%</td>
<td>50%</td>
</tr>
<tr>
<td>Object antecedent</td>
<td>0%</td>
<td>---</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>58b. Mário conforta Henrique, mas ∅ fica pertubado com sua proximidade.</th>
<th>Total</th>
<th>% say</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mário comforts Henrique, but (he) gets upset with his proximity.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Subject antecedent</td>
<td>100%</td>
<td>10%</td>
</tr>
<tr>
<td>Object antecedent</td>
<td>0%</td>
<td>---</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>59a. João bateu em Rubens e ficou chateado.</th>
<th>Total</th>
<th>% say</th>
</tr>
</thead>
<tbody>
<tr>
<td>John hit Rubens and ∅ got mad.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Subject antecedent</td>
<td>90%</td>
<td>44%</td>
</tr>
<tr>
<td>Object antecedent</td>
<td>10%</td>
<td>100%</td>
</tr>
</tbody>
</table>
### 5.4.2 COORDINATE CLAUSES with an OVERT PRONOUN

<table>
<thead>
<tr>
<th>Clause</th>
<th>English Translation</th>
<th>Total %</th>
<th>% Say yes</th>
</tr>
</thead>
</table>

#### 57a. María acolhe a Ana mas ela não está contente.

- María greets Ana but she is not happy.

<table>
<thead>
<tr>
<th>Antecedent Type</th>
<th>Percentage</th>
<th>Say yes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Subject antecedent</td>
<td>60%</td>
<td>100%</td>
</tr>
<tr>
<td>Object antecedent</td>
<td>20%</td>
<td>50%</td>
</tr>
<tr>
<td>Either subject or object antecedent</td>
<td>20%</td>
<td>---</td>
</tr>
</tbody>
</table>

#### 58a. Mário conforta Henrique, mas ele fica pertubado com sua proximidade.

- Mário comforts Henrique, but he gets upset with his proximity.

<table>
<thead>
<tr>
<th>Antecedent Type</th>
<th>Percentage</th>
<th>Say yes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Subject antecedent</td>
<td>40%</td>
<td>75%</td>
</tr>
<tr>
<td>Object antecedent</td>
<td>50%</td>
<td>40%</td>
</tr>
<tr>
<td>Either subject or object antecedent</td>
<td>10%</td>
<td>---</td>
</tr>
</tbody>
</table>

#### 59b. João bateu em Rubens e ele ficou chateado.

- John hit Rubens and he got mad.

<table>
<thead>
<tr>
<th>Antecedent Type</th>
<th>Percentage</th>
<th>Say yes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Subject antecedent</td>
<td>0%</td>
<td>---</td>
</tr>
<tr>
<td>Object antecedent</td>
<td>70%</td>
<td>29%</td>
</tr>
<tr>
<td>Either subject or object antecedent</td>
<td>30%</td>
<td>---</td>
</tr>
</tbody>
</table>
5.4.3 EMBEDDED CLAUSES with a NULL PRONOUN

<table>
<thead>
<tr>
<th>Example</th>
<th>Total</th>
<th>% say</th>
</tr>
</thead>
<tbody>
<tr>
<td>60a. Dona Zilá diz a Amália que ∅ ficará com seu caderno de receitas.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dona Zilá says to Amália that (she) will get her recipe book.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Subject antecedent</td>
<td>100%</td>
<td>30%</td>
</tr>
<tr>
<td>Object antecedent</td>
<td>0%</td>
<td>---</td>
</tr>
</tbody>
</table>

| 61b. Leandro convence a Gustavo de que ∅ vai ganhar. |       |       |
| Leandro convinces Gustavo that (he) is going to win. |       |       |
| Subject antecedent                           | 60%   | 83%   |
| Object antecedent                             | 20%   | 100%  |
| Either subject or object antecedent           | 20%   | ---   |

| 62a. Patrícia diz a René que ∅ precisa esquecer Antenor. |       |       |
| Patrícia says to René that (she) needs to forget Antenor. |       |       |
| Subject antecedent                           | 100%  | 70%   |
| Object antecedent                             | 0%    | ---   |

| 63b. Sara fala com a Teresa que ∅ deve sair da casa. |       |       |
| Sara says to Teresa that (she) should leave the house. |       |       |
| Subject antecedent                           | 70%   | 86%   |
| Object antecedent                             | 30%   | 100%  |
| Either subject or object antecedent           | 0%    | ---   |
5.4.4 EMBEDDED CLAUSES with an OVERT PRONOUN

<table>
<thead>
<tr>
<th>63a. Sara fala com a Teresa que ela deve sair da casa.</th>
<th>Total</th>
<th>% say</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sara says to Teresa that she should leave the house.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Subject antecedent</td>
<td>0%</td>
<td>---</td>
</tr>
<tr>
<td>Object antecedent</td>
<td>70%</td>
<td>71%</td>
</tr>
<tr>
<td>Either subject or object antecedent</td>
<td>30%</td>
<td>---</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>60b. Dona Zilá diz a Amália que ela ficará com seu caderno de receitas.</th>
<th>Total</th>
<th>% say</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dona Zilá says to Amália that she will get her recipe book.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Subject antecedent</td>
<td>50%</td>
<td>0%</td>
</tr>
<tr>
<td>Object antecedent</td>
<td>30%</td>
<td>33%</td>
</tr>
<tr>
<td>Either subject or object antecedent</td>
<td>20%</td>
<td>---</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>61a. Leandro convence a Gustavo de que ele vai ganhar.</th>
<th>Total</th>
<th>% say</th>
</tr>
</thead>
<tbody>
<tr>
<td>Leandro convinces Gustavo that he is going to win.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Subject antecedent</td>
<td>10%</td>
<td>100%</td>
</tr>
<tr>
<td>Object antecedent</td>
<td>50%</td>
<td>40%</td>
</tr>
<tr>
<td>Either subject or object antecedent</td>
<td>40%</td>
<td>---</td>
</tr>
</tbody>
</table>
Results from BP participants provide robust evidence that null pronouns retrieve a sentential subject antecedent which supports Carminati (2002) since BP, like Spanish and Italian, seems to display a strong tendency for antecedents in the grammatical subject position. Experiment 1 and 2 demonstrate that a null pronoun in BP is not a null subject: Rather, a null pronoun functions as an anaphor since there is a strong propensity to retrieve a sentential subject antecedent. Under a MP analysis, the unpronounced copy of the DP is generated in the embedded or coordinate clause which is bound by the sentential subject antecedent of the higher clause, an operation that skips the object antecedent in crucial constructions. An object could be selected based on pragmatics (setting, specific situations) or dictated by the type of predicate. Pilot study data reveal that variation exists with the use of overt pronouns retrieving either an object or a subject antecedent in BP; however, overt pronouns typically retrieve object antecedents.

10. René could potentially refer to either a male or female. Responses could be biased based on the ambiguity.
5.5 SUMMARY

This chapter presents descriptive statistics based on participants’ construal of subject and object antecedents in the pilot study; results for the mean, median, and mode scores of the dependent variables (subject and object) and independent variables (null and overt) are determined. Research questions one and two are discussed along with the study’s relevance. Results from Experiment 1 & 2 illustrate the strong tendency for anaphoric behavior in BP in both coordinate and embedded clauses. Data from (49b, 50b, 51b, 52b, 57a, and 58a) provide evidence which complicates the PAH since in BP there is not a strong preference for an overt pronoun in coordinate clauses to refer only to an object antecedent.
6. ANALYSIS of RESULTS

This chapter presents a detailed analysis of the pilot study results. In §6.1 empirical evidence answers thesis questions #1 & #2 which scrutinizes the validity of the PAH by incorporating Kayne’s (1994) LCA; linearized word order and the preference for an unpronounced copy to retrieve a subject antecedent can be explained by Chomsky ‘s (1993) Copy Theory of Movement, which accounts for reconstruction effects, and Nunes’ (1999, 2001) Chain Reduction, construed in Minimalism as a Copy+ Merge operation involving an antecedent (the head of the chain) and a copy (the foot of the chain). In §6.2 the structure of coordinate clauses incorporating Nunes and Uriagereka’s (2000) proposal for Sideward Movement which permits merging a copy into a completely different substructure, one that does not c-command the copy, makes available a discussion for coordinate clause results. The interaction of syntactic, semantic and pragmatic interfaces in resolving pronoun-antecedent ambiguity is presented in §6.3; a MP approach recognizes that syntax can only be understood with reference to the morphosyntactic (inflectional AGR) and semantic systems (LF) of the grammar. A vital tenet of Minimalism is that forms (as per AGR elements) are in fact interdependent on syntax because syntax functions to map form onto meaning. The sound-meaning pairs (LF and PF) are ‘conceptually necessary’ because the articulatory-perceptual and conceptual-intentional systems reflect the fact that clauses are a mapping function of sound-meaning forms.

6.1.1 PILOT STUDY RESULTS for QUESTION 1

Research question #1 determines whether ‘null subjects’ will retrieve a subject antecedent. Findings in BP for Experiment 1 and Experiment 2 replicate results from Carminati (2002) because there is a strong tendency for participants to select the sentential subject antecedent when there is
a ‘null pronoun’ in a finite embedded or coordinate clause; in the absence of pragmatics (setting specific, contextual knowledge), pronoun–antecedent preferences in Romance languages are influenced by the syntactic system which builds LF interpretations: unpronounced copies (null pronouns in GB) retrieve sentential subject antecedents, while overt pronouns typically retrieve object antecedents. Reconsider Table V reinterpreted as Table VI:

Table VI: Descriptive Statistics of Preference with Null and Overt Pronouns

<table>
<thead>
<tr>
<th></th>
<th>Mean</th>
<th>Median</th>
<th>Mode</th>
</tr>
</thead>
<tbody>
<tr>
<td>Embedded clauses:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Overt pronoun retrieves an object</td>
<td>.75</td>
<td>.70</td>
<td>1</td>
</tr>
<tr>
<td>Null pronoun retrieves a subject</td>
<td>.06</td>
<td>.05</td>
<td>0</td>
</tr>
<tr>
<td>Coordinate clauses:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Overt pronoun retrieves an object</td>
<td>.70</td>
<td>.75</td>
<td>1</td>
</tr>
<tr>
<td>Null pronoun retrieves a subject</td>
<td>.02</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

Empirical evidence from the study demonstrates that the tendency for unpronounced copies (null pronouns) to retrieve subject antecedents appears to be slightly stronger for coordinate clauses compared to finite embedded clauses (a c-command relationship), a finding unattested in prior studies (Carminati, 2002, Filiaci, 2010) since no c-command relationship can be realized for coordinate clauses.

Carminati (2002) associates preferred interpretations between potential antecedents within a clause with the syntactic subject position; the most dominant antecedent in a clause is the argument that occupies the highest c-commanding structural position which in Romance languages (e.g., Italian, Spanish, EP, etc.) is normally occupied by the sentential subject that also happens to
be the topic, and thus can be considered dominant because the asymmetrically c-commanding subject is positioned on the left-edge of a clause. In a language like Italian that has two pronominal forms (null and overt pronouns) in its system, one would expect the forms to have different functions (one form=one function). Carminati provides support in Italian which is based on principles of economy (e.g., overall the unpronounced copy is a default form which indicates topic continuation) or the use of an overt pronoun averts ambiguity by signaling a switch in reference or topic.

6.1.2 DISCUSSION on PILOT STUDY RESULTS for ‘NULL SUBJECTS’

Within Kayne’s (1994) LCA, linearized word order and the preference for an unpronounced copy (a ‘null pronoun’ in GB) to retrieve a subject antecedent can be explained by Chomsky’s (1993) Copy Theory of Movement, which accounts for reconstruction effects, and Nunes’ (1999, 2001) Chain Reduction, construed in Minimalism as a Copy + Merge operation involving an antecedent (the head of the chain) and a copy (the foot of the chain). When Form Chain applies in embedded clauses, one chain between the antecedent (the highest c-commanding DP copy in [Spec, TP]), the c-commanding DP copy in the argument position [Spec, vP], and the copy in the finite embedded clause [Spec, TP] is constructed. Since copies are equivalent in their features, any non-trivial chain (t₁ ... tₙ), cannot be linearized because an identical copy will precede and follow another copy. Consequently, before the LCA can apply to map hierarchical relations onto precedence of constituents in a clause, Chain Reduction which deletes all but the asymmetrically c-commanding link (copy) of the chain must take place in order to erase the lower copies in the chain making it possible for the structure to be linearized. As a result, only the DP copy in [Spec, TP] is mapped onto the linear order at PF. In other words, Chain Reduction selects the highest c-
commanding copy and deletes the lower copies since the computational system requires that φ-features and the +strong EPP feature on T are valued to meet FI.

Nunes’ (1999, 2001) Chain Reduction contends that a DP copy’s φ-features (person, number, and gender) distinguish copies in a chain from each other; the highest left-edge copy in a chain checks more formal features (e.g., EPP, Case, etc.) than lower copies because it is the last active copy compared to an inert copy which has its features valued. Chain Reduction can be implemented to explain the bias for the preferred interpretation in Romance languages for an unpronounced copy to retrieve a sentential subject antecedent since the highest left-edge asymmetrically c-commanding copy of the chain deletes the lower copies in the chain making it possible for the structure to have a linear order which can then be phonetically realized. In other words, the subject antecedent (a DP copy) moves to the grammatical subject position [Spec, TP] to check off the + strong EPP feature, yet can have a phonetically unrealized subject in an embedded finite clause which at LF and PF generate the strong preference in Romance languages to retrieve a subject antecedent since the subject is the highest asymmetrically c-commanding antecedent within the extended domain.

Romance languages and BP appear to permit long-distance binding of ‘null subjects’ since unpronounced copies in finite embedded clauses must be c-commanded by a sentential antecedent which causes the embedded subject to be bound to an antecedent in the main clause. Previous cross-linguistic research (White, 2003) has shown that Japanese and Chinese can have long-distance binding of reflexives; the binding domain for a reflexive is expanded because + strong inflectional AGR in these languages moves to the higher clause. Consider example (61b):
LF: [(TP Leandro [VP Leandro convence [VP a Gustavo convence [CP que [TP Leandro [VP Leandro vai ganhar]]]])].

[(TP Leandro [VP Leandro convinces [VP Gustavo convinces [CP that [TP Leandro [VP Leandro is going to win]]]]]].
Test item (61b) demonstrates that if + strong inflectional AGR moves from V-to- T, the features that would restrict a minimal domain are in the higher clause and subsequently, the domain for an embedded clause must also be extended. The binding domain for overt pronominals is not expanded like for unpronounced copies because pronouns must be free in the embedded clause to satisfy Principle B. In other words, overt pronominals are identified by interpretable φ-features (person, number, and gender AGR) but the pronouns do not form any chains which causes the pronouns to be capable of having a free interpretation (e.g., retrieving a subject antecedent, an object antecedent, or a discursive antecedent).

The following table uncovers the distinction between inflectional AGR and interpretive AGR. The term interpretive AGR (+/– anaphoric)\textsuperscript{11} refers to a language’s ability to sanction sentential and discursive antecedents in a finite embedded clause for transitive verbs which can generate three potential interpretations: (1) co-referential with a DP subject antecedent, (2) co-referential with a DP object antecedent, or (3) free (no c-command) reference which relates to a previously mentioned antecedent.

\textsuperscript{11} The term anaphoric AGR is borrowed from Borer (1989).
**Table VII the NSP: +/- STRONG INFLECTIONAL & ANAPHORIC INTERPRETIVE AGR**

<table>
<thead>
<tr>
<th>NSP</th>
<th>Features in T → φ-features [F] on T value [uF] inflectional AGR:</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. [+NSL]: + Strong Inflectional AGR Features in T</td>
<td>No need to project [Spec, TP], but can have a lexical DP.</td>
</tr>
<tr>
<td>b. [-NSL]: – Strong Inflectional AGR Features in T</td>
<td>φ-features [uF] on T cannot value [uF] inflectional AGR: Must have [F] DP</td>
</tr>
<tr>
<td>c. [+/-NSL]: – Anaphoric (+Pronominal) Interpretive [F] AGR</td>
<td>can be free to retrieve a sentential antecedent or discursive antecedent</td>
</tr>
<tr>
<td>d. [+/-NSL]: + Anaphoric Interpretive AGR [F]</td>
<td>must be bound by a c-commanding subject antecedent</td>
</tr>
</tbody>
</table>

Recall from §3.2.4, +NSLs are considered to display + strong inflectional AGR, a finite verb has a set of uninterpretable φ-features which will try to agree with T that has a set of interpretable [F] φ-features (+ strong AGR features morphologically encoded on the suffix like a DP) that can value the uninterpretable features on the verb, hence causing no need to project [Spec, TP]. However, in –NSLs like English, a finite verb has a set of uninterpretable [uF] φ-features which will try to agree with T that has – strong AGR [uF] features, the features cannot be identified (recovered) since there is no [person] feature, so a DP with interpretable φ-features must enter the derivation to value the uninterpretable features. A + strong EPP feature requires a lexical subject (e.g., R-expression, overt pronoun, etc.) with interpretable semantic content (person, number, and gender features) to value that feature.

Although Romance languages can freely select a sentential or discursive antecedent, Carminati (2002) provides evidence that ‘null subjects’ are always recoverable by means of binding; + anaphoric interpretive AGR can be recognized as being bound which retrieves an asymmetrically c-commanding antecedent which produces the unmarked interpretation in Romance languages of
sentential subject antecedents binding ‘null pronouns.’ Findings from the test items in BP replicate the +anaphoric interpretive AGR behavior. Prior research in BP (Modesto, 2000, Ferreira, 2004) claims that ‘null pronouns’ in finite embedded clauses are not ‘null pronouns,’ they are instead anaphors since they must retrieve a c-commanding antecedent in the subject position in the main clause. Conversely, when the subject is overt in embedded and coordinate clauses in Romance languages (and English), – anaphoric interpretive AGR might be understood to be + pronominal (free, not bound) or free of an antecedent asymmetrically c-commanding it in its Minimal Domain.

The status of inflectional AGR in BP, whether it possesses +/- strong AGR, is uncertain since BP has been experiencing discernible grammatical changes since the nineteenth century, nevertheless inflectional AGR could still be strong which means that BP does not have – strong inflectional AGR like English. However, the + strong AGR in BP does not function like prototypical Romance languages: The + strong inflectional AGR in EP and Spanish might be understood to be – anaphoric AGR (+ pronominal) or free of an antecedent asymmetrically c-commanding it in its Minimal Domain (plausibly a single TP projection) and morphologically encoded subjects on suffixes which present + strong inflectional AGR that identify interpretable person and number features like lexical DP subjects. BP ’s + anaphoric AGR requires a c-commanding antecedent which triggers the + strong EPP feature in the main clause that requires a lexical DP (e.g., an R-expression ,overt pronominal subject, etc. ) whose presence dominates lower copies (anaphoric copies reduced to covert chain forms). Nevertheless, findings from the pilot study replicate Carminati (2002) since unpronounced copies (‘null subjects’) in Romance languages and BP do not have the same preferred interpretations nor referential properties of overt pronouns since copies are identified by
+ anaphoric AGR (they can only be bound by a c-commanding antecedent) and not – anaphoric AGR like overt pronominals.

BP imitates its European counterparts by displaying a strong tendency for a ‘null pronoun’ to select an sentential subject antecedent because syntax dictates a + anaphoric interpretive AGR relation through binding by an asymmetrically c-commanding antecedent; the copy of the DP moves to the grammatical subject position to check off the + strong EPP feature, yet can be phonetically unrealized in the embedded clause because there is an asymmetrically c-commanding antecedent within the extended domain. Syntactic constraints (binding) for unpronounced copies in Romance languages affect semantic interpretation because reference to one antecedent over another causes the existence of characteristic (unmarked) interpretations conditioned by syntax independent of sentence processing or pragmatic constraints (e.g., null subjects characteristically retrieve a c-commanding subject antecedent). Inflectional AGR might be different for Romance languages compared to BP (e.g., EP has +strong AGR vs. BP’s +/– strong AGR in conditioned environments), but the strong tendency for the preferred interpretation to retrieve a sentential subject antecedent (+ anaphoric interpretive AGR) in finite embedded and coordinate clauses is indisputable.

6.1.3 PILOT STUDY RESULTS for QUESTION 2

Research question #2 attempts to ascertain if overt pronouns retrieve a subject antecedent; results indicate that there is more variability with overt pronouns compared to ‘null pronouns’ which might be dependent on a pragmatic12 (setting specific, non-linguistic) context. Syntax can be

12. Prompts are selected from a naturalistic, scripted source.
overridden by pragmatics when participants make use of general (real world, setting specific) knowledge. Pragmatically biased items (examples taken from soap operas), indicate that the syntactic constraint related to the binding of BP ‘null subjects’ dominates setting specific knowledge in pronoun-antecedent ambiguity resolution (e.g., more subject antecedents are selected in the test items when the pronoun is null than overt; more overt pronouns compared to ‘null pronouns’ are selected to retrieve an object antecedent). Pilot study data reveal that overt pronouns characteristically select an object antecedent in BP, but overt pronouns can be bound by subject antecedents; nonetheless, an overt pronoun must almost always retrieve a sentential antecedent because an overt pronoun can signal incorporation (binding) of a c-commanding antecedent.

Findings in BP demonstrate less variability between overt pronouns retrieving an object antecedent in the clauses without a pragmatic (setting specific) context when compared to results for clauses containing a pragmatic context (the soap opera) since the presence of a pragmatic context might induce participants to accept more null or overt pronouns retrieving a subject antecedent in BP because this null or overt argument could be interpreted as a specific person from the context of the soap opera. Consider (62a & b):

<table>
<thead>
<tr>
<th>62a. Patrícia diz a René que ∅ precisa esquecer Antenor.</th>
<th>Total % say</th>
</tr>
</thead>
<tbody>
<tr>
<td>Patricia says to René that (she) needs to forget Antenor.</td>
<td>% yes</td>
</tr>
<tr>
<td>Subject antecedent</td>
<td>100% 70%</td>
</tr>
<tr>
<td>Object antecedent</td>
<td>0% ---</td>
</tr>
</tbody>
</table>
Test item (62a) reveals that pragmatically biased items (examples taken from soap operas) are overridden by syntactic constraints related to the binding of BP ‘null subjects’ since all the participants select the subject antecedent. Example (62b) illustrates the strong tendency to choose Patrícia as the subject involves setting specific, arbitrary knowledge; all participants who opt for Patricia watch the soap opera and the respondents know that René is a man. The one participant who selects the object antecedent and the two respondents who choose either the subject or object antecedent do not have the pragmatic knowledge of their colleagues and are free to interpret either the subject or the object as a potential antecedent. Thus, in the clauses with a pragmatic context, general (real world) knowledge about a specific setting or context might persuade participants to accept more null or overt pronouns retrieving a subject antecedent because this null or overt argument could be interpreted as a specific entity in the world of discourse. Conversely, the absence of a pragmatic context might lead participants to rely on syntax for a preferred interpretation of null and overt pronouns retrieving antecedents. Test item (60b) in BP challenges the widely held assumption of the PAH that only the null pronoun, and not the overt one, may retrieve a sentential subject antecedent.
Findings like (60b) from the study validate similar overt pronoun interpretations overall in clauses with overt objects in Experiment 1 & 2 test items with and without a pragmatic context; syntactic knowledge about the grammatical properties associated with null and overt antecedents may override pragmatics. Pronominal reference is restricted by certain morphosyntactic (inflectional AGR) constraints, syntactic constraints on co-reference (e.g., Principle B of Binding Theory and feature checking conditions), and pragmatic restrictions which limit pronominal distribution; morphosyntactic and configurational constraints influence pronoun-antecedent ambiguity resolution by filtering potential antecedents to select an appropriate antecedent.

In English, the pronominal she in (60b) could refer to Dona Zilá, Amália, or to any other female though Dona Zilá would likely be the characteristic antecedent. In other words, English speakers characteristically prefer the asymmetrical c-commanding sentential subject antecedent Dona Zilá over the sentential object antecedent Amália because Dona Zilá precedes and asymmetrically c-commands Amália. In English, syntactic preference is sufficient to ensure that ambiguous pronoun-antecedent expressions have a preferred interpretation. In English, the grammatical subject can be seen as being a factor in pronoun-antecedent ambiguity resolution.

<table>
<thead>
<tr>
<th>Subject antecedent</th>
<th>50%</th>
<th>0%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Object antecedent</td>
<td>30%</td>
<td>33%</td>
</tr>
<tr>
<td>Either subject or object antecedent</td>
<td>20%</td>
<td>---</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>60b. Dona Zilá diz a Amália que ela ficará com seu caderno de receitas.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dona Zilá says to Amália that she will get her recipe book.</td>
</tr>
</tbody>
</table>
since a c-commanding subject antecedent which precedes other arguments in a clause can be considered the most dominant (preferred) referent.

In Romance languages, pragmatic constraints controlling co-referential interpretations of potential antecedents may limit binding on pronominals. For instance, in Italian, Spanish and EP, overt referential subjects are used for setting specific reasons (change of topic, focus constructions, etc.); an overt pronoun in an embedded clause typically does not retrieve a sentential subject antecedent unless emphasis, contrastive focus, or a change in the referent is intended.

Examples like (60b) provide support that BP diverges from prototypical Romance languages: BP seems to have some degree of pragmatic constraints which bring about the use of overt pronominal subjects without detachment from a c-commanding sentential subject antecedent. Pilot study data supports Toribio (2000) who claims overt pronouns in Dominican Spanish do not have the same pragmatic constraints as (Castilian) Spanish since varieties of Caribbean Spanish appear to lack the contrastive focus or the switch reference interpretation. The fact that in BP overt pronounals are not as restricted by pragmatic constraints (e.g., change of topic, focus constructions) compared to Italian or Spanish provides evidence that the use of overt pronouns in BP might be dependent on syntactic structure. Reconsider examples (54a & b) and (55a & b):

<table>
<thead>
<tr>
<th>Example</th>
<th>Translation</th>
</tr>
</thead>
<tbody>
<tr>
<td>54a. Lúcio insinua a Marcos que ∅ tem um compromisso urgente.</td>
<td>Lúcio insinuates to Marcos that (he) has an urgent engagement.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Antecedent Type</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Subject antecedent</td>
<td>50%</td>
</tr>
<tr>
<td>Object antecedent</td>
<td>0%</td>
</tr>
<tr>
<td>Either subject or object antecedent</td>
<td>50%</td>
</tr>
</tbody>
</table>
54b. Lúcio insinua a Marcos que ele tem um compromisso urgente.

Lúcio insinuates to Marcos that he has an urgent engagement.

<table>
<thead>
<tr>
<th>Antecedent</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Subject antecedent</td>
<td>50%</td>
</tr>
<tr>
<td>Object antecedent</td>
<td>0%</td>
</tr>
<tr>
<td>Either subject or object antecedent</td>
<td>50%</td>
</tr>
</tbody>
</table>

55a. Norma fala com Jandira que Ø precisa descobrir tudo sobre a família de Léo.

Norma talks to Jandira that (she) needs to find out everything about Leo’s family.

<table>
<thead>
<tr>
<th>Antecedent</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Subject antecedent</td>
<td>40%</td>
</tr>
<tr>
<td>Object antecedent</td>
<td>0%</td>
</tr>
<tr>
<td>Either subject or object antecedent</td>
<td>60%</td>
</tr>
</tbody>
</table>

55b. Norma fala com Jandira que ela precisa descobrir tudo sobre a família de Léo.

Norma talks to Jandira that she needs to find out everything about Leo’s family.

<table>
<thead>
<tr>
<th>Antecedent</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Subject antecedent</td>
<td>10%</td>
</tr>
<tr>
<td>Object antecedent</td>
<td>0%</td>
</tr>
<tr>
<td>Either subject or object antecedent</td>
<td>90%</td>
</tr>
</tbody>
</table>

Test items (54a & b, and 55a & b) which could be considered to have a pragmatic context (examples are taken from soap operas) supports Barbosa et al. (2005) who assert that in BP a null pronoun alternates with an overt pronoun freely, if a co-referential interpretation with the sentential antecedent is intended. Thus, BP contrasts with other Romance languages (e.g., EP,
Spanish, Italian, etc.) by permitting a null and overt pronoun to alternate without pragmatic restrictions in conditioned environments like finite embedded clauses or coordinate clauses. Italian, Spanish and EP have pragmatic restrictions which limit overt subject pronouns to environments which signal a preference to detach from the syntactic subject. BP deviates from Italian and Spanish because in these languages participants would potentially select the object antecedent since the overt pronoun would signal a change in the referent. Overt pronouns in BP appear to rely on syntactic constraints (e.g., binding, checking of number, person, and gender features) and some degree of pragmatic restrictions. Consequently, BP deviates from Italian, Spanish and EP because in finite clauses in BP a null or overt pronoun may be interpreted as paraphrase (i.e. null and overt pronouns evoke the same mental connotation) which retains the sentential subject (a continuation of a referent or topic); however, in EP and Spanish an overt pronoun has pragmatic implications which signal a switch away from a c-commanding subject (less like a paraphrase since the use of a null and an overt pronoun induces different meanings).

Items from Experiments 1 & 2 demonstrate that in BP the absence of a pragmatic context can affect participants’ choices in terms of a null or an overt pronoun retrieving a sentential antecedent; participants tend to allow a null pronoun to retrieve an object antecedent in contexts not obtained by Carminati (2002). Evaluate examples (53a & b) and (56a & b):
Bruna invites Marcela to return to live in her house, but she refuses.

<table>
<thead>
<tr>
<th>Subject antecedent</th>
<th>0%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Object antecedent</td>
<td>100%</td>
</tr>
</tbody>
</table>

Wagner warns Cortez that (he) could use the money stashed at his house.

<table>
<thead>
<tr>
<th>Subject antecedent</th>
<th>0%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Object antecedent</td>
<td>40%</td>
</tr>
<tr>
<td>Either subject or object antecedent</td>
<td>60%</td>
</tr>
</tbody>
</table>

Wagner warns Cortez that he could use the money stashed at his house.

<table>
<thead>
<tr>
<th>Subject antecedent</th>
<th>10%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Object antecedent</td>
<td>90%</td>
</tr>
<tr>
<td>Either subject or object antecedent</td>
<td>0%</td>
</tr>
</tbody>
</table>

The pilot study attempts to express no causality to be implied by the predicates which tries to not explicitly focus on either one of the referents; an object antecedent could be selected based on pragmatics or dictated by the type of predicate (e.g., causatives like persuade, tell, warn, etc.). Test items (53a & b) and (56a & b) are two examples that seem to be influenced by the causative nature of the predicates (warn and invite) which causes the participants’ percentages for selecting a null/overt pronoun to retrieve an object to be more varied than other test items taken from the pilot study; a result unattested in Carminati (2002).
This section demonstrates that preferences for ‘null’ and overt pronouns dictated by the PAH are present to a degree: Syntax can override pragmatic constraints or cognitive processing, but the influence of a pragmatic context is much more varied than when the clause has no pragmatic context which suggests that participants accept a ‘null pronoun’ to refer to an object antecedent or a null subject to retrieve a subject antecedent because the respondents rely on the context (their knowledge of the soap opera) to recover the pronoun’s meaning. This result indicates that participants can be inclined to select a pragmatic or a cognitive strategy which controls preferred interpretations that would otherwise be less robust compared to situations without a pragmatic context. However, predicate-argument structure (i.e. the type of predicate involved such as causatives like persuade, tell, or advise, convey that an external argument (the subject) is implicitly responsible for an action) must also be considered as a factor which influences participants’ preferred interpretations since items without a pragmatic context can also show variability of a ‘null’ or overt pronoun retrieving a sentential subject or object antecedent.

Prior research (Luján, 1986, Wexler et al. 1987, Filiaci, 2010) propose that pronoun-antecedent ambiguity resolution in natural human languages can be constrained by syntactic (linguistic) and pragmatic (non-linguistic) constraints. –NSLs (e.g., English) have no pragmatic restrictions (i.e. an overt pronoun is not associated with a change in topic or a switch in reference), nor do –NSLs have lexical constraints (e.g., English has a non-uniform verbal agreement paradigm with inflected and non-inflected forms and must use an overt pronoun to satisfy the EPP). Filiaci (2010) obtains results in Italian that the interpretation of the overt pronoun is associated with a shift in subject reference, while in Spanish this association seems to be not as prevalent. The overall
results from the pilot study indicate that the relationship between the interpretation of the overt pronoun and a shift in subject reference is even less robust in BP when compared to Spanish or Italian.

An explanation why grammatical subjects are preferred over direct objects in ambiguity resolution could stem from Nunes’ Chain Reduction since the subject is the highest asymmetrically c-commanding phonetically realized DP copy on the left-edge of a clause. A justification which accounts for why no participants in the pilot study select a discursive antecedent might be because free referents are not ‘local’ antecedents since they are not c-commanded. Asymmetric c-command accounts for the binding of ‘null pronouns’ and antecedents in finite embedded clauses; however, there is no c-command relationship for pronoun-antecedent binding in coordinate clauses for Romance languages.

6.2 COORDINATE CLAUSES

The merging of two or more clauses can be formed either by coordination (e.g., two main clauses) or subordination (e.g., embedded clauses, relative clauses, etc.), or both. Romance languages (e.g., Italian, Spanish, EP and BP)\(^{13}\) permit conjoining TPs because these languages license ‘null pronouns’ through T. Consider the coordinate clause (the multi-clause sentences) which allows for inter-sentential binding in (67):

\(^{13}\) Only first person singular null subjects are identified in BP.
In the coordinate clause in (67), the clause João ficou bravo ‘João got angry’, is built before João bateu Rubens ‘João hit Rubens’ and it is constructed (spelled out) first. T has a + strong EPP feature and an uninterpretable set of φ-features; the set of φ-features of T and João establish a checking relation and the φ-features of the former are eliminated. João has interpretable φ-features (person, number, and gender) and may enter into a checking relation with [Spec, TP] of the first coordinate. Verb raising leaves at T a set of uninterpretable φ-features that are valued through covert movement by the interpretable φ-features of the subject DP João. Once João occupies [Spec, TP], then finite V gets valued from T. The subject João moves to [Spec, VP] checking the theta features of V, then João moves to [Spec, TP] of the second built clause. João has interpretable φ-features and may enter into another checking relation with its φ-features and the uninterpretable φ-features of V bateu ‘hit’ in T. As a result all uninterpretable features are eliminated.
Prior research (Nunes & Uriagereka, 2000, Nunes, 2001) proposes the Sideward Movement approach to merge a copy into a completely different substructure (a non c-commanding position).

First, João ficou bravo ‘João got angry’ is derived. João is copied from the subject [Spec, TP] position of ficou bravo ‘got angry’ and merges with [Spec, VP] bateu Rubens ‘hit Rubens.’ João is copied again and merges with [Spec, TP]; then, the two TPs are merged as follows:

(68i)    
     Conj  TP

(68ii)   
     TP    Conj

Both the external argument, João, and the internal argument, Rubens, are potential candidates for being interpreted as the subject of the first spelled out coordinate clause; the Equidistance Principle of Chomsky (1993) allows elements to cross a position where they could have landed, provided the target position is in the same minimal domain as the position which is crossed.

A possible account for why João is the preferred antecedent emanates from the fact that once Rubens enters into a checking relation and is valued, Rubens is inert from further movement. The subject DP João is still active in the derivation and can move to [Spec, TP]. The external argument, João is phonetically realized since it c-commands the lower copy in the clause ‘João hit Rubens.’

Under Nunes’ Chain Reduction, João is the preferred antecedent because João is the highest asymmetrically c-commanding phonetically realized DP copy on the left-edge of the second
constructed clause; João c-commands Rubens and João precedes Rubens. However, there is no c-command relation with the first constructed clause ‘João got angry.’

The exact nature of pronoun-antecedent ambiguity resolution for coordinate clauses is an area which requires further inquiry. In BP there is a strong tendency for bindings of unpronounced copies in coordinate clauses as well as embedded clauses. Copy and Merge allow for a minimalist interpretation for anaphoric behavior in Romance languages including BP which is based on economy since morphologically simple subjects (copies) are preferred over lexical DPs.

6.2.1 DISCUSSION on PILOT STUDY RESULTS

The PAH does seem to be supported with the preferences of null and overt pronouns in coordinate clauses. Perhaps the test items from the coordinate clauses can be syntactically sanctioned without c-command. Consider test items (59a & b):

<table>
<thead>
<tr>
<th>59a. João bateu em Rubens e ficou chateado.</th>
<th>Total</th>
<th>% say</th>
</tr>
</thead>
<tbody>
<tr>
<td>John hit Rubens and ∅ got mad.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Subject antecedent</td>
<td>90%</td>
<td>44%</td>
</tr>
<tr>
<td>Object antecedent</td>
<td>10%</td>
<td>100%</td>
</tr>
</tbody>
</table>
Example (59a) demonstrates that in BP there is a strong tendency to retrieve the subject antecedent, and in (59b) pragmatics and cognitive processing might compel the overt pronoun to retrieve an object antecedent. Semantic interpretation which could be logically inferred appears to be superseded by either syntax or pragmatics.

Filiaci (2010) suggests that sentence processing and discourse are responsible for pronoun-antecedent ambiguity resolution. Test item (59a) raises the following question: Why is there a strong preference for the subject antecedent if the use of a null pronoun is pragmatically conditioned solely by discourse? Why would John get mad after hitting Rubens, unless John is highly altruistic? John ought not to be angry; Rubens should be the one who gets mad after being hit by John. Additionally, in Spanish, Italian and EP the characteristic interpretation for a null pronoun in this coordinate clause is to retrieve the subject antecedent John. In (59a), syntax seems to override the pragmatics and gives speakers the preference for a subject over an object antecedent demonstrating a pragmatic confound which complicates data; a detailed investigation appears to be warranted.
In English, test item (59a) ‘John hit Rubens and (he) got mad’ would also show a preference for the subject. English cannot coordinate TPs like in Romance languages because T cannot assign \(\phi\)-features in English, but can only coordinate VPs. Recall that only +NSLs can license and identify a null pronoun. Consider (69):

\[
(69) \quad \begin{array}{c}
\text{TP} \\
\downarrow \\
\text{DP} \quad \text{TP} \quad [uEPP]\ \\
\text{John} \\
\downarrow \\
T \quad \rightarrow \quad \text{VP} \\
\downarrow \\
[uF] \quad \text{VP} \quad \text{ConjP} \\
\downarrow \\
\text{DP} \quad \text{VP} \quad \text{Conj} \quad \text{VP} \quad [uE] \\
\downarrow \\
\text{John} \quad \text{and} \quad \text{DP} \quad \text{VP} \quad [uE] \\
\downarrow \\
\text{V} \quad \text{DP} \quad \text{DP} \quad \text{VP} \quad [uE] \\
\downarrow \\
\text{hit} \quad \text{Rubens} \quad \text{John} \quad \text{V} \quad \text{VP} \\
\downarrow \\
[uF] \quad \text{got} \quad \text{angry} \quad [uF] \\
\downarrow \\
[uF]^{14} \quad \text{V} \quad \text{AP} \quad [uF]
\end{array}
\]

The following example for English demonstrates that in coordinated VPs the syntactic subject receives the preferred interpretation. Yet again, the grammatical subject is preferred over the direct object in ambiguity resolution since the subject is the highest c-commanding argument on the left-edge of a clause.

14. Thanks to Tully Thibeau for pointing out that the verb got is not valued by T unless ConjP allows valuation into both coordinate constituents.
6.3 SYNTACTIC, SEMANTIC, AND PRAGMATIC INTERFACES

MP recognizes that syntax can only be understood with reference to the morphosyntactic (inflectional AGR) and semantic systems of the grammar. Italian, Spanish, and EP are compared to BP in terms of their syntactic characteristics (e.g., both allow for the co-occurrence of null and overt pronouns in finite clauses; however, the distribution of ‘null pronouns’ in main clauses diverges). Two features differentiate BP from its European counterparts: (1) BP has been losing morphosyntactic (+ strong inflectional AGR) features; Italian, Spanish, and EP have + strong AGR because of their uniform verbal agreement paradigms, whereas BP might have +/– strong AGR due to an impoverished verbal paradigm with inflected and non-inflected forms. Phonological attrition of the second person singular pronoun (tú) and morphological leveling of the verbal paradigm triggers the occurrence of overt pronouns to satisfy the + strong EPP feature in BP. (2) BP has some degree of pragmatic constraints which influence the distribution and interpretation of overt pronouns (e.g., in Italian, Spanish, and EP the realization of overt referential subjects depend on setting specific restrictions like a change of topic or a switch in reference). However, in BP ‘null’ and overt pronouns can occur freely in finite embedded and coordinate clauses; overt pronouns seem to lack a contrastive focus or switch reference nuance in BP.

Recall from §3.1.2 that in prototypical Romance languages, all verbs agree with their subjects in person and number. Italian, Spanish, and EP can be considered morphosyntactically equivalent (+ strong inflectional AGR) since the identification (recovery) of a ‘null pronoun’ seems to
be dependent on the uniform verbal agreement paradigms which have morphologically encoded suffixes that express interpretable person and number features.

Verbal Paradigm for the present indicative for theme vowel /-a/ in Italian/Spanish/EP/BP

<table>
<thead>
<tr>
<th>Person</th>
<th>Italian</th>
<th>Spanish</th>
<th>EP</th>
<th>BP</th>
<th>English</th>
</tr>
</thead>
<tbody>
<tr>
<td>1sg</td>
<td>-o</td>
<td>-o</td>
<td>-o</td>
<td>-o</td>
<td>∅</td>
</tr>
<tr>
<td>2sg</td>
<td>-i</td>
<td>-as</td>
<td>-as</td>
<td>-a</td>
<td>∅</td>
</tr>
<tr>
<td>3sg</td>
<td>-a</td>
<td>-a</td>
<td>-a</td>
<td>-a</td>
<td>-s</td>
</tr>
<tr>
<td>1pl</td>
<td>-iamo</td>
<td>-amos</td>
<td>-amos</td>
<td>-a</td>
<td>∅</td>
</tr>
<tr>
<td>2pl</td>
<td>-ate</td>
<td>-áis</td>
<td>-ais</td>
<td>-am</td>
<td>∅</td>
</tr>
<tr>
<td>3pl</td>
<td>-ano</td>
<td>-an</td>
<td>-am</td>
<td>-am</td>
<td>∅</td>
</tr>
</tbody>
</table>

The difference between BP and other Romance languages can be attributed to the fact that inflectional AGR in BP became eroded in the twentieth century, going from a complete paradigm with five uniquely inflected forms and a non-inflected form in the nineteenth century to only two (sometimes three if first person plural is realized) distinctively inflected forms for the present indicative (Duarte, 1995). Except for first person singular, the feature [person] on the verb is rendered ambiguous in BP (e.g., the non-inflected morphological form could potentially indicate a second person singular, third person singular or first person plural subject). The processes of morphological leveling and phonological attrition, entirely extraneous to syntax, lead to the loss of ‘consistent’ Romance-type ‘null’ subject pronouns (Duarte, 1995, Modesto, 2000).

Multiple variables (e.g., syntactic, semantic, pragmatic, and cognitive factors) interact in pronoun-antecedent ambiguity resolution in English, BP, Italian, Spanish, and EP. However, these languages all share the feature that grammatical relations are syntactically encoded because of a
+ strong EPP feature which identifies the structurally most dominant argument as: the external argument (the grammatical subject) which asymmetrically c-commands and precedes other arguments, and functions as the topic of a clause (Chafe, 1976, Grosz et al. 1995, Filiaci, 2010). BP appears to rely on syntactic factors (e.g., c-command, feature checking of interpretive AGR), predicate argument structure (i.e. the type of predicate involved such as causatives like tell or advise convey that an external argument (the subject) is implicitly responsible for an action), and some degree of pragmatic constraints to retrieve an antecedent in finite embedded and coordinate clauses.

6.4 SUMMARY

This chapter presents the results of the pilot study and identifies anaphoric behavior in embedded and coordinate clauses in BP for third person singular subjects. Based on the research questions posed in Chapter 2 the analysis also looks at the data considering existing research. The implications of the findings in BP for pronoun-antecedent ambiguity resolution and suggestions for future research in this area are outlined in Chapter 7.
7. CONCLUSION

In this chapter I discuss the conclusions of this research on pronoun-antecedent ambiguity resolution in BP finite embedded and coordinate clauses for third person singular subjects. In §7.1 a summary of the thesis is provided, in §7.2 limitations of the pilot study are discussed, and in §7.3 issues for further research are reviewed.

7.1 SUMMARY

This thesis attempts to only account for pronoun-antecedent binding relations in finite embedded and coordinate clauses in BP for third person singular subjects; none of the approaches discussed in this study aims to disclose all facets of pronoun-antecedent binding because ambiguity interpretation depends on a diverse set of interfaces (syntactic, semantic and pragmatic constraints) which involve a preferred interpretation between two or more DPs depending on clausal type (finite vs. non-finite).

Previous research (Duarte, 1995, Barbosa et al. 2005) indicates that BP is evolving linguistically: it apparently contains two grammars that are partially +NSL and partially –NSL; that is (1) a grammar with null subjects and (2) a grammar with overt subjects without a switch reference function. The difference between BP and other Romance languages (e.g., Italian, Spanish, EP, etc.) can be attributed to BP’s loss of the second person singular pronoun ‘tú’ and the morphological leveling of the verbal agreement paradigm which causes BP’s syntactic structure to diverge from its European ancestors (Duarte, 1995, Modesto, 2000, Barbosa et al. 2005). Morphological leveling triggers BP to have +/- strong inflection AGR which causes unpronounced copies to behave
anaphorically by retrieving a sentential subject antecedent in conditioned environments (e.g., finite embedded and coordinate clauses, etc.).

A Minimalist approach recognizes that syntactic, semantic and pragmatic constraints can be interconnected in pronoun-antecedent ambiguity resolution. A variety of syntactic constraints (e.g., c-command, feature checking of person and number) in conjunction with pragmatic restrictions contribute in determining the choice and interpretation of null and overt subject pronouns for Romance languages (e.g., Italian, Spanish, EP, BP, etc.). Syntactic constraints of Binding Theory (BT) affect semantic interpretation because BT facilitates reference to one antecedent over another referent that causes a preference for an antecedent which is conditioned by syntax independent of sentence processing or pragmatic constraints (e.g., Principle B, c-command, person, number and gender AGR constrain co-reference and limit the distribution of pronouns). Pragmatic constraints controlling co-reference of potential antecedents may facilitate to limit pronominal binding (e.g., an embedded subject co-referential with the subject of the main clause requires a null pronominal subject; a change in topic or a switch in referent requires an overt pronoun). In Italian, Spanish, EP, and BP, pronoun-antecedent ambiguity resolution is syntactically encoded since the grammatical subject position can be considered particularly dominant in these languages relative to the other syntactic positions.

Results from the pilot study indicate Spanish, Italian, EP and BP have: (1) somewhat similar syntactic characteristics (e.g., both allow for the co-occurrence of null and overt pronouns in finite clauses; however, the distribution of ‘null pronouns’ in main clauses diverges); (2) different morphological features (e.g., Italian, Spanish and EP have + strong inflectional AGR because of their
uniform verbal agreement paradigms, whereas BP has +/- strong inflection AGR due to an impoverished verbal paradigm with inflected and non-inflected forms; (3) incongruous pragmatic restrictions influencing the use and distribution of overt pronouns (e.g., in Romance languages the realization of overt referential subjects depend on pragmatic constraints like change of referent or topic, while BP has some degree of setting specific restrictions); and (4) divergent use and distribution of ‘null’ and overt pronouns. In BP a ‘null pronoun’ alternates with an overt pronoun freely, if a co-referential interpretation with the sentential subject antecedent is intended, which contrasts with Italian, Spanish and EP since overt and ‘null’ pronouns do not occur freely (Barbosa et al. 2005).

Syntactic constraints (binding) for unpronounced copies in Romance languages affect semantic interpretation because reference to one antecedent over another causes the existence of characteristic (unmarked) interpretations conditioned by syntax independent of pragmatic constraints or cognitive processing. Test items replicate Carminati (2002) since ‘null pronouns’ in BP display a strong tendency to retrieve subject antecedents in a sentence constituency, not beyond the clause or discourse (+ anaphoric interpretive AGR). Results from the pilot study demonstrate that BP appears to rely on syntactic factors (e.g., c-command, feature checking of interpretive AGR), predicate argument structure (i.e. the type of predicate involved such as causatives like tell or advise convey that an external argument (the subject) is implicitly responsible for an action), and some degree of pragmatic constraints to retrieve an antecedent in finite embedded and coordinate clauses.
7.2 LIMITATIONS of the STUDY

While this pilot study does provide useful evidence regarding the preference and interpretation of null and overt pronouns in finite embedded and coordinate clauses in BP, further work in this area is needed. The pilot study was limited by a number of important factors: (1) the limited number of test items selected from only a few subgroups of subordinate clauses (8 coordinate clauses and 8 embedded clauses) weakens the overall findings; additional clauses would be needed to have enough items to reach statistical significance. (2) The small number of participants (20) who belong to a similar demographic (19-26 year old, university students mostly from São Paulo state) could detract from the results. Further research would benefit from a larger group of participants that included diverse age groups and different socio-economic levels. By including subjects at different age groups (the elderly vs. university students vs. children) than the participants in this pilot study, researchers could benefit more from identifying pronominal interpretations at the early stages of child language development, as well as the results for pronominal interpretations of older speakers. Focusing on subjects with different socioeconomic levels might give insight into language use because it would allow researchers to focus more closely on how language varies throughout different socio-economic groups and educational levels (e.g., What is the influence of prescriptive grammar rules learned in school?, Are there different rates between the use of null and overt pronouns in daily speech patterns?, etc.) Furthermore, increasing the variety and number of subjects tested provides a larger sample which allows for greater empirical coverage.
7.3 IMPLICATIONS of the STUDY

Historical events (e.g., slavery) have influenced contemporary Brazil’s miscegenetic culture, spiritual beliefs (e.g., candomblé in BP, santería in Spanish), and language. The contribution of West African ethnic groups (e.g., Bantu, Yoruba, etc.) must be considered as an underlying factor in BP’s language change and evolution. Parallels exist between Caribbean Spanish (e.g., Dominican Spanish, Puerto Rican Spanish, etc.) and BP since these languages display morphological leveling of verbal agreement paradigms; phonological attrition (e.g., the loss of the second person singular bound morpheme /–s/ that is replaced by third person singular morphology /-∅/, a non-inflected form in the indicative mood) leads to the loss of ‘consistent’ (Romance-type) null subjects which causes an increase in overt pronoun use (Duarte, 1995, Modesto, 2000). A probable account for the similarities between BP and Caribbean Spanish language evolution could be found in the isolating language Yoruba which displays non-uniform verbal agreement morphology with one inflected form (e.g., Mo soro ‘I spoke,’ O soro ‘He spoke,’ A soro ‘We spoke,’ etc.), thereby requiring grammatical relationships to be conveyed with the use of free morphemes (e.g., overt subject pronouns).

The proposal of this thesis has implications for linguistic theory. First, it accounts for binding in BP by providing a syntactic account of the preferred interpretation of ‘null’ and overt referential subjects in finite embedded and coordinate clauses. Second, it provides further evidence for current claims (Carminati, 2002, Filiaci, 2010) that syntax and pragmatics is responsible for pronoun-antecedent ambiguity resolution since binding is based exclusively on the syntactic configuration of the clause and setting specific restrictions (change in referent or contextual knowledge) which influence the use and distribution of ‘null’ and overt subjects. Also, the findings in this thesis have broad implications for colonial varieties of European +NSLs because the proposal predicts that
cross-linguistically languages with an impoverished verbal paradigm (i.e. colonial varieties of European +NSLs like Cuban Spanish, Dominican Spanish, Puerto Rican Spanish, etc.) which have ‘null’ and overt pronoun alternations should diverge from European +NSLs regarding binding relations of pronouns in finite embedded and coordinate clauses since the interpretation of overt pronouns have limited pragmatic constraints (i.e. overt pronouns do not always signal a disconnect from a commanding subject). Finally, researchers interested in second language (L2) acquisition will be able to use the findings from this thesis to understand how L1 BP transfer effects in the domain of Binding Principles in general and binding of overt and null pronominals in particular might affect the development of L2 acquisition of overt pronominal subjects in main and finite embedded clauses in English and vice versa.

7.4 ISSUES for FUTURE RESEARCH

Examination of the findings in this thesis can offer directions for future research into the syntactic, semantic, pragmatic, and cognitive interfaces in BP. Data collected from the pilot study which uses Filiaci’s (2010) relative clause attachment distractors/fillers that are ambiguous with regard to which DP they modify might prove to be useful for an upcoming study. Preliminary results reveal that null and overt pronouns appear freely in BP relative clauses; a result consistent with findings from the pilot study for finite embedded and coordinate clauses. Consider (70):
When Gabi listens to Cristina’s insults in the street, (she) responds in a violent way.

When Gabi listens to Cristina’s insults in the street, she responds in a violent way.

All of the participants choose the subject antecedent regardless of whether there is a null or overt subject pronoun. More evidence for the preferred interpretation of null and overt pronouns occurring without detachment from a c-commanding subject can be found in relative clauses. Further research needs to be conducted in BP on relative clauses.

Additionally, results from the study indicate that the effect of modal verbs in finite embedded clauses on pronoun-antecedent interpretation should be investigated. Modesto (2000) claims that in BP reference to an object by a null subject in an embedded clause seems to be possible with verbs in the indicative mood if there is a modal in the finite embedded clause. Take for instance example (63b) reinterpreted as (71):

Sara fala com a Teresa que Ø deve sair da casa.

Sara says to Teresa that (she) should leave the house.

30% of the participants choose the sentential object antecedent; however, the participants indicate that the clause can refer to the sentential subject antecedent. Although this number could
be considered insignificant, it is still noteworthy and an experiment should be constructed which tests if the anaphor can retrieve an object antecedent when there is a modal in the embedded clause.

Another area that should be considered for future research would be to apply principles of Optimality Theory (Prince & Smolensky, 2004) to syntactic and pragmatic restrictions in Romance languages (e.g., Italian, Spanish, EP, BP, etc.). Unlike Generative Grammar, which is operational in nature (a procedure applies to an input to produce an output), OT is comparative since the output is chosen among a set of candidates with respect to a set of ordered, violable constraints. Cross-linguistic differences regarding pronoun-antecedent resolution could be better accounted for using an OT model.
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Appendix A

Experiment 1: Syntactic Structure Manipulation for Co-reference Interpretations of Null and Overt Pronouns

Quando Gabi ouve os insultos de Cristina na rua, ∅/ela responde de modo violento. Quem responde num jeito violento? Pode referir-se a outra pessoa?

When Gabi listens to Cristina’s insults in the street, ∅/she responds in a violent way. Who responds in a violent way? Can the sentence refer to another person? Subordinate clause

Maria acolhe a Ana mas ∅/ela não está contente. Quem não está contente? Pode referir-se a outra pessoa?

Maria greets Ana but ∅/she is not happy. Who is not happy? Can the sentence refer to another person? Coordinate clause

Depois que Wilson oferece ajuda a Anderson, ∅/ele resolve todos os problemas. Quem resolve todos os problemas? Pode referir-se a outra pessoa?

After Wilson offers help to Anderson, ∅/he solves all the problems. Who solves all the problems? Can the sentence refer to another person? Subordinate clause

Antonio grita com Chico que ∅/ele está estressado. Quem está estressado? Pode referir-se a outra pessoa?

Antonio yells at Chico that ∅/he who is stressed. Who is stressed? Can the sentence refer to another person? Relative clause
Quando Beto fica envergonhado por culpa de Léo em frente de todos, Ṣ/ele se desculpa muitas vezes.  
Quem se desculpa muitas vezes?  
Pode referir-se a outra pessoa?

When Beto is ashamed in front of everybody because of Léo, Ṣ/he apologizes many times.  
Who apologizes many times?  
Can the sentence refer to another person?  
Subordinate clause

Sara fala com a Teresa que Ṣ/ela deve sair da casa.  
Quem deve sair da casa?  
Pode referir-se a outra pessoa?

Sara says to Teresa that Ṣ/ela should leave the house.  
Who should leave the house?  
Can the sentence refer to another person?  
Embedded clause

Dona Zilá diz a Amália que Ṣ/ela ficará com seu caderno de receitas.  
Quem ficará com seu caderno de receitas?  
Pode referir-se a outra pessoa?

Dona Zilá says to Amália that Ṣ/she will get her recipe book.  
Who will get her recipe book?  
Can the sentence refer to another person?  
Embedded clause

Quando Carla recebe um telefonema de Guiliana, Ṣ/ela contesta com notícias boas.  
Quem contesta com notícias boas?  
Pode referir-se a outra pessoa?

When Carla receives a phone call from Guiliana, Ṣ/she answers with good news.  
Who answers with good news?  
Can the sentence refer to another person?  
Subordinate clause

Ricardo elogia a Carlos em frente do chefe antes que Ṣ/ele receba a promoção que esperava.  
Quem recebe a promoção que esperava?  
Pode referir-se a outra pessoa?

Ricardo praises Carlos in front of the boss before Ṣ/he receives the promotion that (he) was hoping for.  
Who receives the promotion that (he) was hoping for?  
Can the sentence refer to another person?  
Subordinate clause
Leandro convence a Gustavo de que ele vai ganhar.
Quem vai ganhar?
Pode referir-se a outra pessoa?

Leandro convinces Gustavo that he is going to win.
Who is going to win?
Can the sentence refer to another person?  Embedded clause

Mário conforta Henrique, mas ele fica pertubado com sua proximidade.
Quem fica pertubado?
Pode referir-se a outra pessoa?

Mário comforts Henrique, but he gets upset with his proximity.
Who gets upset with his proximity?
Can the sentence refer to another person?  Coordinate clause

Patrícia diz a René que ela precisa esquecer Antenor.
Quem precisa esquecer Antenor?
Pode referir-se a outra pessoa?

Patrícia says to René that she needs to forget Antenor.
Who needs to forget Antenor?
Can the sentence refer to another person?  Embedded clause

João bateu em Rubens e ele ficou chateado.
Quem ficou chateado?
Pode referir-se a outra pessoa?

John hit Rubens and he got mad.
Who got mad?
Can the sentence refer to another person?  Coordinate clause

Depois que Cristina encontrou Dani desmaiada no sofá, ela se assustou com as notícias.
Quem se assustou com as notícias?
Pode referir-se a outra pessoa?

After Cristina found Dani passed out on the couch, she became frightened with the news.
Who became frightened with the news?
Can the sentence refer to another person?  Subordinate clause
2. Experiment 2: Referentially Ambiguous Sentences with Overt and Null Pronominals

Yasmine diz a Desirée que viu Jorgito com Thaís e ∅/ela resolve tirar satisfação com o ex-noivo.

Yasmine tells Desirée that ∅ saw Jorgito with Thaís and ∅/she decides to confront her ex-boyfriend.

Quem viu Jorgito com Thaís?
Who saw Jorgito com Thaís? Embedded clause

a. Yasmine
b. Desirée
c. Yasmine ou/ or Desirée
d. Outra pessoa/another person
e.__________

Quando Marta leva Elena ao aeroporto, ∅/ela estaciona o carro em um lugar proibido.

When Marta takes Elena to the airport, ∅/she parks the car in a no parking zone.

Quem estaciona o carro num lugar proibido?
Who parks the car in a no parking zone? Subordinate clause

a. Marta
b. Elena
c. Marta ou Elena
d. Outra pessoa
e.__________

Depois que Léo criticou a Sérgio, ∅/ele se sentiu humilhado sem nenhuma razão.

After Léo criticized Sérgio, ∅/he felt humiliated for no reason.

Quem se sentiu humilhado sem nenhuma razão?
Who felt humiliated for no reason? Subordinate clause

a. Léo
b. Sérgio
c. Léo ou Sérgio
d. Outra pessoa
e.__________
Lúcio insinua a Marcos que ∅/ele tem um compromisso urgente. Lúcio insinuates to Marcos that ∅/he has an urgent engagement.

Quem tem um compromisso urgente?
Who has an urgent engagement?  

a. Lúcio  
b. Marcos  
c. Lúcio ou Marcos  
d. Outra pessoa  
e.__________

Bruna convida Marcela para voltar a morar em sua casa, mas ∅/ela recusa. Bruna invites Marcela to return to live in her house, but ∅/she refuses.

Quem recusa?
Who refuses?  

a. Bruna  
b. Marcela  
c. Bruna ou Marcela  
d. Outra pessoa  
e.__________

Depois que Daniel atropelou Carlos na rua, ∅/ele dirigiu com muito mais cuidado. After Daniel ran over Carlos in the street, ∅/he drove much more carefully.

Quem dirigiu com muito mais cuidado?
Who drove much more carefully?  

a. Daniel  
b. Carlos  
c. Daniel ou Carlos  
d. Outra pessoa  
e.__________
Wagner avisa a Cortez que ∅/ele pode usar o dinheiro guardado em sua casa. 
Wagner warns Cortez that ∅/he could use the money stashed at his house.

Quem pode usar o dinheiro?
Who could use the money?  

a. Wagner  
b. Cortez  
c. Wagner ou Cortez  
d. Outra pessoa  
e.___________

Amanda provoca Naomi e ∅/ela tem uma crise nervosa. 
Amanda provokes Naomi and ∅/she has a nervous breakdown.

Quem tem uma crise nervosa?
Who has a nervous breakdown?  

a. Amanda  
b. Naomi  
c. Amanda ou Naomi  
d. Outra pessoa  
e.___________

Quando Gustavo pediu a lição de casa do Neto, ∅/ele copiou todas as respostas. 
When Gustavo asked for Neto’s homework, ∅/he copied all the answers.

Quem copiou todas as respostas?
Who copied all the answers?  

a. Gustavo  
b. Neto  
c. Gustavo ou Neto  
d. Outra pessoa  
e.___________
Josué ataca Chico, mas ele foge.
Josué attacks Chico, but he runs away.

Quem foge?  
Who runs away?  
Coordinate clause

a. Josué
b. Chico
c. Josué ou Chico
d. Outra pessoa
e._________

Carlos reparou o laptop do João antes que ele trabalhou todo o dia.
Carlos repaired João’s laptop before he worked all day.

Quem trabalhou todo o dia?  
Who worked all day?  
Subordinate clause

a. Carlos
b. João
c. Carlos ou João
d. Outra pessoa
e._________

Quando Gabriel vence Marcos no tênis, ela faz biquinho durante alguns dias.
When Gabriel beats Marcos at tennis, she pouts for several days.

Quem faz biquinho durante alguns dias?  
Who pouts for several days?  
Subordinate clause

a. Gabriel
b. Marcos
c. Gabriel ou Marcos
d. Outra pessoa
e._________
Norma fala com Jandira que õ/ela precisa descobrir tudo sobre a família de Léo. Norma talks to Jandira that õ/she needs to find out everything about Leo’s family.

Quem precisa descobrir tudo sobre a família de Léo? Who needs to find out everything about Leo’s family? Embedded clause

a. Norma
b. Jandira
c. Norma ou Jandira
d. Outra pessoa
e.__________

Nicole expulsa Stéfany de casa e õ/ela pede abrigo à Dona Mocinha. Nicole throws Stéfany out of the house and õ/she seeks refuge from Dona Mocinha.

Quem pede abrigo à Dona Mocinha? Who seeks refuge from Dona Mocinha? Coordinate clause

a. Nicole
b. Stéfany
c. Nicole ou Stéfany
d. Outra pessoa
e.__________

Antes que Bruna criticou a Thaís, õ/ela se ofendeu por culpa da amiga dela. Before Bruna criticized Thaís, õ/she got offended because of her friend.

Quem se ofendeu por culpa da amiga dela? Who got offended because of her friend? Subordinate clause

a. Bruna
b. Thaís
c. Bruna ou Thaís
d. Outra pessoa
e.__________
Élcio pede para Xavier não contar para ninguém seus segredos e ele impõe condições.
Élcio asks Xavier to not tell anyone about his secrets and he imposes restrictions.

Quem impõe condições?
Who places restrictions? Coordinate clause

a. Élcio
b. Xavier
c. Élcio ou Xavier
d. Outra pessoa
e._________

Cortez destrata Jorge que garante que ele vai ser solto.
Cortez insults Jorge who guarantees that he is going to be free.

Who guarantees that (he) is going to be free?
Quem garante que vai ser solto? Relative clause

a. Cortez
b. Jorge
c. Cortez ou Jorge
d. Outra pessoa
e._________

Quando Fátima não pode receber o respeito de Maria, ela se enfurece com a criança.
When Fátima can’t get Maria’s respect, she gets angry with the child.

Quem se enfurece com a criança?
Who gets angry with the child? Subordinate clause

a. Fátima
b. Maria
c. Fátima ou Maria
d. Outra pessoa
e._________