

On the Identification of Null Arguments

by

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To Kevin

Acknowledgements

José Camacho started his acknowledgements saying “Welcome to the poor man’s Oscar acceptance speech”. I must confess that, just like any waiter in LA, I have secretly dreamt of delivering mine. So here it is. However, I am not as happy as I thought I would be. I am following my own way now and many people who are dear to me are staying behind. These people, together with all of those in Brazil who I miss, crowd my head and my heart. In this speech, then, I want to thank them all.

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Introduction

Linguistic Theory has, for a long time, been concerned with the fact that some languages allow the subject of sentences to be phonetically null, while other languages do not. More specifically, linguists have tried to pin-point the exact property that causes one language to fall into the group of Null Subject Languages (NSLs), or that of non-Null Subject Languages (non-NSLs).

This study will try to shed some light on this issue by investigating data from Brazilian Portuguese (BP, from now on.) At first sight, BP seems to complicate the picture because null subjects are allowed, but not in every context.¹ In particular, null pronominal subjects do not appear in matrix clauses.² But they are quite common in embedded clauses, putting BP in the group of NSLs.

BP also adds a new dimension to the problem. The properties of subjects in both types of languages described above (null and non-null subject languages) are very similar; so the only difference that requires explanation is the fact that in some languages but not in others the category occupying the subject position is preferably null. In other words, the referential properties of subjects do not differ greatly depending on it being null or not (but see Calabrese 1986). For instance, the ambiguity of the English sentence below is preserved in Spanish where the embedded subject is null:

- (01) a. John₁ convinced Bill₂ that he_{1/2/3} is intelligent. (English)
 b. Juan₁ convenció a Pedro₂ de que *ec*_{1/2/3} es inteligente. (Spanish)

The intuition that the subject in both NSLs and non-NSLs is basically equivalent, except for its phonetic content, is embodied in the postulation of a category *pro* in Chomsky 1982, which is equivalent to a pronoun in every way except for being null. Data from BP, however, seems to contradict this assumption (if the empty category occupying the subject position in BP is indeed *pro*, as argued in the chapters to come). Null and overt subjects in that language are not equivalent in their referential properties. Sentence (02a) shows that a null subject is not ambiguous in BP, unlike *pro* in Spanish (in (01b)) and overt pronouns (in (01a) and (02b)):

¹ Obviously, I am and will be considering only spoken language here. In written language, which tries to be as close as possible to European Portuguese grammar, null subjects are much more easily accepted.

² Null subjects are allowed in matrix clauses in BP when the subject is identified by an element in the preceding linguistic context but not when a sentence is uttered “out of the blue,” even if the subject is clear from the situational discourse. Those discourse identified subjects may be pronominal or not. See chapters 2 and 3 for details.

- (02) a. O João₁ convenceu o Pedro₂ que *ec*_{1/*2/*3} é inteligente. (BP)
 b. O João₁ convenceu o Pedro₂ que ele_{1/2/3} é inteligente.
 João convinced Pedro that (he) is intelligent

As seen in (02), a null subject in BP cannot be interpreted deictically like overt pronouns (even in contexts where the reference of the empty category would be clear from the situational context). In (2a), the empty category must take the matrix subject as its antecedent. Just as important, the empty category in (2a) can take only the matrix subject but not the matrix object as its antecedent, again unlike overt pronouns and null pronouns in Spanish (and other NSLs).

Interestingly, matrix objects become possible antecedents for an embedded null subject in BP if they have been moved to an A'-position:

- (03) Quem₂ (que) o João₁ convenceu t₂ que *ec*_{*1/2/*3} era inteligente?
 who (that) João convinced that (he) was intelligent

BP indicates, thus, that the issue here is not only why some languages allow subjects to be null while others do not, but also why null subjects have different interpretative possibilities in one language when compared to another.

In this work, I will show that the difference between BP and other NSLs is caused by the fact that the former makes use of a different mechanism in order to identify null pronominal categories. While most (European) NSLs use verbal agreement, BP uses an alternative way to identify (i.e. clarify the reference of) null subjects, which involves A'-binding, as strongly suggested by the data in (03), when compared with (02).

Firstly, I will argue that the commonly held idea that null pronominal arguments are only licensed when locally construed with an agreement that is "rich" fails to explain the occurrence of null subjects in BP. If agreement is "rich" in that language, null subjects should appear in both matrix and embedded clauses. Or, at least, null subjects in BP should be subject to the same discourse constraints as in European Portuguese (EP) and other NSLs. However, null matrix subjects in BP are ungrammatical even in contexts where they would be very natural in EP. Since it would be very unnatural to claim that agreement is "poor" in matrixes but "rich" in embedded contexts, the classification of BP as a NSL or as a non-NSL is unwarranted. Secondly, I will show that BP presents a restriction on the interpretation of null subjects. As seen in (02) above, only c-commanding subjects but not objects can serve as antecedents for *pro* (see detailed discussion in chapter 3). However, matrix objects become possible antecedents for null subjects when overtly A'-moved. Those two facts are left unexplained if null subjects are

identified via agreement. In other words, the correlation between A'-movement and the possibility of being the antecedent for a null subject, which does not hold in other NSLs, is completely accidental if identification of *pro* is done in the same way in BP and EP.

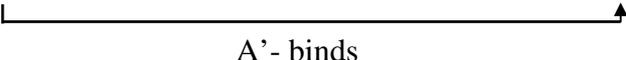
In fact, there is plenty of evidence that agreement in BP must be considered “poor.” Such evidence comes from quantitative data (both synchronic and diachronic), from child language data, and from considerations on the interpretation of null subjects. Therefore, the grammaticality of null subjects in BP cannot be related to agreement.

The alternative explanation, which I will argue for in this dissertation, claims that null pronouns in BP (and other languages, such as Chinese), in any argumental position, are identified by being A'-bound (or related to a position that is A'-bound) by a denotational element. The analysis will require the following set of assumptions:

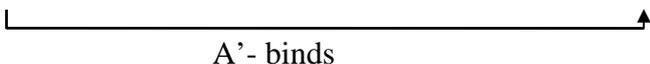
- a) Non-expletive elements (including referential and non-referential phrases) are assigned a denotational index (as in Vergnaud and Zubizarreta 1992). Null pronouns (in every language) are expletives in this sense, i.e. they are not assigned a denotation. Therefore, null pronouns need to be identified, i.e. given a denotational index, if they are to function as arguments, because only denotational elements are visible for theta-assignment. Denotational indices may be assigned to a null pronoun by a denotational element in a local (Spec-Head) relation with it, or if the pronoun is taken to be a variable A'-bound by the denotational element at LF.
 - b) Lexical items are intrinsically marked as [+/-pronominal]; [+/- anaphoric]. Variables, however, are contextually defined as locally A'-bound elements at LF. Therefore, there will be syntactic variables, the ones derived by movement of a phrase to an A'-position, as well as pronominal variables, i.e. locally A'-bound pronouns. Both kind of variables are subject to (a modified version of) Aoun and Li's (1993) Minimal Binding Requirement.³
- (04) MBR: At LF, variables must be bound by the most local potential A'-binder. A qualifies as a potential A'-binder for B iff A c-commands B, A is in an A'-position, and the assignment of the index of A to B would not either:
- a) cause B to be uninterpretable or
 - b) violate principle C of the Binding Theory.
 - c) The position normally occupied by subjects in BP, [Spec AgrP], has become an A'-position because, unlike other Romance languages, BP presents short verb movement.

³ For the moment, I am considering BP only. The definition of “potential A'-binder” in Chinese will be slightly different. See chapter 6 for discussion.

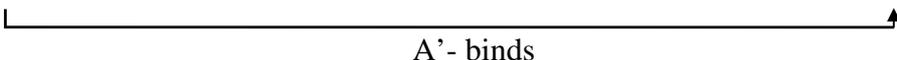
This last assumption will explain the asymmetry between matrix subjects and objects (with respect to being an antecedent for an embedded subject), as well as the relation between A'-movement and the possibility of serving as the antecedent for the null embedded subject. The structures for sentences containing null arguments in BP will be those in (05) for null subjects and (06) for null objects:

(05) a. [_{AgRP} subject [_{TP} t_s verb [_{VP} t_s t_v object [_{CP} [_{AgRP} *pro* [_{TP} t_{pro} ...]]]]]]


A' - binds

b. [_{CP} object_{wh} [_{AgRP} t_{wh} [_{TP} subject verb [_{VP} t_s t_v t_{wh} [_{CP} [_{AgRP} *pro* [_{TP} t_{pro} ...]]]]]]]]


A' - binds

(06) [_{Op} [_{AgRP} subject [_{TP} t_s verb [_{VP} t_s t_v [_{CP} [_{AgRP} subject [_{TP} t_s verb [_{VP} t_s t_v *pro*]]]]]]]]


A' - binds

In (05a), which is a representation of (02a), both matrix and embedded subjects check their Case features in [Spec TP] and are then moved to [Spec AgrP] to check a strong D-feature of Agr (the EPP feature). Since we are assuming [Spec AgrP] to be an A'-position in this language, movement to that position qualifies as A'-movement. The traces left in [Spec TP] of the embedded and the matrix clauses are, thus, variables. The null category *pro* in the embedded clause cannot bind its own variable since it has not been identified (thus, it has no index). The variable left in [Spec TP] of the embedded clause is then bound by the matrix subject. Note that, in this case, the matrix subject binds two variables: its own and the variable left by movement of *pro*. This will violate the Bijection Principle of Koopman and Sportiche (1991) but not the Parallelism Constraint on Operator Binding (PCOB) of Safir (1984), suggesting that the latter is correct. One potential problem is that the variable left by *pro* ends up being A-bound by the variable left by movement of the matrix subject. However, since a variable must only be free in the domain of its operator (cf. Chomsky 1981), the fact that the variable in (5a) is A'-bound by the head of its movement chain precludes a violation of principle C.⁴

Consider (05b) now, which is a representation of (03). (05a) and (05b) are equivalent with the exception that it is the object which moves to [Spec AgrP] (and from there to [Spec CP]) in the latter structure. Movement to [Spec AgrP] is, once again, driven by the EPP. Movement of the object *wh*-phrase to [Spec CP] is driven by morphological (checking) requirements of the head C^0 . The variable left by movement of *pro* to [Spec

⁴ Although *pro* does not have an index, it still binds the tail of its movement chain by being identical with the copy left in that position. See chapter 3 for details.

[AgrP] in the embedded clause is bound by the object wh-phrase since that is the only potential A'-binder. It is important to note that the subject stays in its Case checking position in this structure. Movement of the subject to [Spec AgrP] would cause a violation of Minimality when the wh-object is moved to [Spec CP] (cf. Rizzi 1990 and Aoun and Benmamoun 1998). Much in the spirit of Aoun and Benmamoun's work, I will argue that Minimality expresses the generalization that an element being A'-moved cannot cross an A'-specifier that is already occupied by another element. Although this is very similar to what the Minimal Link Condition of Chomsky 1995 tries to capture, I will argue, in chapter 3, that the MLC in fact makes the wrong empirical predictions. In its place, I will propose the Closest Target Principle:

(07) Closest Target Principle (CTP)

If a phrase A moves to a position B, there is no position C which is a possible target for movement of A and C is closer to A than B (where β is closer to K than α unless β is in the same minimal domain as (a) τ or (b) α as in Chomsky 1995: 356).

Note that the structure in (05b) indicates that there is a correlation between being a possible antecedent for a null subject in BP, on the one hand, and movement, on the other. Take, for instance, the contrast between wh-phrases and topics:

- (08) a. Quem₂ (que) o João₁ convenceu t₂ que *ec**_{1/2/*3} era inteligente?
 who (that) João convinced that (he) was intelligent
 b. O Pedro₂, o João₁ convenceu *ec* que *pro*_{1/2} era inteligente.
 Pedro João convinced that (he) was intelligent

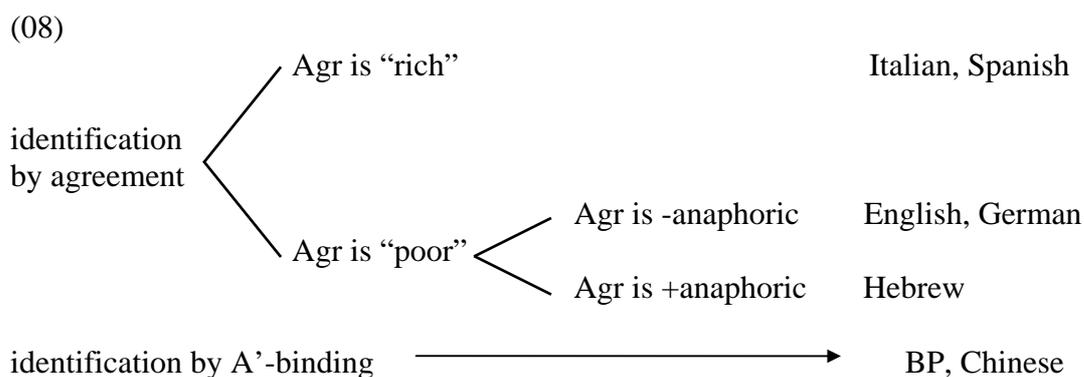
As discussed at length in chapter 3, (argumental) wh-phrases cannot be base-generated in [Spec CP] in BP; topics, on the other hand, are either moved to the topic position or base-generated there, in which case they bind a null pronoun in the argument position related to the topic. Wh-phrases, therefore, will always move through [Spec AgrP], leaving the matrix subject in its Case checking position and being the only potential A'-binder for the null embedded subject. Topics will behave similarly when base-generated in their argumental position. However, when base-generated in the topic position, it will be the matrix subject which will move to [Spec AgrP] to check the EPP feature. From that position, the matrix subject will bind (and identify) the null subject. In this way, the theory predicts (correctly) that the antecedent of a null embedded subject will be whatever phrase occupies the [Spec AgrP] position.

Going back to structure (06), it is similar to (05a), except that the null pronominal element is in an object position in the embedded clause. The closest A'-element to that *pro* is the subject occupying [Spec AgrP] of the embedded clause. However, binding of *pro* by that subject will violate principle C of the Binding Theory because the variable left

in [Spec TP] A-binds *pro*.⁵ Binding of *pro* by the matrix subject will have the same effect, so the only possible binder for a null object will be a base-generated Operator (which I take to be a null topic.)

Chapter 4 shows how the assumption that subjects occupy an A'-position in BP can be used to explain the different possibilities of scope interaction between quantifiers and wh-phrases in BP, as opposed to English and Chinese, using the Theory of Aoun and Li (1993).

I then extend the analysis, in chapter 5, to null possessive pronouns in BP and, in chapter 6, I show how the same analysis can be used to explain the existence of null subjects, objects and possessives in languages with no overt agreement, like Chinese. The typology that will emerge from the analysis presented here is that in (08):



The fact that some languages are restricted in that they can only identify null arguments by agreement, while other languages can resort to the A'-binding strategy, will be related, in chapter 7, to the discourse-oriented character of BP and Chinese. Discourse-orientation, viewed as a parametric choice, will, as expected, involve a cluster of properties including identification by A'-binding and restrictions on bound overt pronouns and on inverse scope interpretations of quantifiers. Naturally, many problems will remain.

⁵ In fact, in chapter 3, I will argue that the subject may not bind the null object, not because of principle C but because A-binding from the variable left in [Spec TP] would prevent *pro* from being interpreted as a variable. *Pro*, although argued to be a variable, will not be considered to be subject to principle C. The text above is only a first presentation of the analysis.

Chapter 1

Previous and Recent Analyses

In the introduction to this work it was noted that the status of BP as a NSL is unclear. While null referential subjects are natural in BP in embedded clauses, they are ungrammatical in matrixes.

- (01) a. * *ec* trabalho na universidade.^{6, 7, 8}
 (I) work-1st sg. at the university
 b. **ec* trabalha na universidade.
 (you) work-2rd sg. at the university

⁶ Throughout this work, most examples will contain the verb in the perfective past and indicative present (which subsumes the analytic form of the future which is formed by using the verb *ir* ‘to go’ in the present plus the “main” verb in the infinitive). The restriction to those tenses reflects the fact that they are the most robust input for children and, (probably) consequently, the most commonly found tenses in children’s utterances. All the relevant facts discussed here and in subsequent chapters using the perfective and the present are also observed with both the analytic and the synthetic forms of the future. The facts also extend to the imperfective past, unless noted. Things are different, however, with tenses in the subjunctive. Those tenses will not be discussed here (except for a few remarks in footnotes) because the relevant examples (i.e. sentences where the embedded clause presents both a null subject and the verb in the subjunctive, as in (i) below) are felt to be literary and are absent from the speech of children (of all ages), which shows that they are a product of schooling:

- (i) O rei ordenou ao soldado₁ que *pro*₁ matasse o ladrão.
 the king commanded the soldier that (he) kill_{subjunctive} the thief.

⁷ The ungrammaticality of matrix null subjects is true for discourse initial sentences, i.e. sentences in an “out of the blue” context. A null subject may appear in a matrix clause in BP if it has an antecedent in the linguistic context. In chapter 2, I will analyze those null subjects as traces bound by null topics (as in Huang 1984), a process which is independent from the *pro*-drop parameter since it does not involve a null pronoun in subject position. Cf. chapters 2 and 3 for discussion.

Although the ungrammaticality of (01) is consensual, some speakers seem to find that a matrix null subject is more acceptable when the subject is 1st person or the verb is in the past tense. Figueiredo Silva (1994), for instance, considers the sentence (i) acceptable even in an “out of the blue” context:

- (i) *pro* comprei um carro ontem.
 (I) bought a car yesterday

I agree with Kato (1999) that tokens such as (i) are a product of “older generations or of a more conservative speech” so I will assume that referential null subjects in matrix clauses are ungrammatical with any grammatical person interpretation and in any tense.

⁸ The paradigms in (01) and (02) are reproduced with all the persons in the plural with the same grammaticality judgments.

- c. **ec* trabalha na universidade.
 (he) work-3rd sg. at the university

- (02) a. Eu disse que *ec* trabalho na universidade.
 I said that (I) work at the university
 b. Você disse que *ec* trabalha na universidade.
 you said that (you) work at the university
 c. Ele disse que *ec* trabalha na universidade.
 he said that (he) works at the university

Even in the contexts where a null subject is allowed in BP, i.e. the subject of an embedded complement clause, *pro* alternates with overt pronouns freely, thus contrasting with other Romance languages where a null subject is obligatory in contexts such as (02). The ungrammaticality of the sentences in (01) and the alternation between null and overt pronouns in (02) causes BP to have a percentage of null subjects much lower than other NSLs like Italian and Spanish (see chapter 2). Intuitively, the difference between BP and other Romance languages can be attributed to the fact that agreement inflection in BP became impoverished in the twentieth century, going from a paradigm with six uniquely marked forms in the nineteenth century to only four (sometimes three) uniquely marked forms nowadays.⁹

- (03) comer (to eat) - indicative present¹⁰

(up to) 19 th century BP	20 th century BP
1sg como	1sg como
2sg comes	2sg come
3sg come	3sg come
1pl comemos	1pl comemos / come
2pl comeis	2pl comem

⁹ This change seems to have followed the pattern described in Roberts 1983. Throughout the history of BP, the second person could be expressed either by a direct form (associated with the personal pronoun *tu*) or by an indirect form (associated with the treatment form *você*) which takes third person inflection. The fact that in the beginning of the 20th century the indirect form seems to completely substitute the direct form characterizes a “step” in Roberts’ terminology, i.e. it is a significant change in the frequency of a construction. Since second person morphology is rarely used, speakers start to interpret the (morphologically third person) indirect form as a true second person, which would characterize “Diachronic Reanalysis.” Such reanalysis (arguably) caused agreement inflection to become weak in BP, leading to a parametric change. The same process is taking place again in the 1st person plural. The form *a gente* (literally ‘the people’), which takes 3rd person singular agreement, is substituting the pronoun *nós*.

¹⁰ Other tenses also had their paradigms reduced in the same way as the paradigm shown in the text.

3pl comem

3pl comem

In a way, then, it seems that BP confirms the intuitive assumption of most linguistic theories that the presence of null referential subjects in a given language is somehow related to the fact that verbs are more or less richly inflected in that language. On the other hand, BP poses a problem. What is to be done with the remaining cases of null subjects?

In this chapter, I will examine several theories proposed in the literature to account for the null subject phenomenon. In particular, I will discuss how these theories fare in explaining the facts in BP, concluding that most theories are only partially correct, since none of them can fully explain the BP data. In section 1, I discuss the theories which relate the null subject phenomenon to (some property of) verbal agreement. Since many of these theories correlate null subjects with verb movement; and because establishing the position of the verb in BP will be crucial in deciding the exact position of subjects, section 2 investigates verb movement. The facts about verb movement in BP are, however, inconclusive and I will delay a decision on that matter until chapter 2. Section 3 continues the discussion of null subjects analyses, focusing on those which are based on the Minimalist Program (Chomsky 1995, 1998).

1. Agreement Related Analyses

1.1. The “rich” agreement and uniformity hypotheses

When faced with the question of why some languages allow the subject position of sentences to be phonetically null but others do not, most people tend to hypothesize that, in languages like Spanish, the information about person and number is directly recoverable from the verbal inflection, which makes a full pronoun in subject position obsolete. In languages like English, on the other hand, an overt pronoun must occupy the subject position in order to disambiguate the sentence. This intuition was formalized by Taraldsen (1978). Since then, languages in which the verbal inflection determines, or recovers, the content (or the reference) of the subject have been called “rich” agreement languages. The relation between “rich” agreement and null subjects has been assumed in some form or another by many linguists (cf. Chomsky 1981, 1986; Rizzi 1986; Bennis and Haegeman 1983; Huang 1984; Piccolo 1984; Bayer 1983-1984; Adams 1987; Platzack 1987; Jaeggli and Safir (1989); Contreras 1991; Rohrbacher 1994; Speas 1994; Cardinaletti 1997; among many others).

The validity of the claim that “rich” agreement is involved in determining if an argument may have no phonetic realization in a given language is supported by data from languages like Pashto (taken from Huang 1984: 535-536). In sentences in the present,

Pashto uses a nominative-accusative system: the verb agrees with the subject in both transitive and intransitive sentences. In past tense sentences, however, the verb agrees with the subject if intransitive, but with the object if transitive:

- (04) a. Jan ra-z-i.
 John DIR-come-3rd m. sg.
 ‘John comes.’
 b. zχ mana xwr-χm.
 I apple eat-1st m. sg.
 ‘I eat the apple.’

- (05) a. Jan ra-ğ-ay.
 John ASP-come-3rd m. sg.
 ‘John came.’
 b. ma mana wə-xwar-a.
 I apple PRF-eat-3rd f. sg.
 ‘I ate the apple.’

As predicted by the “rich” agreement hypothesis, when *pro*-drop occurs in this language, only subjects may drop from sentences in the present or in the past with intransitive verbs and only objects may drop from transitive sentences in the past:

- (06) a. *ec* ra-z-i.
 DIR-come-3rd m. sg.
 ‘[He] comes.’
 b. *ec* mana xwr-ə̅m.
 apple eat-1st m. sg.
 ‘[I] eat the apple.’
 (07) a. *ec* ra-ğ-ay.
 ASP-come-3rd m. sg.
 ‘[He] came.’
 b. ma *ec* wə-xwar-a.
 I PRF-eat-3rd f. sg.
 ‘I ate [it].’

Other languages also provide support for the “rich” agreement idea when compared with Romance, where the verb agrees only with the subject and only subjects may drop. In Swahili, for instance, the verb agrees with the subject and the object, and both these

arguments may drop. In Basque (Esti Amorrortu, p.c.), the verb agrees with every argument, and everything may drop.

Despite all the evidence supporting the relation between “rich” agreement and null arguments, such an idea is not devoid of problems. As noted by Speas (1994), the property that makes agreement “rich” is difficult to pin down. Most researchers use the term “rich” to mean “bearing enough morphology to provide non-ambiguous information on the person and number (and maybe gender) of the subject.” However, this raises the question of how rich the inflection must be, or how rich is rich enough, to license null arguments.

To cite a well-known example, agreement seems to be rather rich in German, yet, null referential subjects are not permitted, only non-argumental null subjects are allowed. This fact has been captured (in Rizzi 1986, for instance) by assuming that, in German, an empty category is licensed in subject position but not identified with referential features, so they are only possible when pleonastic. Rizzi (1986) proposes the following principles (from Speas 1994):

- (08) a. *pro* is formally licensed through Case assignment by a designated head.
 b. *pro* has the grammatical specification of the features of its licensing head coindexed with it.

In this case, INFL in German would be a designated head that licenses null subjects through case assignment. Agreement in German, however, has to be considered “poor” with respect to identification, despite presenting four different morphemes for the six forms paradigm:

(09) German: to work

1	arbeit-e	arbeit-en
2	arbeit-est	arbeit-et
3	arbeit-et	arbeit-en

Note that it is unclear if “richness” of agreement plays any role in the assignment of the INFL head as a designated head. If it does, then German has a “rich” inflection with respect to licensing of null subjects but a “poor” inflection with respect to identification. If it does not, then “richness” of inflection plays no role in the licensing of null subjects and the relation between “rich” inflection and null subjects, noted in many languages, remains obscure.

A further problem for the postulation of a Null Subject Parameter based on “richness” of agreement is the fact that there are languages like Chinese, Japanese and Korean, which allow referential null arguments but have no overt verb inflection. Even if an abstract

INFL is invoked in these languages to be a designated licensing head for null subjects, it is unclear how these empty categories would be identified. The presence of null objects in these languages complicate the picture even further.

In order to account for some of the problems raised by Rizzi's theory, Jaeggli and Safir (1989) propose that, in fact, "rich" agreement is not related to the licensing of null subjects. Instead, null subjects would be licensed by the fact that verbal paradigms are morphologically uniform:

(10) a. Null Subject Parameter

Null subjects are permitted in all and only languages with morphologically uniform inflectional paradigms.

b. Morphological Uniformity (Jaeggli and Safir 1989: 29-30)

An inflectional paradigm P in a language L is morphologically uniform iff P has either only underived inflectional forms or only derived inflectional forms.

Under this formulation, it is expected that languages like Chinese will pattern with languages like Spanish. In the former, all verbal forms lack agreement morphology. In the latter, all forms in verbal paradigms include a stem and an affix.¹¹ These languages are opposed to, for instance, English, where verbal paradigms include both inflected and non-inflected forms.

It must be noted that morphological uniformity is only responsible for the *licensing* of null subjects in languages like Chinese, Japanese, Spanish and Italian. Even Jaeggli and Safir rely on "richness" of agreement in order to explain how null subjects are identified in the latter two languages. Chinese and Japanese still remain problematic with respect to the identification of null subjects.

¹¹ Note that if "affix" is understood here to mean "inflectional affix," Spanish (as well as EP) is included in the roll of uniform languages by brute force. In order to show that Spanish has a uniform morphology, Jaeggli and Safir consider the final vowel in 3rd person singular forms as a verbal affix. Such a vowel, however, is variable depending on the conjugation of the verb, indicating that it is not an inflectional affix. In fact, in traditional grammar, this vowel (usually called a "theme vowel") is considered to be part of the verbal stem):

(i) Spanish:	a. to speak		b. to want	
	habl-o	habla-mos	quier-o	quiere-mos
	habla-s	habla-ís	quiere-s	quiere-ís
	habla-Ø	habla-n	quiere-Ø	quiere-n

See Roberts (1993) for a proposal that takes Spanish to be morphologically uniform without taking the theme vowel to be a verbal affix.

Going back to the BP data introduced in the beginning of this chapter, it is easy to see that some pieces of the puzzle are missing. The fact that BP allows null pleonastic subjects, as well as null referential subjects in embedded clauses, indicates that empty categories are undoubtedly licensed in the subject position of this language. However, even if the property that characterizes agreement as “rich” could be made precise, the data in BP would be problematic. It seems to indicate that agreement both can and cannot identify null subjects. On one hand, if agreement in BP is “rich,” the ungrammaticality of matrix clauses with null subjects is left unaccounted for. On the other, if agreement is “poor,” then the possibility of null subjects in embedded clauses is left unexplained.

In order to avoid this “catch 22” situation, some authors have proposed that, in fact, agreement cannot identify null subjects in BP and that referential null subjects are bound to disappear from the language. This is defended by Duarte (1993, 1995) and adopted by Rohrbacher 1994. Duarte interprets that the change from a *pro*-drop to a non *pro*-drop system is not abrupt: first a language goes through a period where the Avoid Pronoun Principle (proposed by Chomsky 1981) is not active and null and overt pronouns occur interchangeably until the overt pronoun option completely replaces the null variant. This, according to her, is what is happening in BP. In other words, the weakening of agreement in BP (caused by the loss of certain inflectional morphemes) led to the loss of the Avoid Pronoun Principle and now the subject position is more and more filled by overt pronouns until eventually they become the only choice. Duarte claims that this state of affairs is a confirmation of the prediction made by Tarallo and Kato (1989) that languages may vary not only qualitatively with respect to the positive or negative setting of a parameter but also quantitatively in relation to the frequency that a language manifests the characteristics of one setting or the other. I regard such assumptions with suspicion.

First of all, they presuppose that the Avoid Pronoun Principle is only active in *pro*-drop languages because a language changing from the NSL to the non-NSL group will first deactivate that principle and then, at a later stage, fill all subject positions. Losing the Avoid Pronoun Principle is then the first move towards becoming a non-NSL. However, the Avoid Pronoun Principle is commonly used (by Safir 1984, for instance) to explain the nonappearance of resumptive pronouns outside of syntactic islands in English, a non *pro*-drop language, which means that the Avoid Pronoun Principle is also active in non-NSLs. Secondly, a theory such as Duarte’s implies that overt pronouns should be the preferred option in BP (in every context) but null subjects are still acceptable (also in every context). This, however, is not a good description of the state of affairs in that language. As seen above, overt pronouns are in fact preferred in matrix clauses but null and overt pronouns are interchangeable when in embedded contexts. Neither is preferred over the other. There is, in fact, one context in which an overt pronoun is barred from appearing in the subject position in BP:

- (11) Todo mundo₁ disse que *ec*_{1/*2}/*ele*_{*1/2} conhece aquela menina.
 every body said that (they/he) know that girl

In (11), only a null subject can be taken to be bound by the quantified subject in the matrix clause. An overt pronoun in the embedded subject position would only have the deictic interpretation. This seems to indicate that null subjects cannot and will not disappear from the language, since the bound reading of (11) is not expressible if an overt pronoun occupies the embedded subject position.

In conclusion, even if “rich” agreement could be defined, a theory based on “richness” of agreement or on uniformity would not account for the data in BP.

1.2. Speas’ economy of projection theory

Speas (1994) develops a theory in which *pro*-drop is partially related to verb movement. In that theory, a functional head X can only project an XP phrase if XP has content, according to (12):

- (12) A node X has content if and only if X dominates a distinct phonological matrix or a distinct semantic matrix.

In her words, “if XP [...] dominates no phonological material except that which is in the complement YP, then XP dominates no distinct phonological matrix. Similarly, if XP dominates no semantic material except that which is in the complement YP, then XP dominates no distinct semantic matrix.” In this way, either the head X or the specifier of XP must dominate some material with content in order for the projection XP to be licensed. Radically empty projections, which function solely as landing sites for movement, are disallowed.

Speas assumes Rohrbacher’s (1994) hypothesis that agreement morphemes may have their own lexical entry, so, in the case of AgrP, the agreement morpheme itself can give content to that projection when it is base-generated under Agr⁰. This is what happens in “strong” agreement languages, in Speas’ terminology. Other languages, on the other hand, do not present lexicalized inflectional morphemes and the verb is base-generated already inflected inside the VP. These are “weak” agreement languages. Verb movement by itself is not enough to license the projection of AgrP (which, as Speas suggests, may be because the Agr projection cannot be licensed by a head of a category other than Agr). So the only way to license the AgrP projection in these languages is to fill its specifier position (with an overt expletive, or by moving a DP into that position). These languages will, then, always have an overt subject.

In “strong” agreement languages, Agr morphemes have their own lexical entry and therefore are base-generated as the head of the Agr projection. The head of AgrP has content, so there is no necessity for the specifier of AgrP to be filled. The null subject (*pro*), which Speas assumes to be base-generated in a VP internal position, remains in that position and the specifier of AgrP is truly empty (until LF, when *pro* moves in order to be identified by spec-head agreement). The agreement morpheme is dependent on the verb, since it cannot be spelled out by itself. Therefore, this theory implies that, in null subject languages, the verb must be overtly moved to AgrP, although not all languages where the verb moves to Agr are NSLs (differing here from Rohrbacher 1994, where the relation between verb movement and null subjects is biconditional).¹² Speas argues that in languages like Yiddish, the verb moves overtly to AgrP but null subjects are not allowed; since the agreement morphemes were base-generated on the verb, an overt specifier must be present to license the projection of AgrP.

A third group of languages would be formed by those which lack agreement entirely, such as Chinese and Japanese. In those languages, AgrP is never projected so null subjects are allowed, since the problem of licensing an Agr projection never arises.

This theory has the welcome consequence of eliminating the licensing requirement on null arguments. Null subjects will be possible every time the Agr projection can be licensed without an overt specifier. However, the proposal does not eliminate the need for conditions on identification of *pro*. Although Speas does not mention how identification takes place in languages with no Agr projection, she says that “there can be languages in which Agr has its own lexical entry and hence suffices to license the Agr projection, but whose Agr features are not [rich MM] enough to identify *pro*.” The author cites German as such a case. In German, null pleonastic subjects are allowed to appear in Spec AgrP, showing that agreement morphemes are base-generated under the Agr head, but null referential subjects are not possible, since the Agr features are not “rich” enough to identify *pro*.

¹² Rohrbacher (1994) proposes that languages where verbal agreement uniquely marks the person features 1st and 2nd (either in the singular or in the plural of at least one tense) by overtly distinguishing the forms for first and second person from a) each other, b) the form for the third person and c) the infinitive, have “referential” paradigms. He assumes that the lexicon contains all and only referential elements so (the affixes forming) referential paradigms are also listed in the lexicon. When inserted under the highest inflectional head, these affixes trigger V to I raising. Since Rohrbacher assumes (a version of) Speas’ theory, base generation of affixes under the inflectional head is enough to license that projection without the need for a specifier. Since referential affixes both cause V to I movement and license null subjects, all NSLs are expected to have overt verb movement and *vice versa*. Note that BP is expected to have neither verb movement or null subjects, since 2nd person features are not uniquely marked in any tense in the singular nor in the plural. Rohrbacher, then, has to claim that null subjects in BP are residual and bound to disappear from the language, incurring in the same mistake as Duarte 1993, 1995 (see discussion in section 1.1 above).

Interestingly, however, null pleonastics are not always allowed in German. In impersonal passives, pleonastics are null in Spec IP (AgrP) position but are sometimes overt in Spec CP position. This can be seen in (13) (Speas' (20)):

- (13) a. Es wurde gestern auf dem Schiff getanzt.
 es was yesterday on the ship danced
 'there was dancing on the ship yesterday'
 b. Gestern wurde (*es) auf dem Schiff getanzt.
 Yesterday was on the ship danced
 c. Sie sagte, es wurde getanzt.
 she said es was danced
 d. ...weil getanzt wurde.
 since danced was

In (13b), the Spec AgrP position is empty because the agreement morphology of German suffices to license the AgrP projection, although it is too meager to identify a referential *pro*. In Spec CP, on the other hand, overt expletives show up only if COMP does not have a contentful item (i.e. an adverb or a complementizer) base-generated in it, as in (13a, c), since movement of the finite verb to the C head cannot license the projection of C. In (13b, d), a contentful word in [Spec CP] licenses the CP projection, so no overt pleonastic is necessary.

Note that Speas defines "strong" agreement as the property of having lexical inflectional morphemes and "rich" agreement as the property of being able to identify referential null subjects. The first property is related to uniformity of paradigms in the sense that if a language has uniform paradigms, then agreement in that language is "strong." Uniformity, in turn, is defined as follows:

- (14) Morphological Uniformity (Speas 1994: 197)
 An inflectional paradigm P in a language L is morphologically uniform for feature F iff P has only derived inflectional forms expressing F.

The revision of Morphological Uniformity proposed by Speas (in (14)) differs from the one in Jaeglli and Safir (1989) in that it does not classify total lack of agreement as a sub-type of uniformity. It correctly distinguishes languages like Swedish, which present uniform paradigms with no agreement morphology but still have an Agr projection (which has to be licensed by an overt subject), from languages like Japanese, in which the licensing of an Agr projection does not come into play and so null subjects are allowed.

Note that, crucially, Spanish, EP and BP are considered to have uniform paradigms in Speas' theory because null subjects are licensed in those languages. To explain the differences between BP on one hand and EP and Spanish on the other, it could be assumed that BP behaves like German, i.e. agreement is "strong" but not "rich" so only pleonastic subjects are allowed. Spelling this out, it is a fact that BP allows null expletives, so the Agr projection is licensed without the need for a specifier (agreement is "strong"). The absence of thematic null subjects (in matrix clauses) would be explained by the fact that agreement morphology in BP became too meager to identify *pro* (agreement is not "rich"). This theory seems promising, since it entails that an argumental *pro* in subject position is possible in BP (because the Agr projection is independently licensed) as long as there is an alternative way for it to be identified, which is very similar to the conclusion I argue for in this study. In other words, Speas' theory seems promising in solving the asymmetry between matrix and embedded clauses in BP. A null subject is licensed in both positions, since agreement is "strong." Referential null subjects cannot be identified and thus are ungrammatical in matrix clauses. However, if there is an alternative way to identify null embedded referential subjects, then the asymmetry is accounted for.

Although promising, Speas' theory is not devoid of problems. Firstly, as noted by Hagit Borer (p.c.), it is not clear why *pro* cannot license AgrP as a semantic element. A second problem is that the theory seems to predict unattested word orders in BP and German. Recall that in languages like Spanish, the [Spec AgrP] position remains truly empty until LF, when *pro* is covertly moved to be identified by the "rich" agreement. Suppose now there is a full DP in subject position. This subject will occupy the [Spec VP] position. This will derive sentences like (15a) in Spanish, which, according to Speas, would have the structure in (15b):

- (15) a. (Ayer) comió Juan una manzana.
 yesterday ate Juan an apple
 b. [_{AgrP} comió [_{VP} Juan [_{V'} t_v una manzana]]]

Consider now BP and German. If agreement is "strong" in these languages, the Agr projection can be licensed by the inflectional morpheme, the verb moves to the Agr head and [Spec AgrP] remains truly empty. If a null pronoun occupies the subject position in [Spec VP], the derivation will ultimately crash because *pro* will not be able to be identified when it moves to AgrP at LF. What about if the subject is a full DP, which does not need to be identified? It should be expected that BP, German, and any other language which allows null pleonastics have structures like (15b). Although the prediction is not

verifiable in German because German is a head-final language, it is verifiable, and flawed, in BP:¹³

- (16) *Comeu o Pedro uma maça.
ate Pedro an apple

1.3. Kato 1999

One theory that tries to explain the (non) null subject character of BP is that of Kato 1999. She points out that Speas' theory (and, presumably, also Rohrbacher 1994) depends crucially on the acceptance of an independent Agr projection, which is questioned in Chomsky 1995. For Chomsky, elements must be interpretable at LF in order to be legitimate functional categories and agreement is not interpretable in that sense. Since Speas's paper is prior to Chomsky's, she discusses Fukui's (1993) observation that "agreement, unlike other morphemes like Tense or Aspect, does not receive an independent interpretation, and hence it ought to be absent at LF." For her, then, the question is "whether [agreement] is present as an independent syntactic head prior to LF." I interpret that Speas means to say that, exactly because AgrP is not interpretable at LF, it must contain interpretable (i.e. contentful) elements in order to be licensed. In other words, what makes the Agr projection legitimate (at LF) is the fact that it has content, in Speas' sense: although agreement is not interpretable at LF, AgrP has a contentful element which occupies its specifier position and that element does receive an interpretation at LF. Note that in such an interpretation of Speas' theory, the EPP and the licensing of AgrP are one and the same condition. In other words, the languages that lack AgrP will also lack the EPP. The languages where AgrP is projected can satisfy the EPP in two ways: some languages satisfy it by having an inflectional morpheme base-generated under the Agr head, other languages (in which the verb is base-generated already inflected) will satisfy it by merging a contentful DP in [Spec AgrP] (see Alexiadou and Anagnostopoulou 1998 for a very similar view).¹⁴

¹³ The objection carries over to Italian, where a sentence like (i) is ungrammatical. The problem with Italian could be accounted for if it is assumed that objects are overtly moved to a position higher than [Spec VP] such as the specifier of an AgrO projection, deriving sentences like (ii):

- (i) *Ieri ha mangiato Gianni una mela.
(ii) Ieri ha mangiato una mela Gianni.
yesterday ate an apple Gianni

¹⁴ Alexiadou and Anagnostopoulou (1998) correlate the presence of null subjects with the occurrence of post-verbal (overt) subjects more explicitly than Speas 1994. Obviously, the problems raised by BP for the latter account (in 1.2. above) carry over to the former. Anyhow, in chapter 3, I will assume Alexiadou and Anagnostopoulou's idea that VSO structures in EP and Spanish do not present a null expletive in subject position, since the EPP is satisfied by the verbal inflection in those languages.

Kato, nevertheless, develops a theory in which AgrP is not projected. Also assuming Rohrbacher's (1994) insight that agreement morphemes are independent heads in rich agreement languages, she argues that in these languages (Spanish and Italian, for instance), the agreement morpheme (or an agreement clitic) is base-generated in [Spec VP] position and it is adjoined to the verb in T in the syntactic derivation. In that case, [Spec TP] is not even projected and the null subject character of these languages is explained without the need for a category *pro*, since the agreement morpheme itself checks all the features of the V/T complex, including Case. In languages where agreement is not rich, like English and German, the verb comes from the lexicon already inflected and a weak pronoun is inserted in [Spec VP], moving later to the [Spec TP] position. For her, lexicalized agreement morphemes and weak pronouns are in complementary distribution so she predicts that a language with weak pronouns will have poor agreement (and, consequently, no null subject).

Kato assumes (based on Nunes 1990) that a series of weak pronouns, quasi-homophonous to the strong ones, developed in BP (either as a consequence of or causing the impoverishment of agreement). BP is, under this view, expected to have no null subjects. It then becomes a problem for Kato to explain why null subjects are acceptable in embedded clauses in this language. Take (17), for instance:

- (17) O João disse que comprou um carro. (from Kato 1999)
 João said that (he) bought a car

Kato has to assume that in (17) the [Spec TP] is not projected in the embedded clause, which means that 3rd person affixes in BP may be lexicalized. The "controlled" interpretation of the empty category in subject position is explained by it being doubled by a PRO which occupies the position normally occupied by strong pronouns and topics in doubling constructions, such as the ones below:

- (18) a. EU, eu adoro isso.
 I, I love this
 b. Essa competência, ela é de natureza mental.
 this competence, it is of mental nature

However, as shown by the contrast between (17) and (18), the 3rd person affix has to be considered to be both able to be generated in [Spec VP] as an agreement clitic or able to be generated as a suffix to the verb, depending on whether a weak pronoun appears or not in the subject position ([Spec TP]). In other words, the problem is this: sentence (17), for instance, may have either an empty or an overt embedded subject. When the subject position is empty, Kato assumes that the 3rd person morpheme was generated in [Spec VP] and then moved to the head V in T. The [Spec TP] position in this case is not projected.

However, when the subject position is occupied by an overt (weak) pronoun, she has to assume that the 3rd person morpheme was generated with the verb; that the pronoun originates in [Spec VP] and that it moves to the [Spec TP] position. Therefore, 3rd person inflection is “ambiguous” in some sense (sometimes lexicalized, sometimes not).

Even if the “ambiguity” of 3rd person morphemes can be explained in a non *ad hoc* manner, it is crucial to assume that null embedded subjects with 1st or 2nd person interpretation are residual and bound to disappear, unless the same “ambiguity” assumed to exist with the 3rd person inflection is postulated for the entire paradigm, making the whole theory innocuous. I believe such an assumption to be untenable since null subjects with 1st and 2nd interpretation are as acceptable as 3rd person null subjects in those contexts where null subjects are allowed. However, for the sake of Kato’s argument, let us assume that only null subjects with 3rd person interpretation are grammatical. Even in this case, Kato cannot explain the facts described in the introduction of this work. If null subjects get their interpretation (i.e. are identified) by being doubled by *PRO*, the interpretation of these subjects should be explained by Control. However, the null embedded subject of finite clauses in BP seems to behave quite differently from subjects of non-finite clauses, where Control is assumed to take place. Importantly, *PRO* may be controlled by objects; null subjects of finite clauses, on the other hand, cannot (usually) have objects as their antecedents.¹⁵ This is clearly not a peculiarity of certain verbs. For instance, as shown below, under verbs like *convencer* ‘to convince’ a *PRO* subject has to be controlled by the matrix object. So *convencer* has to be considered an object-control verb. Yet, null subjects of finite clauses embedded under *convencer* cannot take objects as their antecedent:

- (19) a. O Paulo₁ convenceu a Maria₂ a *PRO*_{*1/2} sair.
 P. convinced M. to go out
 b. O Paulo₁ convenceu a Maria₂ que *pro*_{1/*2} tinha que ir embora.
 P. convinced M. that (he) had to go away

If null subjects of finite clauses were doubled by a *PRO* subject, the difference between (19a) and (19b) would be hard to account for. The facts in (19) are, therefore,

¹⁵ This is not the case if the embedded verb is in the subjunctive tense. As noted in footnote 1, I am excluding subjunctive tenses from the discussion since they are absent from children’s speech and so are a product of schooling, which teaches a different grammar (i.e. one that is closer to the EP grammar). Mary Kato (p.c.) has called my attention to the fact that reference to an object by a null subject also seems to become possible with verbs in the indicative if there is a modal in the embedded clause. This observation, if correct, deserves further investigation. However, it is clear that in the core cases ((19b) for instance) a null subject can only take a higher subject as its antecedent. This is the syntactic phenomenon I will explain, leaving the exceptions for future research.

prima facie evidence that *PRO* is neither the subject or the identifier of the subject in finite clauses in BP.

Yet another piece of evidence that null subjects are not “controlled” is the fact that matrix objects become possible controllers if overtly A’-moved, as mentioned before. If null subjects are doubled by *PRO*, the relation between A’-movement and the possibility of being an antecedent would remain a puzzle.

1.4. Borer’s anaphoric Agr

Borer (1989) reports that facts very similar to the ones described in here for BP hold in Hebrew. In this language, in both the past and future tense, there is a unique inflectional morpheme for each grammatical person, except for the 3rd person. Null subjects are allowed in those tenses in matrix contexts, but not with 3rd person interpretation:

(20) Hebrew “to eat” (past)

1sg. ?axalti

2sg. ?axalta, ?axalt

3sg. ?axal, ?axla

1pl. ?axalnu

2pl. ?axaltem, ?axalten

3pl. ?axlu

However, null subjects with 3rd person interpretation are possible in embedded contexts when they seem to be “controlled” by one of the matrix arguments (but no more than one). In the present tense, on the other hand, a null pronominal is never licensed with any person interpretation (only the most relevant data from Borer 1989: 93 is shown):

(21) a. Talila₁ ?amra le-Itamar₂ she pro_{1/2} yavo/tavo.

Talila said to-Itamar that (s/he) will come

b. Talila₁ ?amra le-Itamar₂ she hem_{1+2/3} / pro_{*1+2/*3} yavo?u.

Talila said to-Itamar that *(they) will come

c. *Talila₁ ?amra le-Itamar₂ she pro_{1/2} macliax/maclixa be-bxinot.

Talila said to-Itamar that (s/he) succeeds in tests

Borer uses the Hebrew data as empirical confirmation of a theory that subsumes controlled *PRO* to *pro*. She argues that the head Agr in infinitival clauses is [+anaphoric] and so must be bound by a referential DP in order to receive a person feature, giving rise

to control structures.¹⁶ In Hebrew, 3rd person agreement in past and future tenses is also anaphoric.¹⁷ In matrix and embedded contexts, an overt pronoun in subject position can bind the anaphoric Agr, since it stands in a Spec-head relation and is coindexed with the Agr head. On the other hand, if the subject is null (*pro*), after binding takes place, the anaphoric Agr is still too impoverished to identify the subject, that very same *pro*, since no person feature was transferred to Agr. Null 3rd person subjects in matrix clauses are then expected to be ungrammatical. However, in embedded contexts, the anaphoric Agr head can move to the head of COMP, being bound by a DP in the matrix clause. After binding takes place, Agr gets a person feature, which is transmitted to the embedded *pro* subject by transitivity. Borer underlines the correlation predicted by her theory between Control and an empty COMP. Therefore, one crucial assumption is that the complementizer *she* in Hebrew cliticizes to INFL, leaving the head C empty and thus allowing the raising of Agr. The fact that an embedded null subject cannot take split antecedents, as shown in (21b), provides a strong argument in favor of the anaphoric character of Agr.

Figueiredo Silva (1994) tries to apply Borer's theory to the BP facts. She encounters three main problems. Firstly, the complementizer in BP does not seem to be a clitic, breaking down the correlation between an empty COMP and an anaphoric Agr predicted by Borer. However, since Figueiredo Silva assumes the split CP structure of Rizzi (1995), it is possible to say that the complementizer *que* in BP occupied a lower head and that there were other position(s) to host the moved Agr. Another possibility would be to say that Agr adjoins to the head C (which is what Figueiredo Silva ends up assuming), since the BP complementizer *se* 'if' seems to occupy the higher head position in the split CP structure and still allows an empty subject to follow it. A second problem is that, since Figueiredo Silva assumes long verb movement in BP, movement of the Agr head should give rise to unattested word orders such as AUX - SUBJ - VERB. To solve that, she has to assume that the Agr projection also splits into several different projections: Agr-person, Agr-number, etc. This problem does not seem very relevant (provided that auxiliaries are not generated under the Agr head), since it depends on the assumption that the verb in BP moves as high as in other Romance languages such as French (a position I will argue against in this work). The third, and most serious, problem is that BP differs from Hebrew in that it is not the case that any DP in the matrix clause can bind the embedded anaphoric Agr. Crucially, the empty subject cannot be coreferent with a higher object. Figueiredo Silva does not explain this difference between BP and Hebrew.

¹⁶ Landau (1999) presents an updated version of Borer's analysis where Control is explained by the anaphoric character of Agr. However, Landau maintains the existence of *PRO*.

¹⁷ Note that it is unexplained that controlled *PRO* usually has a preferred antecedent (either the subject or the object) while *pro* (in Hebrew) does not.

Another difficulty in using the Anaphoric-Agr theory to explain the data in BP is the fact that A'-moved objects become possible antecedents for a null embedded subject. Since this fact has gone unnoticed so far, it was not discussed by Figueiredo Silva. The problem that this fact brings is that it is absolutely unexpected in a framework which assumes that Agr is anaphoric. If anaphors have to be A-bound, as usually assumed, attributing the behavior of empty subjects in BP to an anaphoric character of the Agr head fails to explain the relation between A'-movement and the possibility of binding the null subject. Of course, it is possible to assume that Agr in BP is an A'-anaphor in a Generalized Binding framework (just like *wh*-traces are treated by Aoun 1985), a position which would have approximately the same effect as the theory proposed here, i.e. the effect that the empty pronoun is always A'-bound. Although this would be a possible explanation for the behavior of null subjects in BP, I believe it is not correct. In chapters 3 and 5, I will show that not only null subjects but also null objects and null possessives in BP must be A'-bound. It seems, then, that the need for A'-binding is a property of *pro* and not of the Agr projection. If subjects are A'-bound because Agr is an A'-anaphor, the analyses of null subjects, null objects and null possessors would have to be disassociated and the fact that all those pronominal categories are A'-bound by their antecedents would be coincidental.

In this way, I will assume that the Anaphoric Agr theory can explain the BP data only at a very high price. However, it is also clear that any mechanism presented here to account for BP would not explain the data in Hebrew, since there seems to be no correlation between an argument being in an A'-position and being a possible antecedent for *pro* in that language. In other words, I have presented no argument against an analysis of Hebrew in terms of an anaphoric Agr node. In fact, I will assume it is correct.

1.5. Huang's Generalized Control

Huang (1984, 1989) develops a theory where *PRO* is also subsumed under *pro*. He reports that empty matrix subjects are only possible in Chinese if these empty categories are in fact variables bound by a (null or overt) topic. In embedded contexts, however, Chinese allows genuine empty pronominals in subject position. For Huang, these null pronominals are subject to a Generalized Control Rule, given below:¹⁸

¹⁸ The definition in (22) is that of Huang 1989. It differs from the 1984 formulation in that it allows *pro* to be interpreted arbitrarily in sentences like (i):

- (i) [wulun pro shuo shenme], ta dou bu xiangxin.
 no matter say what he all not believe
 'Regardless of what one says, he won't believe it.'

- (22) An empty pronominal is controlled in its control domain (if it has one).
 α is the control domain for β iff it is the minimal category that satisfies both (a) and (b):
 a. α is the lowest S or NP that contains (i) β , or (ii) the minimal maximal category containing β .
 b. α contains a SUBJECT accessible to β .

Huang further assumes that *pro* must be identified, and that the class SUBJECT includes clausal subjects and AGR. Consider the sentences below (in which the Chinese sentences are translations of the English ones):

- (23) a. *ec* came.
 b. John said that *ec* liked Bill.
- (24) a. *ec* lai le.
 b. Zhangsan shuo *ec* hen xihuan Lisi.

In (23a), a pronominal cannot be identified due to the impoverished nature of Agr in English and, in (24a), due to the absence of Agr in Chinese. The sentences are then ungrammatical both in English and Chinese, unless the empty category is taken to be bound by a null discourse topic, an alternative possible only in Chinese. Now consider (23b) and (24b). In English, the empty category is coindexed with Agr, which is not able to identify it. Since Agr is an accessible subject, it makes the embedded clause the control domain for the empty category in subject position. The sentence is then ungrammatical, since the empty category is not controlled in its control domain. In Chinese, on the other hand, since there is no Agr (a crucial assumption in Huang's framework), the control domain of the empty pronoun in (24b) is extended to the matrix clause, so the subject is free to be coindexed with any matrix argument. The sentence is then grammatical in Chinese, provided that the empty subject is controlled by one of the matrix arguments.

Borer (1989) notes that, although appealing for Chinese, Huang's system cannot account for the data in Hebrew, where similar facts hold, as seen above, since the claim that there is no Agr cannot be maintained. Similarly, Huang's Generalized Control would predict BP to be like English, presenting no null subjects, contrary to fact. In chapter 6, I will argue that null subjects in Chinese are identified by A'-binding, as in BP.

Turning now to null objects in Chinese, Huang proposes that the empty categories in object positions are never *pro*, since his generalized control rule would force these pronominals to be identified by the subject of their own clause, leading to a principle B violation. Empty categories in object position are then variables bound by a zero-topic, or otherwise A'-bound. As Huang (1984) puts it, "what is relevant is not that such an EC must be bound by a topic, but that it must be a variable. An EC may be a variable by being

bound by a topic, or by being relativized or otherwise A'-bound." It is crucial, then, in Huang's analysis, to assume the functional definition of empty categories proposed by Chomsky (1982). This is because of the fact that, even if a null object is *pro* at D-structure, that empty category will be a variable (bound by a base-generated null topic) at LF, thus not being subject to the Generalized Control Rule. The functional definition of empty categories, however, has been criticized by many (cf. Brody (1984), Lasnik (1985), among others) leading Huang to modify his original account and propose, in Huang 1991, that null objects in Chinese are null epithets (cf. Lasnik 1991). These proposals will be discussed in chapter 3. It is interesting to note that Huang's analysis for null objects is very similar to the one defended in this work, except that I will be assuming null objects to be intrinsically marked by a [+pronominal] feature. In both analyses, null objects must end up being A'-bound. Chapter 6 will, then, attempt to subsume null objects in Chinese under the analysis presented for BP in chapter 3.

1.6. Summary

This section showed that BP data is not accounted for by any of the *pro*-drop theories which relate null subjects with agreement. However, this is not an indication that all such analyses are incorrect. For instance, the relation between "rich" agreement and null subjects is clear in many languages, and I do not intend to deny such a correlation. However, it is clear that having "rich" inflection is not the only way in which a language will license and identify null subjects. As discussed above, some languages identify *pro* not by virtue of having "rich" inflection but by having an agreement which is anaphoric. In this light, it may very well be the case that BP has an alternative strategy to identify null subjects, which does not negate the correlation between null subjects and "rich" agreement in other languages. The relation between overt verb movement and null subjects, exploited by Rohrbacher (1994), Speas (1994) and Alexiadou and Anagnostopoulou (1998) also seems to hold in more languages than would be expected if the two phenomena were not somehow linked. In the next section, I will investigate verb movement in BP. Once again, such an investigation is necessary in order to clarify the nature of the alternative strategy used in BP to identify null subjects.

2. Verb Movement

Since Pollock (1989), the paradigm in (25) has been taken as an argument for the claim that finite verbs in French are moved out of VP to some functional head, while the verb in English does not move (as high, at least):

- (25) a. Jean embrasse souvent Mary.
 b. John often kisses Mary.

The fact that the order SUBJ - ADV - VERB is the most natural word order in BP seems to indicate that the verb in this language, like in English, does not move as high as in French; however, having a finite verb preceding the adverb is also usually possible:

- (26) a. O João raramente / sempre corre.
 João rarely / always runs
 b. O João corre raramente / sempre.
 João runs rarely / always

If we take the phrase structure from Belletti 1990, the optionality in (26) can be explained by assuming that the adverb can be adjoined either to VP or to the immediately higher functional projection AspP. Assuming also that the verb in BP moves to the head Asp, when the adverb is adjoined to AspP, the verb would follow the adverb; when the adverb is adjoined to VP, the verb would precede the adverb.¹⁹ The sentences in (26) would then indicate that finite verbs in BP leave the VP but do not move as high as the verbs in French. But how reliable is such a conclusion? In languages such as Italian and Spanish, of which it is safe to say that the verb moves as high as in French, the order SUBJ - ADV - VERB is also possible:

- (27) a. Gianni spesso sbaglia.
 Gianni often is mistaken
 b. Juan siempre come manzanas.
 Juan always eats apples

According to Belletti (1990), the adverb in (27a) has been topicalized and the subject has been dislocated further to its left. This analysis is plausible for Italian, in view of the fact that an adverb in that position prevents the extraction of other constituents. The logic of the argument is as follows: since dislocated constituents in Italian give rise to minimality effects (i.e. they prevent the extraction of wh-elements, as seen, for instance, in (28a, b)), then the presence of a topicalized adverb is also expected to prevent wh-movement (28c, d):

- (28) a. Penso che quel libro Gianni lo regalerà a sua figlia.

¹⁹ Assuming different positions where the adverb can be engendered is not a subterfuge to avoid the problem at hand. It is sensible in that it explains different semantic interpretations that an adverb may assume when in one position or the other. In (ia), for instance, the adverb modifies the time that João took to start the action of running to the bathroom and not the manner in which he ran, as in (ib):

- (i) a. O João rapidamente correu pro banheiro.
 b. O João correu rapidamente pro banheiro
 João (quickly) run (quickly) to the bathroom

- (I) think that that book Gianni will give it to his daughter
- b. *?A chi pensi che quel libro Gianni lo regalerà?
to whom do you think that that book Gianni will give it?
- c. *?Con chi dicevi che Gianni spesso parla?
to whom you said that Gianni often talks
- d. *?È a Maria che Gianni spesso parla.
it is to Maria that Gianni often talks

However, translating (28c, d) into either Spanish or BP results in perfectly grammatical sentences. In this way, even if the order SUBJ - ADV - VERB can be explained in Italian by topicalization of the adverb, the argument that verbs in BP are not moved to the highest maximal projection based on (26) loses strength since we do not want to conclude that the same happens in Spanish as well. Drawing any conclusion from the placement of that class of adverbs, then, seems unwarranted. However, there is a class of adverbs which seems to have a more consistent placement with respect to finite verbs: those are ‘lower adverbs’ like *já* ‘already’, *completamente* ‘completely’, *bem* ‘well’, etc., which are argued by Cinque (1996) to occupy a fixed position. In BP, finite verbs consistently appear to the right of *já* and to the left of *completamente* and *bem*. Crucially, placing *já* to the right of the verb is always ungrammatical in BP. In other Romance languages, however, the order ‘verb already’ is always possible (even if marked, in some cases). The sentences in (29), then, contrast with those in (30):

- | | | |
|------|---|------------|
| (29) | a. A Maria já não come nada, não devia fazer dieta.
Maria already not eats anything, she shouldn't be in a diet. | (√BP, √EP) |
| | b. A Maria já tinha comido.
Maria already had eaten | (√BP, √EP) |
| (30) | a. A Maria não come já nada, não devia fazer dieta. | (*BP, √EP) |
| | b. A Maria tinha já comido. | (*BP, √EP) |
| | c. Non mangia già niente
(she) not eats already anything | (Italian) |
| | d. Non hanno già mangiato.
(she) not has already eaten | (Italian) |

Assuming that the adverb *já* has a fixed position, as argued by Cinque, the facts in (29) and (30) do seem to indicate that the verb in BP does not raise as high as in EP or Italian.

Another way used by Pollock to show that finite verbs in French are moved to a higher position than verbs in English involves possible orders between floating quantifiers,

negative elements and the verb. Adopting Sportiche's 1988 theory in which subjects are generated inside VP and then moved, possibly leaving a quantifier behind, the contrast in (31) seems to indicate that the verb has moved to the highest functional head in French, but not in English:

- (31) a. Les enfants (*tous) ont (tous) vu ce film.
 b. My friends (all) love (*all) Mary.

Once again, the first impression is that BP behaves like English, in that it allows a floating quantifier to intervene between the subject and the verb:²⁰

- (32) a. (Todos) os caras (todos) viajaram (*todos).
 (all) the guys (all) traveled (*all).
 b. (Todos) os caras (todos) amam (*todos) a Maria.
 (all) the guys (all) love (*all) Maria
 c. (Todos) os caras (todos) tinham (?todos) viajado (*todos).
 (all) the guys (all) had (?all) traveled (*all)
 d. (Todos) os caras (todos) tinham (?todos) amado (*todos) a Maria.
 (all) the guys (all) had (?all) loved (*all) Maria

Even if one could explain the fact that a floating quantifier is possible (with varying degrees of grammaticality, depending on the speaker) following an auxiliary (in (32c, d)), concluding that BP is like English based on the possibility of having a floating quantifier intervening between the subject and a finite verb would be premature. This is because BP seems to allow the order NP-quantifier inside the noun phrase, so whatever the sentences in (32) say about verb movement has to be taken with a bit of precaution:

- (33) a. Eu vou convidar todos os caras.
 b. Eu vou convidar os caras todos.
 I'm going to invite (all) the guys (all)

Turning now to negation, a similar argument can be constructed. Assuming that *pas* and *not* fill the Spec NegP position, Pollock argued that finite verbs in French are moved past NegP, while in English this does not occur:

- (34) a. Jean (ne) cours pas.
 b. *Jean (ne) pas cours.
 c. John does not run.
 d. *John runs not.

²⁰ The following examples are taken from Figueiredo-Silva (1994) but I express my own judgments here, which are slightly different from hers.

It is commonly assumed that Italian (cf. Belletti 1990) behaves in the same way as French, with the exception that a negative adverb such as *pas* is never obligatory. So, negative adverbs, when present in Italian, occupy the same position as in French, as seen below:

- (35) Gianni non legge niente.
Gianni neg reads nothing

The argument here is two-fold: the negative particle *non* is a clitic and the complex “clitic+verb” moves above NegP, since *niente* supposedly occupies the Spec position of that maximal projection. BP seems to behave much like Italian in the relevant respects. A negative adverb is not required but, when present, must be licensed by a negative element (either sentential negation or a negative quantifier, but not both):²¹

- (36) a. O João não lê.
a'. Gianni non legge.
Jonh not reads
b. O João *(não) lê nada.
b'. Gianni *(non) legge niente.
John not reads nothing
c. Ninguém *(não) lê nada.
c'. Nessuno (*non) legge niente.
nobody (*not) reads nothing

While the clitic character of *non* seems clear in Italian, there has been a lot of debate about *não* in BP. Figueiredo Silva (1994) defends the hypothesis that BP has a clitic *não* which can be homophonous to the *não* that can appear in isolation (as an answer to a yes/no question, for instance). The main argument for such a claim is that the negative particle in (36) is usually deaccented, being pronounced /nu/. On the other hand, as an answer to a yes/no question, the deaccented /nu/ is impossible, the only grammatical possibility being the stress bearing /n↔w/. The problem with assuming that *não* is a clitic in (36), which is acknowledged by Figueiredo Silva, is that it is possible to stress the negative particle in the sentences in (36). In fact, the negative particle may even bear contrastive stress, arguing against treating it as a clitic. She assumes that contrastive stress falls on the complex *não*+verb as in (37) and sustains that *não*, pronounced /nu/, should still be treated as a clitic:

- (37) Ele NAO VAI aparecer.

²¹ These examples are also taken from Figueiredo Silva (1994).

he will not show up

However, the fact that *não* can bear stress is not the only problem for assimilating BP negation with the Italian counterpart. Unlike Italian, adverbs such as *nunca* ‘never’ in (38a) appear in the same position where adverbs like *sempre* ‘always’ would appear, contrasting with (38b):²²

- (38) a. O João nunca/sempre sai de casa.
 João never/always lives home
 b. O João não sai de casa nunca
 João not leaves home never
 c. *O João sai de casa sempre.
 João leaves home always

This fact casts serious doubts on the assumption that negative adverbs occupy the Spec Neg position, an assumption that has to be relativized anyway, even for Italian, as seen in footnote 17. The sentences in (38) show that negative adverbs, at least in BP, may occupy the same position as other adverbs, and therefore do not provide a conclusive argument for verb movement. One more piece of evidence we may add to the discussion is the fact that double negation is always possible, although not very common in the dialect we have been describing (the one spoken in the Southeast of Brazil). Although not very common, (39) is grammatical in the dialect in question²³ and is actually the predominant form in Northern dialects:

- (39) Eu não quero isso não.
 I not want this not

If we suppose that the second instance of negation sits in the Spec of NegP, it follows not only that *não* does have a clitic counterpart which is raised with the verb past the Neg projection but also that objects are moved overtly and that AgrOP must be structurally

²² Besides this further complication of BP, assimilating Italian (and BP) to French is problematic in that it must be assumed that negative adverbs can not only occupy the Spec Neg but also lower positions, which Belletti and Figueiredo Silva assume to be the AspP adjoined position and a right dislocated position:

- | | |
|---|---------|
| (i) a. O João não tem (mais) falado (mais) disso (mais) | BP |
| b. Gianni non ha (ancora) parlato (ancora) de questo (ancora) | Italian |
| John not has (anymore) spoken (anymore) about this (anymore) | |

²³ Double negation is also present in the speech of children, even the ones whose parents speak the dialect that does not normally contain it. Sentence (i) is taken from the Childes database from the speech of a 22 month-old child being raised in São Paulo by parents who are also not from the North of the country:

- (i) Não foi eu não.
 not was I not

higher than NegP. Although this view is supported by the fact that the higher *não* cannot be stressed when the second negation is present, it is still puzzling why it can be stressed otherwise. Moreover, there seem to be scarce arguments in favor of postulating either overt object movement or placement of AgrOP above NegP.

Let's then suppose that the verb only moves to (i.e. adjoins to the head of) AspP (since it must leave the VP, as concluded with respect to adverb placement orders). In this configuration, negation remains a separate head, being able to receive stress, but it is predicted that an adverb could possibly intervene between the negation and the verb when the adverb itself is adjoined to AspP. Such a prediction seems to be false, but that may be due to some other reason, since in English the order S Neg Adv V also does not occur with most adverbs:

- (40) a. *O João não raramente corre.
 b. *John does not rarely run.

Summarizing, the possibility of stressing the negative particle seems to indicate that the verb stays below NegP. Under this view, the possibility of having double negation seems problematic, but the construction in (39) with double negation is problematic even if long verb movement is assumed. Zanuttini (1997) argues that there are many structural positions for sentential negation (NegPs) and that languages may use more than one of such projections. In this case, double negation would not be a problem for the claim that the verb does not raise to the NegP located in INFL.

To conclude this section, I do not think the issue of verb movement in BP can be resolved solely on the basis of adverb placement, floating quantifiers and negation. The data is inconclusive. However, it is worth noting that all the data (especially the adverb placement data) is amenable to an analysis where the verb in BP leaves the VP but does not reach the highest INFL projection. In fact, in the next chapter, I will argue that the loss of long verb movement explains the loss of post-verbal subjects in BP.

3. Minimalist Endeavors

I have argued that the grammaticality of null subjects in BP is not fully explained if null subjects depend on some property of the Agr head or of verbal paradigms. In this section, then, I will discuss two recent theories that disassociate null subjects and agreement.

Departing from Bošković (1994), who argued that movement into thematic positions is a legal (grammatical) operation, Hornstein (1999) proposed an analysis of Control in

which a nominal element, i.e. a DP, moves from the subject position of a non-finite clause to a thematic position related to a verb of a higher clause and from there to a higher subject or object position. This analysis of Control was extended to finite clauses in BP by Ferreira (1999) and used by Rodrigues (1999) as a starting point to explain the same facts.

3.1. Hornstein's Control

Hornstein (1999) argues that Obligatory Control (OC) *PRO* is identical to NP-trace in that it is simply the residue of movement. Besides the "usual" minimalist assumptions (cf. Chomsky 1993, 1995), his analysis contains the following basic ingredients:

- (41)
- a. θ -roles are features on verbs.
 - b. Greed is Enlightened Self-Interest (as in Lasnik 1995).
 - c. A D/NP "receives" a θ -role by checking a θ -feature of a verbal/predicative phrase that it merges with.
 - d. There is no upper limit on the number of θ -roles a chain can have.
 - e. Sideward movement is permitted.

According to the author, the assumptions in (41) suffice to accommodate OC in terms of movement, explaining many of its properties and greatly simplifying Government and Binding (GB) analyses. The *PRO* module in GB had two primary functions. It designated the controller and determined how *PRO* was to be interpreted in a given configuration. The latter function of the *PRO* module is no longer required if Control is analyzed as movement, since all the properties in OC follow from the fact that *PRO* is an NP-trace. The matter of how the controller is determined was usually described by the Minimal Distance Principle (MDP) of Rosenbaum 1967. Its effect was to designate NP_i the controller in the configurations in (42):

- (42)
- a. NP_i [V [PRO...]]
 - b. NP [V NP_i [PRO...]]

In other words, the MDP picks the closest c-commanding potential antecedent as the controller: the subject in (42a) but the object in (42b). The analysis of OC as movement in the Minimalist framework will then subsume the MDP to the Minimal Link Condition. To exemplify how the analysis works, consider the derivations of sentences representing structures (42a) (in (43)) and (42b) (in (44)) below:

- (43)
- a. John hopes to leave.
 - b. [_{IP} John [_{VP} John [hopes [_{IP} John to [_{VP} John leave]]]]]

The derivation begins with *John* merging with *leave*, thereby checking the verb's θ -role. *To* merges with the VP, forming IP. *John* is then moved to [Spec IP] to check a D-feature of I. Since the embedded I is non-finite, the Case feature of *John* is not checked. After the matrix verb joins the structure, *John* raises again to check the external θ -feature of *hope*. Since the DP assumes a θ -role every time it checks a θ -feature from a verb, *John* now has the external θ -role of both *leave* and *hope* and it is interpreted as being the "leaver" as well as the "hoper." *John* is raised once more to the matrix [Spec IP] and checks the D-feature of matrix I. In this position, the Case feature of *John* is also checked. On the assumption that *John* entered the derivation with nominative Case features, the derivation converges.

- (44) a. John persuaded Harry to leave.
 b. [_{IP2} John [_I past [_{vP} John [_{v+}persuaded [_{VP2} Harry persuaded [_{IP1} Harry [to [_{VP1} Harry leave]]]]]]]

Now for the derivation in (44b). *Harry* merges with *leave*, checking its θ -role. After *to* is merged, *Harry* moves to [Spec IP₁] to check the D-feature (EPP) of the embedded clause. Its Case feature is not checked in that position. Note that this move violates Procrastinate, since *John* could have been inserted in that position. However, if *John* is inserted in [Spec IP₁] the derivation does not converge. I will come back to this after describing the rest of the derivation. The verb *persuade* is merged with IP₁, checking its propositional θ -role. *Harry* moves, violating Procrastinate again, and checks another θ -role of *persuade*. *Persuade* is then moved and merged with *v*. *John* is selected from the array and merged, checking the last θ -role of *persuade*. Past tense features merge with *vP* forming IP₂ and *John* moves to [Spec IP₂]. The D-feature and nominative Case of T are checked, as are the Case features of *John*. At LF, *Harry* moves and forms an outer [Spec *vP*], checking its Case feature and that of *v+persuade*. The derivation converges, assuming that *Harry* has been inserted with accusative Case features; otherwise it crashes.

Turning to the two instances where Procrastinate is violated, consider the Case features of the two DPs. *John* could be inserted in [Spec IP₁] if its features are accusative. However, if *John* and *Harry* are inserted with accusative Case, either the features on *John* or those on *Harry* cannot be checked, since only one accusative head is available: *v+persuade*. If the features on *Harry* are nominative, the Minimal Link Condition will prevent movement of *Harry* across *John*:

- (45) b. [_{IP2} Harry [_I past [John [_{vP} John [_{v+}persuaded [_{VP2} John persuaded [_{IP1} John [to [_{VP1} Harry leave]]]]]]]

The derivation in (45) does not violate Procrastinate, but to check nominative Case requires moving *Harry* to [Spec IP₂]. This crosses several copies of *John*, all of which are closer. The move violates the MLC and thus is illicit.

The other option is to insert *John* with nominative Case and *Harry* with accusative. *John* is merged into [Spec IP₁], instead of moving *Harry* to that position, in accordance with Procrastinate. *John* then raises through the two θ -positions of *persuade* and *v* up to [Spec IP₂], where it checks nominative, as well as ϕ -features and the D-feature of T. The accusative Case of *Harry* could then be checked by moving it to the outer [Spec *v*P]:

- (46) b. [_{IP2} John [_I past [Harry [_{VP} John [_{V+}persuaded [_{VP2} John persuaded [_{IP1} John [to [_{VP1} Harry leave]]]]]]]]

The derivation in (46) does not violate Procrastinate, but violates the MLC (according to Hornstein) when *Harry* is moved to the outer [Spec *v*P] over copies of *John*. The only convergent derivation, then, is the one seen in (44), where *Harry* is inserted with accusative features, *John* with nominative, and Procrastinate is violated twice.

Summarizing, Hornstein derives a generalization that, with double object verbs, object control should always take place. Subject control over an object violates the MLC, which he redefines as a markedness condition in order to explain the existence of verbs like *promise*. Although this analysis is appealing in many respects, I agree with Landau (1999) that subject control over an object, although not that common, “is too robust to dismiss.” In any case, I have assumed the analysis of Control presented by Borer 1989 (or its updated version: Landau 1999), because these analyses explain the grammaticality of null subjects in finite clauses in Hebrew (in those contexts where agreement is poor). The discussion offered here obviously does not settle the matter of Control. This brief introduction to Hornstein’s analysis is meant to provide enough elements to discuss analyses that try to explain the null subject phenomenon in BP in terms of movement, a task I undertake immediately below.

3.2. Ferreira 1999

The null subject phenomenon in BP has some characteristics which are shared by OC. Notably, both null subjects of finite clauses (in BP) and the subject of non-finite clauses (generally) must have an antecedent which obeys some locality requirement (i.e. it must be found in the closest higher clause). It is then possible to try to conflate the two phenomena. Suppose, for instance, that finite embedded clauses in BP, for some reason, behaved like non-finite ones. In that case, following Hornstein’s analysis, subjects of finite clauses would also be able to be moved to higher thematic positions, like the subject of non-finite clauses. All the similarities between the two phenomena would follow. In

particular, the fact that null subjects in BP require a local antecedent would be explained. The problem with this reasoning is that, as seen above, Hornstein's analysis predicts object control to be the unmarked choice (and it is, in fact, problematic when faced with the fact that there are verbs like *promise*). Therefore, assimilating the null subject (of finite clauses) in BP with Control as viewed by Hornstein would predict null subjects to be object-oriented, like "controlled" subjects are. As seen in the introduction of this work, however, null subjects in BP take subjects but not objects as their antecedents (in the unmarked case):

- (47) O Paulo₁ convenceu o Pedro₂ que *pro*_{1/*2} ganhou na loteria.
 Paulo convinced Pedro that (he) won the lottery

It seems clear, then, that Hornstein's analysis cannot be applied straightforwardly to explain null subjects of finite clauses in BP. Notwithstanding, such an analysis was applied to BP by Ferreira (1999).

Despite the existence of languages like Chinese, in which null pronouns appear as arguments in contexts which lack any verbal agreement, Ferreira assumes that there is a strong correlation between agreement morphology and the licensing of null subjects. In that case, he continues, the loss of 2nd person inflection and the subsequent weakening of agreement in BP leads to the prediction that null pronouns will cease to be licensed in the subject position in this language. He then affirms that such a prediction is confirmed by the decrease in the occurrence of null subjects in matrix clauses in BP (see chapter 2). To explain that null subjects can still occur in embedded contexts, Ferreira takes the route that I considered, in the introduction, not to be viable: he assumes that the embedded and the matrix Tense projections can be essentially different. Following Chomsky 1998, he assumes that the head T must have a complete set of ϕ -features in order to check off a Case feature of a DP in its specifier. Although a T head with an incomplete set of ϕ -features attracts a DP to its specifier, it cannot check a Case feature off the DP. A DP that had all of its ϕ -features (and thus also the Case feature) checked off is frozen in that position. If, however, the ϕ -features (and Case) of a DP have not been checked off by the attracting head, that DP may still be attracted by another head that can check these features. Following Hornstein, he assumes that θ -roles are assigned to DPs when those DPs check a thematic feature of a predicate. Therefore, for Ferreira, the Tense head of non-finite clauses always has an incomplete set of ϕ -features, giving rise to Control in Hornstein's sense (i.e. raising). Ferreira then assumes that, in BP, the loss of rich agreement caused finite Tense heads to (optionally) have an incomplete set of ϕ -features. More specifically, he argues that BP, like French, suffered changes in the verbal paradigm which made the licensing of null subjects impossible. While French started filling the subject position with overt pronouns, BP allowed for another option. In Brazil, embedded (finite) Ts started being analyzed as having incomplete sets of ϕ -features. Matrix Ts, on

the other hand, still have a complete set since, otherwise, nominative case could never be checked. Embedded Ts must also be allowed to have complete sets of ϕ -features in BP whenever the embedded subject is overt. In summary, Ferreira argues that, whenever the embedded subject is null (in BP), the subject is not a null pronoun but a trace of movement (raising) of the matrix subject. This is only possible because the embedded T, in this case, carries an incomplete set of ϕ -features, leaving the Case feature of the subject unchecked. In these cases, then, the embedded T head is essentially different from the matrix T head. In particular, the embedded T associated with a null subject is like the T which occurs in non-finite clauses, despite the finite morphology on the verb.

The derivation of a sentence containing a null subject in BP would proceed in much the same way as a sentence containing what is usually called a “controlled *PRO*” in Hornstein’s analysis, as shown in (48) (details omitted):

- (48) a. O João disse que *e* comprou um carro.
 J. said that (he) bought a car
 b. [_{TP} o João T [_{VP} o João disse [_{CP} que [_{TP} o João T [_{VP} o João comprou um carro]]]]]

The subject *o João*, in (48), is merged with the VP *comprou um carro*, checking the external thematic feature of the verb *comprar* ‘to buy’. After T is merged in the structure, T attracts the subject to its specifier position in order to check the uninterpretable ϕ -features of T. If those features match the features of the DP, the ϕ -features of T are deleted. If T has a complete set of ϕ -features, then the Case feature of the DP is also deleted and the DP is frozen in that position.²⁴ This derivation crashes, since there is no other element in the array able to check the uninterpretable features of the matrix verb. However, if the set of ϕ -features of the embedded T is incomplete, then the Case feature of the DP is not deleted and the derivation continues. The matrix verb is then merged into the structure. It has a thematic feature to be checked so it attracts the embedded subject, which acquires a second θ -role. Matrix T is then merged. It also has uninterpretable features to be checked, so it attracts the closest DP. If that T has an incomplete set of ϕ -features, the Case feature of the DP will remain, making the derivation crash. If the matrix T has a complete set of features, it will check its own features and also the Case feature of the DP in its specifier. The resulting structure is (48b), which converges, since all uninterpretable features have been checked off. Since all but the highest copy are deleted in FF, the output of the derivation is sentence (48a).

The problem with the analysis described above is that the derivation of (49a) below would also proceed as the derivation of the control sentences discussed by Hornstein, i.e. as in (49b):

²⁴ The ϕ -features of the DP, although checked, are not deleted since they are interpretable.

- (49) a. O Paulo₁ convenceu o Pedro₂ que *pro*_{1/*2} ganhou na loteria.
 Paulo convinced Pedro that (he) won the lottery
 . [TP o Paulo T [_{vP} o Paulo v+convenceu [_{VP} o Pedro convenceu [_{CP} que [TP o Pedro T [_{vP} o Pedro v+ganhou na loteria]]]]]]

The derivation in (49b), however, cannot be the derivation of sentence (49a) because (49a) is necessarily interpreted as taking the matrix subject, not the matrix object, as the antecedent of the null embedded subject. Obviously, since Ferreira's analysis cannot account for the fact that the null subject in BP is normally subject-oriented, it will also have problems explaining more elaborate data like the paradigm below:

- (50) a. o Pedro₂, O Paulo₁ convenceu *e* que *pro*_{1/2} ganhou na loteria.
 Pedro Paulo convinced that (he) won the lottery
 b. Quem₂ que o Paulo₁ convenceu *t*₂ que *pro*_{*1/2} ganhou na loteria.
 who that Paulo convinced that (he) won the lottery
 c. Quem₂ que todo aluno₁ convenceu *t*₂ que *pro*_{1/2} ganhou na loteria.
 who that every student convinced that (he) won the lottery

As seen in the introduction, null subjects take a matrix object as its antecedent if that object has been overtly A'-moved. Since the topic in (50a) may have been either moved or base-generated in its surface position, the sentence is ambiguous with respect to the interpretation of the null subject. In (50b), on the other hand, the wh-phrase has necessarily moved from object position so the wh-phrase is the only possible antecedent for the null subject. In (50c), however, although the wh-phrase has been overtly moved, the matrix subject is a quantified phrase which may be also moved at LF by QR, making the sentence ambiguous again. An analysis of null subjects based on movement of the subject will hardly account for this paradigm.

Sentence (50a) provides an even further problem for Ferreira's analysis. The topic in (50a) may have been base-generated in its surface position, giving rise to the reading where the matrix subject is the antecedent of the null embedded subject. When the topic is base-generated, then, what will be the category occupying the matrix object position of (50a), if null pronominal categories are not admitted in contexts where agreement is poor? The same question arises with respect to sentences like (51):

- (51) Esse filme₁, eu conheço a mulher que dirigiu *ec*₁.
 this film I know the woman that directed (it)

In (51), the topic is necessarily base-generated in its surface position, since it cannot have moved from inside a (strong) island.²⁵ If null pronouns are only allowed in contexts where there is rich agreement, what is the category occupying the object position inside the relative clause in (51)? If a null pronoun occupies the position associated with the topic in (51) and (50a) (on the reading where the matrix subject is the antecedent for the null subject), which is the only possible alternative as far as I can see, then Ferreira's claim that null pronominal subjects no longer exist in BP becomes suspect. In fact, the idea that null pronouns can only appear in contexts where there is rich agreement is proved false if a null pronoun occupies the position related to the topic in (51) and (50a). Note that it does not make a lot of sense to say that null pronominal subjects disappeared from BP because subject-verb agreement became poor but null pronominal objects continue to exist although there is no object-verb agreement. In this way, the existence of base-generated topics in BP, which seems to be indisputable, denies two of the premises of Ferreira's analysis (i.e. that there are no null pronominal arguments in BP and also that null pronominals can only appear in rich agreement contexts).

3.3. Rodrigues 1999

Rodrigues 1999 also presents a raising analysis for null subjects in BP. Her main objective is to account for the following paradigm:

- | | | |
|------|--|---------|
| (52) | a. <i>e</i> ha telefonato. | Italian |
| | b. * <i>e</i> telefonou.
(s/he) phoned | BP |
| | c. Gianni ₁ dice che <i>e</i> _{1/2} ha telefonato. | Italian |
| | d. João ₁ disse que <i>e</i> _{1/*2} telefonou.
John said that (he) phoned | BP |

In Italian and other Romance languages, but not in BP, null subjects are grammatical in matrix clauses (52a, b). Furthermore, even in embedded contexts where null subjects are grammatical in all these languages, there is a difference between the former and BP. In the latter, the null subject necessarily refers to the matrix subject and cannot be interpreted as referring to some other person (52c, d).²⁶

²⁵ Ferreira assumes that movement out of adjunct islands is possible through "sideward movement" as described in Nunes 1995 to derive the fact that null subjects are allowed to appear inside adjunct islands. Sideward movement, however, must not be possible out of relative clauses because null subjects are not possible inside that kind of island (see chapter 3 for discussion).

²⁶ Although Rodrigues does not stress this point, this is true only in the "out of the blue context" (cf. chapter 2).

To explain this data, Rodrigues assumes that the agreement morpheme in rich agreement languages like Italian contains ϕ -features which are interpretable. Agreement in BP, since it has become poor, does not contain ϕ -features. She also assumes that *pro* is semantically deficient (in the spirit of Cardinaletti and Starke 1994), containing a Case feature but no ϕ -features (or an incomplete set of ϕ -features).²⁷ Her idea is that, in (52a), *pro* is attracted to the specifier position of T, satisfying the EPP feature of T and checking its own Case feature. *Pro*, however, cannot check the uninterpretable ϕ -features of T, since *pro* itself lacks those features. The ϕ -features of T are then checked off by the agreement morpheme on the verb, either by movement of the verb to T or by the application of the operation Agree. This set of assumptions explains why (52b) is ungrammatical. *Pro* checks its Case feature and the EPP feature of T but the ϕ -features of T remain unchecked, since agreement in BP does not contain those features (or at least the person feature).

Consider now (52c). The ambiguity in this sentence (with respect to the interpretation of the null subject in the embedded clause) is explained by two possible derivations. In one derivation, *pro* checks its Case feature in [Spec TP] of the embedded clause and the ϕ -features of T are checked off by the agreement morpheme. The derivation proceeds and *Gianni* is merged to the matrix verb, moving to matrix [Spec TP] after T is merged. *Gianni* checks its own Case feature, the EPP and the ϕ -features of T. The derivation converges and derives the interpretation where *pro* and *Gianni* have distinct reference since they are two separate items in the numeration. Another possible derivation is the following: the VP *ha telefonato* is formed. Then *pro* merges with *Gianni* by adjunction (which does not need to check any feature). The complex *pro-Gianni* is then merged with VP forming ν P. After T joins the structure, *pro-Gianni* is attracted to its specifier position. This checks the EPP feature of T and one of the Case features of the complex *pro-Gianni* which contains two Case features. Since the ϕ -features of *Gianni* also match the ϕ -features of T, those features are checked. The features on T are uninterpretable so they delete. The features on *Gianni*, however, are interpretable and remain active. The matrix verb is then merged. It needs a DP to check its external θ -role (which, following Hornstein, is a feature for Rodrigues). The complex *pro-Gianni* is then moved, forming the matrix ν P. T then joins the structure and attracts *pro-Gianni* to its specifier. The EPP feature is checked. The second Case feature of the complex *pro-Gianni* is also checked. The ϕ -features of *Gianni*, although already checked in the lower clause, are still visible to the computation, so they check the uninterpretable ϕ -features of the matrix T and the derivation converges with the interpretation that *Gianni* said that he himself has phoned. Consider now (52d). Since the agreement morpheme in the embedded clause cannot check the ϕ -features of T, only the

²⁷ The idea that *pro* lacks ϕ -features was firstly used in Modesto 2000 which presents an older version of the analysis presented in chapter 3.

second derivation converges in BP. This explains why the sentence has to be interpreted taking matrix and embedded subjects to be coreferent.

Since Rodrigues assumes that *pro* is still present in BP, she avoids one of the problems raised about Ferreira's analysis. The other problem is that Rodrigues' analysis also seems to imply that null subjects in BP should be object-oriented. This is because it assumes the Minimal Link Condition and other basic ingredients of Hornstein's analysis. In order to explain the fact that null subjects in this language take only matrix subjects as their antecedent (in the unmarked case), Rodrigues speculates that the matrix object position does not c-command the embedded subject position. Specifically, she hypothesizes that complement clauses in BP are actually adjuncts which are adjoined to VP. In this way, the object, which is inside VP, does not c-command into the complement clause, deriving the fact seen in (53a):

- (53) a. O Paulo₁ convenceu o Pedro₂ que $e_{1/*2}$ ganhou na loteria.
 Paulo convinced Pedro that (he) won the lottery
 b. Quem₂ que o Paulo₁ convenceu t_2 que $e_{*1/2}$ ganhou na loteria.
 who that Paulo convinced that (he) won the lottery
 c. O Pedro₂, o Paulo₁ convenceu e_2 que $e_{1/2}$ ganhou na loteria.
 who that Paulo convinced that (he) won the lottery

Although this part of Rodrigues' analysis is not completely worked out, assuming that the embedded clause is in fact adjoined to the matrix VP, she might be able to explain why the matrix object is not a possible antecedent for the null pronoun in (53a). Let us suppose that the complex *pro-Paulo* has been moved to [Spec TP] of the embedded clause. After the embedded clause is formed, the matrix verb is selected from the numeration but not joined to the structure already formed. Instead, the item *Pedro* is selected and merged with the matrix verb, forming VP. If the embedded clause is then adjoined to this VP,²⁸ *Pedro* and *pro-Paulo* will not c-command each other so neither will be closer than the other to targets of movement. After v joins the structure, a DP must be moved to check the θ -role of v +*convencer*. If *Pedro* moves, it will be closer to T when T joins the structure and the derivation will crash because *pro-Paulo* has not checked some of its uninterpretable features. The only convergent derivation, then, is the one in which *pro-Paulo* moves to check the external θ -role of the matrix verb and from there to [Spec TP], deriving the correct interpretation for (53a).

Consider (53b) now. I imagine that Rodrigues would argue that the complex *pro-quem* could be sideward moved (as in Nunes 1995) and merged with the matrix verb to form the

²⁸ I imagine that the complement clause could still check one of the θ -features of the verb even though it has been adjoined to VP.

VP before the adjunct embedded clause is adjoined to that same VP. Since, at a later stage of the derivation, *pro-quem* is moved to [Spec CP], it will c-command both of its copies, deriving a convergent derivation. The problem with that derivation is that it violates Procrastinate. When the matrix verb is taken from the numeration, there is still a DP (*Paulo*) in the numeration which could be merged with the verb to form the VP. Since Merge is more economical than Move, Merge should be the only possible choice. That derivation should derive, thus, only (54) but not (53b):²⁹

(54) Quem₂ convenceu o Paulo₁ que e₂ ganhou na loteria?
 who convinced Paulo that (he) won the lottery

Sentence (53c) presents a similar problem. To derive the interpretation where the topic is the antecedent of the null subject, the complex *pro-Pedro* has to be sideward-moved from the embedded clause to the matrix object position (being moved to topic position at a later stage). However, at that point, the lexical item *Paulo* is still available in the numeration and could be merged with the matrix verb to satisfy the θ -requirements of the latter. Since Merge is more economical than Move, it is predicted that (53c) should have only the reading where the matrix subject (not the topic) is the antecedent of the null subject, contrary to fact.

Note that I have not discussed the plausibility of taking the complement clause to be an adjunct. To make her analysis viable, Rodrigues would have to argue in a compelling way that this is actually the case. However, even if she succeeds in that task, the movement analysis makes wrong predictions, as seen above.

3.4. Summary

I have shown that analyses which try to explain the presence of null subjects in BP through movement are not empirically adequate in that they cannot account for all the data. Since movement seems to be the source of the problems in the analyses reviewed here, it could still be possible that a minimalist analysis using the Agree operation (of Chomsky 1998) would be successful. For instance, the analysis of Control proposed by Landau (1999) could be applied to BP finite clauses. However, as far as I can see, the Agree operation would not be adequate in deriving the subject orientation of null subjects in BP. It would also fail to explain the correlation between A'-movement and the possibility of being interpreted as the antecedent of a null subject. Thus, it can be

²⁹ Note that the derivation which does not violate Procrastinate does not violate the MLC either, so it has to be compared with the derivation intended by Rodrigues in terms of economy. Since the embedded clause is adjoined and its subject position does not c-command nor is c-commanded by the matrix object position, the complex *pro-quem* may move to check the external θ -role of *convencer* without violating the MLC.

concluded that, at this stage of the Minimalist Program, no minimalist analysis would handle the data discussed here.

4. Conclusion

In this chapter, it was shown that most *pro*-drop theories rely, in one way or another, on a certain property of verbal agreement in order to explain the null subject phenomenon. Although what characterizes agreement as rich or poor varies, in all these theories, a language will license null subjects if agreement is rich, but it will not license them if agreement is poor. All these theories run into problems when faced with the BP facts, since null subjects are allowed in some contexts but not in others. It seems that one would have to assume that agreement in BP is poor in matrix contexts but rich in embedded ones, which does not seem to be a viable theoretical explanation. Alternatively, BP could be considered a poor or rich agreement language throughout but then some kind of proviso would have to be made to explain the (un)grammaticality of null subjects in matrix/embedded clauses.

Theories in which null subjects can be licensed by the anaphoric character of Agr, like Borer 1989 (and Landau 1999), also run into problems when faced with the fact that null subjects in BP are subject-oriented, unlike null subjects in Hebrew, and that there seems to be a correlation between A'-movement and the possibility of being interpreted as the antecedent of *pro*.

The conclusion is, then, that the null subject phenomenon in BP is unrelated to agreement altogether. However, I have also argued that null subjects in BP finite clauses cannot be the product of a movement operation because such analyses do not explain the subject orientation of null embedded subjects, nor the relation between A'-movement and being a possible antecedent.

I also investigated verb movement in this chapter, since some of the null subject theories relate the two phenomena. Although the data was inconclusive, I will argue, in the next chapter, that the verb in BP moves out of the VP but does not reach the highest inflectional projection.

Chapter 2

Impoverishment of Agreement and its Consequences

The last chapter showed that BP data raises problems for *pro*-drop theories. If null subjects are identified by a certain property of agreement inflection (or the Agr node), it is expected that a given language either has or does not have such a property. Languages such as BP, where null subjects are identified only in embedded contexts, are not expected to exist. As seen in that chapter, the licensing mechanism of null subjects varies greatly from theory to theory, but identification is related to “richness” of inflection in almost all of them. This chapter will then be devoted to showing that agreement is not related to the identification of null subjects in BP in any way, which indicates that the “strange” behavior of null subjects in this language is due to the fact that it employs an alternative strategy to identify empty categories in subject position (and in other positions, as discussed in chapters 3 and 5).

1. Null subjects in BP are pronominal

The conclusion that null subjects in BP are not identified by agreement is a problem for most *pro*-drop theories if and only if those subjects are pronominal. Take the EP sentence in (1) (from Raposo 1986):

- (01) A Joana viu _ na TV ontem.
Joana saw (it) on TV yesterday

Because Portuguese has no object agreement, the gap in (01) cannot be said to be a pronoun identified by verbal agreement. Following Huang (1982, 1984), Raposo (1986) argues that the gap in (01) is the product of movement of an operator which gets its interpretation from the discourse. (Since Raposo’s analysis is discussed at length in chapter 3, I will not give any of his arguments in favor of such an analysis, assuming, however, that it is correct.)

Since Portuguese (European and Brazilian) allows null topics³⁰, it is interesting to investigate whether the occurrences of null subjects in BP can be explained in the same fashion as null objects in EP. In other words, if BP null subjects are variables left by

³⁰ That EP allows null topics is a consequence of Raposo’s null object analysis. BP has also been taken by many authors to allow null topics, including Pontes 1987, Kato 1989 and Negrão and Viotti 2000.

topicalization of a null topic, the problem of how a null pronoun is identified in the context of weak agreement disappears. This possibility, however, is clearly unavailable in (02b) below, where the empty subject is bound by a quantifier in the higher (matrix) subject position:

- (02) a. O Pedro₁ disse que *ec*₁/*le*₁ ganhou na loto.
 P. said that (he) won the lottery
 b. Ninguém₁ disse que *ec*₁/*le**₁ ganhou na loto.
 Nobody said that (he) won the lottery

Moreover, the interpretation of (02a), where the embedded and the matrix subjects are coreferent, also indicates that that empty category is pronominal, since movement of a zero topic from the embedded subject over the matrix subject position should trigger a strong crossover violation because the higher subject c-commands the variable left by movement of the topic.³¹ If the subject gaps in (02) are neither the product of movement, as seems to be the case, nor anaphoric, since they are free in the domain relevant for the Binding Theory, the gaps must be pronominal. It must be concluded, then, that at least some subject gaps in BP are pronominal; however, it is not the case that all subject gaps will be pronominal, as will be clear below.

2. Agreement in BP is not “rich”

2.1. Quantitative data on BP and EP

Duarte (1995) reports that, in EP, null subjects are the preferred option with every grammatical person. She examined a small corpus of oral language involving 30 EP speakers. Her findings are summarized below:

table 1: Occurrence of null subjects in EP

Person	Null	Total	%
--------	------	-------	---

³¹ Base generation of the topic in the dislocated position (which is always a possibility in Huang’s theory) could solve the problem at hand if the empty category in embedded subject position is *pro* and not a variable. If Strong Crossover violations are due to principle C (binding of a variable by some element in an A-position), and the category related to the base-generated topic is *pro*, no Crossover is expected (since *pro* is only subject to principle B of the Binding Theory). However, if the empty category related to the null topic is *pro*, the problem of how this pronominal is identified in the context of poor agreement remains (and will be addressed in chapter 3). My sole point in the text is that the empty categories in subject position in (2a, b) cannot be variables left by topicalization (or anaphoric traces) and, therefore, must be pronominal.

1 st	334	561	60
direct 2 nd	49	70	70
indirect 2 nd	52	68	77
3 rd	303	417	73

As for BP, Duarte (1993) presents diachronic research based on written theatrical plays covering seven different periods. She finds that until the beginning of the 20th century, the occurrence of null subjects in BP was extremely similar to that in EP (with 75% of null subjects in 1918). However, she found that only 26% of the subjects were null in 1992:

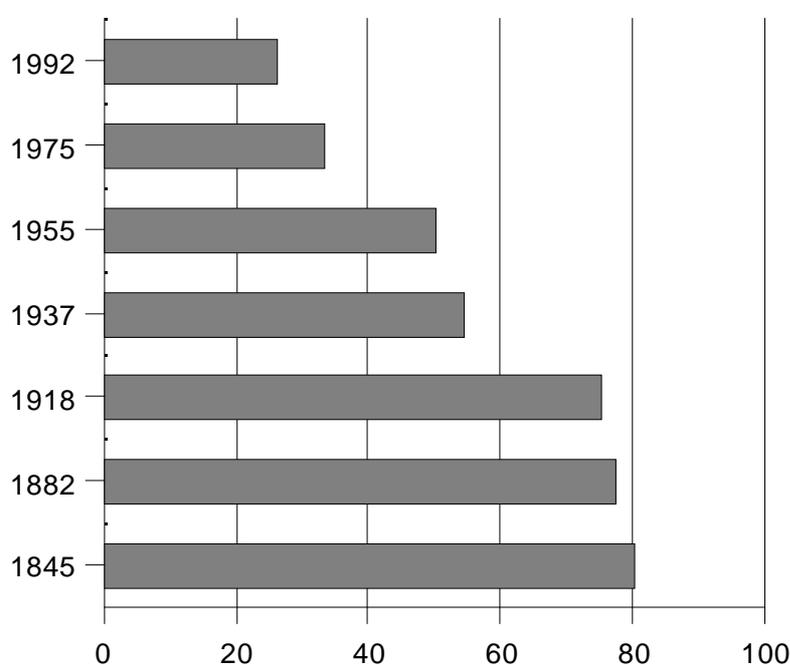
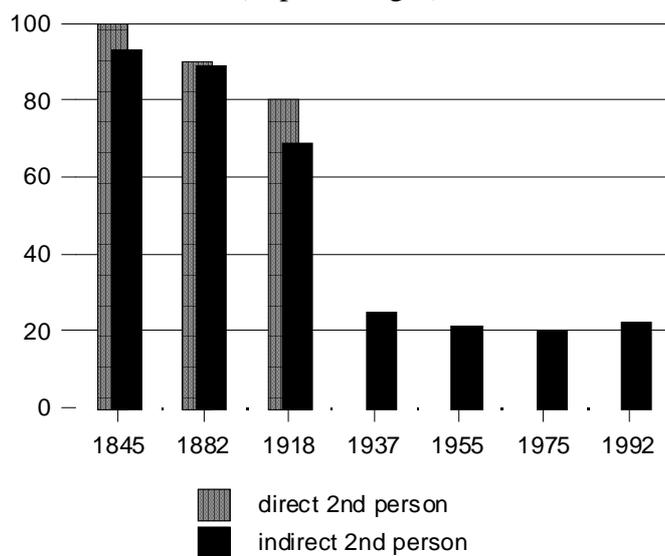


table 2:
Occurrence of
null subjects in
BP through
time (in
percentages)

It is important to note here that, in 1937, BP starts to differ from EP in that the number of null subjects was not much higher than 50%. The actual figure could be much lower than that, considering that written language is always more conservative. There is compelling evidence that this was caused by the loss of second person morphology. Duarte (1993) reports that, after 1918, no instances of direct 2nd person were found and, as soon as the treatment forms completely replaced the pronouns, the decrease in the number

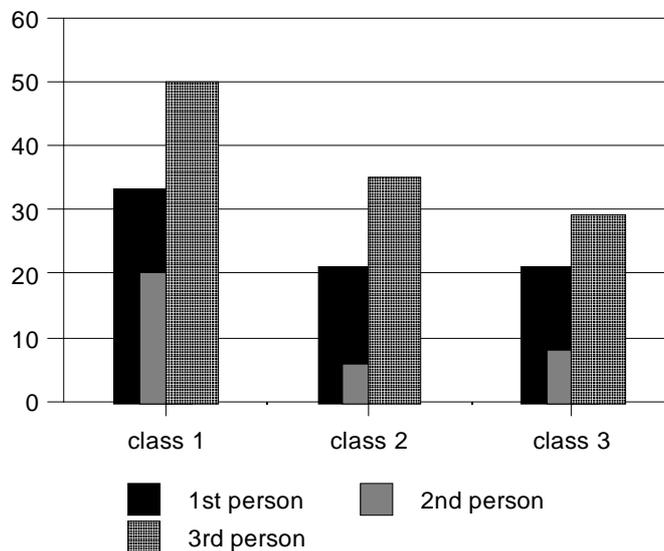
of empty subjects with 2nd person interpretation was striking. This is very visible in the table below:

Table 3: Occurrences of null subjects with 2nd person interpretation in BP through time (in percentages)



Considering now oral language, Duarte (1995) examined recordings from 13 informants from the state of Rio de Janeiro, distributed in 3 classes according to age: class 1 includes people who are from 59 to 74 years old; class 2 from 45 to 53 years old; and class 3 from 25 to 32 years old. Table 4 shows the occurrence of null subjects with definite reference in each of these classes:

table 4: Occurrence of null subjects in BP by age (in percentages)



The table above shows that people in the older group uses more empty subjects than the ones in the younger group, which is expected, since the change has been in progress throughout the 20th century. It also shows that the 3rd person is the least affected (a fact which requires an explanation and will be addressed in chapter 3). But most importantly, it shows that the average of occurrences of empty subjects in BP nowadays (for the younger group) is around 18% of the total subjects with definite reference (a little less than the 26% found in the written corpus, also as expected). Clearly, then, BP cannot be considered on a par with other Romance languages like EP, where the average number of null subjects is around 70% of the total.

As mentioned in chapter 1, this state of affairs led Duarte 1995 to argue that null subjects in BP are residual and bound to disappear from the language. In that chapter, I showed that such a conclusion is mistaken. Null subjects in BP are not bound to disappear. However, if null subjects were identified by agreement in both languages, the difference between the percentage of null subjects in Brazilian and European Portuguese would be unaccounted for. I therefore conclude that the difference between BP and EP is caused by the fact that null subjects are identified by agreement only in the latter language. However, since BP still presents null subjects, there must be an alternative way to identify null subjects in that language.

2.2. More quantitative data: Negrão 1990

Negrão 1990 investigated a corpus containing the oral production of twenty 11-year-old children enrolled in the 5th grade of a public school in the city of São Paulo. Her

findings with respect to the percentage of overt and null subjects were very similar to those reported by Duarte (1995), commented above, but her conclusions were slightly different (see also Negrão and Viotti 2000).

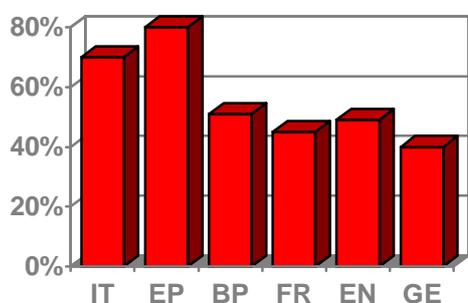
First, Negrão confirms Duarte's finding that 1st person singular is the person which shows the highest percentage of use of overt pronouns: 80.3% versus 19.7% of empty categories. Negrão notes that this is unexpected according to the rich/poor hypothesis, since 1st is the only person that has kept morphological markers able to recover (identify) the subject. Then she notes that 3rd person singular plays no role in the interpretation of the empty pronouns occupying the subject position, so much so that such pronouns can refer to elements that carry features of 1st, 2nd or 3rd persons. However, although 3rd person singular forms of the verb have no markers that can help to recover the person of the subject, the use of 3rd person overt pronouns is not required. In fact, 3rd person plural had the lowest, and 3rd person singular the second lowest frequency of overt pronouns in subject position (53.3% and 58.4% respectively). Negrão then, based on these findings, argues that "the empty pronoun interpretation strategies are independent of verbal inflection...," a conclusion which is supported in this work.

2.3. Evidence from child language data

As seen in the last two sections, both Duarte 1995 and Negrão 1990 point to a difference between BP and other null subject languages, namely, the percentage of overt subjects in BP is much greater than in other, more typical, *pro*-drop languages. This discrepancy also holds when child language data is observed. Simões (2000) reports that BP is like French, English and German, and unlike Italian and EP, with respect to the percentage of null subjects found in child speech. This is summarized in the figure below:³²

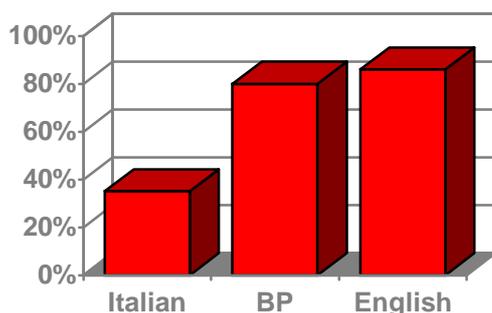
³² The data analyzed by Simões consisted of nine one-hour samples of a two-year old boy's speech production who is a monolingual child acquiring BP as his first language. The child was 2;4 years of age at the first recording session, and the whole sample follows his development until he was 3;0. Data from other languages in table 5 are taken from Valian 1991 for Italian, Faria 1993 for EP, Pierce 1992 for French, Hyams and Wexler 1993 for English and Clahsen 1989 for German. All of the data used in table 5 concerns children in the same age range as the Brazilian child recorded by Simões.

Table 5: Children's percentage of null subjects across languages (from Simões (2000))



One more difference uncovered by Simões is that Brazilian children produce many more pronominal subjects than Italian children. Following a procedure found in Valian (1991), Simões examined the number of pronominal subjects among the total number of overt subjects in her sample. Valian had argued that the measurement of pronominal subjects reveals a difference between *pro*-drop and non *pro*-drop languages, since, in the former, the use of overt pronouns to express coreference must be rather low, due to the option of expressing it through the use of null elements and the fact that null elements are usually preferred in those languages (which is what the Avoid Pronoun Principle (Chomsky 1981) tries to capture). This leads one to expect that non *pro*-drop languages will have a higher percentage of pronominal subjects because overt pronouns are used to establish coreference in the discourse. Valian confirmed this prediction by showing that the number of pronominal subjects in English is much greater than in Italian. Simões then shows that BP behaves like English, not like Italian:

Table 6: Overt pronominal subjects in the early speech of children acquiring Italian, BP and English (from Simões (2000)).



Language acquisition data, then, confirms the hypothesis that BP should be grouped with languages where agreement is “poor,” not “rich.”

2.4. No autonomous reference of subjects

So far, we have argued that (at least some) null subjects in BP are pronominal but that agreement plays no role in their identification. It is important to note, in that respect, that, unlike BP, EP is still a rich agreement language and there is no reason to believe that null subjects are not identified by agreement in that dialect. The difference between the two dialects can be attested to by the contrast between paradigms (03) and (04):

- (03) a. O Pedro₁ disse que *pro*₂ ganhei na loto. (EP)
 Pedro said that (I) won-1st p. the lottery
 b. O Pedro₁ disse que *pro*₂ ganhaste na loto.
 Pedro said that (you) won-2nd p. the lottery
 c. O Pedro₁ disse que *pro*_{1/2} ganhou na loto.³³
 Pedro said that (s/he) won-3rd p. the lottery
- (04) a. *O Pedro₁ disse que *pro*₂ ganhei na loto. (BP)
 Pedro said that (I) won-1st p. the lottery
 b. *O Pedro₁ disse que *pro*₂ ganhou na loto.
 Pedro said that (you) won-2nd p. the lottery
 c. O Pedro₁ disse que *pro*_{1/*2} ganhou na loto.
 Pedro said that (s/he) won-3rd p. the lottery

The data in (04) indicates that null subjects in BP cannot be autonomous in reference, unlike their counterparts in EP (which was noted by Figueiredo Silva 1994).

The ungrammaticality of (04a, b), contrasting with the EP sentences in (03a, b), provides strong evidence that agreement in BP cannot be considered “rich.” As for the contrast between (03c) and (04c), as noted in footnote 4, in context-neutral situations, i.e. in “out of the blue” contexts, the EP sentence can be interpreted as saying that “Pedro thinks that Paulo won the lottery,” if Paulo is salient from the situational context (as when the speaker is looking at a photo of Paulo) or if the speaker is intentionally pointing to Paulo. The BP sentence in (04c), however, cannot have that interpretation in either of those situations. Even if the speaker is looking at a photo or intentionally pointing to Paulo, the BP sentence cannot be interpreted in that manner. Sentence (04c) has to be interpreted as taking the embedded null subject to have the same referent as the matrix subject.

³³ The reading where the embedded and the matrix subjects are coreferent is preferred in (3c). However, the disjoint reference reading is still available in EP, specially if the referent of the embedded null pronoun is salient from the situational context. What really matters to the discussion here is that the same reading is ungrammatical in BP in the same contexts where it would be acceptable in EP (i.e. even if the referent of the null subject is salient from the situational context, the null subject in BP cannot be interpreted as disjoint in reference from the matrix subject). Cf. chapter 3 for discussion.

The difference seems clear: in EP, the null subject is autonomous in reference. In BP, on the other hand, the empty category cannot refer in the same way it does in EP; it necessarily gets its interpretation from a preceding subject. An obvious explanation for this difference is that *pro* is identified by the “rich” agreement in EP, whereas this is not so in BP. Identification then makes null pronouns in EP behave just like any other pronoun. Null pronouns in BP, on the other hand, do not have the same referential properties of overt pronouns because they are not identified by agreement. Lack of identification through agreement also explains why (referential) null subjects are impossible in matrix clauses in BP (in out of the blue contexts), but possible in EP:³⁴

- (05) a. *pro* trabalho/trabalhei na universidade. (*BP, ✓EP)
 (I) work/worked at the university
 b. *pro* trabalha/trabalhou na universidade. (*BP, ✓EP)
 (s/he) works/worked at the university

2.5. Null subject gaps may be the product of topicalization

In the last section, we saw that (04c) has to be interpreted with the reading where matrix and embedded subjects are coreferent, even when another possible referent for the null subject is available and evident from the situational context, which is unlike the state of affairs in EP:

- (04) c. O Pedro₁ disse que *pro*_{1/*2} ganhou na loto. (BP)
 Pedro said that (s/he) won-3rd p. the lottery

It is also the case that matrix subjects are ungrammatical in BP in out of the blue contexts, even if the referent of the null pronoun is evident from the discourse situation. However, the null subject in (04c) (under a disjoint interpretation) and the sentences in (05) would become grammatical if the antecedent of the null subject is found in the previous linguistic context:

- (06) Q: E o Paulo₂?
 what's up with Paulo
 A: a. O Pedro₁ disse que *ec*₂ ganhou na loto.
 Pedro said that (s/he) won-3rd p. the lottery

³⁴ Expletives and arbitrary subjects can be null (in matrix clauses) in BP. It is usually assumed that such subjects do not need to be identified so their presence in matrix clauses in BP does not go against the claim in the text that null subjects are not identified by agreement. See chapter 3 for a more thorough discussion of non-argumental and quasi-argumental null subjects in BP and some issues raised by their (lack of) identification.

- b. *ec*₂ trabalha na universidade.
 (he) works at the university

If the claim that BP cannot identify null pronouns by agreement is correct, the grammaticality of the answers in (06) must be explained. In section 2.1., it was noted that BP allows null topics (which are either null operators identified by a salient discourse referent or topics which have been deleted by being identical to a discourse topic). This makes it possible to interpret the gaps in (06a, b) as a product of topicalization of a topic or operator. Such an assumption would explain why only previous linguistic discourse, but not the situational context, can furnish an antecedent for the gaps in (06). Presumably, a null topic or operator has to be related to its antecedent *linguistically*: salience in the situational context is not enough to identify the operator or to permit ellipsis of a topic.

Note now that, based on the discussion in section 1 of this chapter, not all subject gaps in BP can be explained as topicalized elements. Some subject gaps are not related to null topics, such as the one in (02b), repeated below, where the subject gap is bound by a higher subject:

- (02) b. Ninguém₁ disse que *pro*₁/*ele**₁ ganhou na loto.
 Nobody said that (he) won the lottery

Null subjects like those in (02b), as discussed in section 1, are not a product of topicalization. However, in view of the arguments presented in this section, they are not identified by agreement either. The analysis of how these empty categories are identified is presented in chapter 3.

2.6. Summary

This section showed that null subjects in BP are not identified by agreement. Any explanation of null subjects in BP based on “richness” of agreement would have to explain why null subjects are confined to embedded contexts. But even if the impossibility of matrix null subjects could be accounted for, one would expect that, if agreement were “rich,” null subjects in BP should have a distribution and interpretation similar to other “rich” agreement languages such as EP and Spanish. We have seen, however, that neither the distribution nor the interpretation of null subjects in BP is similar to other Romance languages. On one hand, the percentage of null subjects is much lower in the former than in the latter. The discrepancy remains the same when data from child language is considered. Children acquiring NSLs produce many more subject gaps than children acquiring BP, who produce null subjects at the same rate as children acquiring non-NSLs such as English. On the other hand, there are fundamental differences in the interpretation of null subjects in BP and NSLs. In the latter, but not in the former, empty categories in

subject position are free to refer deictically, to have an antecedent in the situational discourse or to have a linguistically expressed antecedent. Null subjects in NSLs, thus, behave like overt pronouns in non-NSLs. In BP, however, null subjects are not autonomous in reference. Empty categories in subject position cannot refer deictically or have an antecedent in the situation of discourse. Those empty categories can only refer back to a linguistic antecedent (in a sense, behaving more like long-distance anaphors than as pronouns).

I also argued, in section 1 of this chapter, that the empty category occupying the subject position in BP must be considered a null pronoun or, as argued in 2.5., the trace of topicalization of a null topic. In the first case, the pronoun must find its antecedent in its own sentence. In the second, the antecedent may be present in a previous utterance. The aim of this study is to determine how null pronouns can be allowed in the subject position in BP if they are not identified by agreement (or other strategies related to agreement, such as having an anaphoric Agr node, as seen in chapter 1). After discussing the position of subjects in BP and Romance in general, in the next section, I will, in chapter 3, present an analysis which claims that null subjects in BP are identified by A'-binding.

3. VSO Order and Verb Movement

In section 2.1 of this chapter, I showed that the change from “rich” to “poor” agreement in BP took place in the beginning of the 20th century. In particular, the data in Duarte 1995 shows that, by 1937, the indirect 2nd person had already completely substituted the direct 2nd person, causing a noticeable decrease in the number of null subjects. However, there is evidence that the decrease in the percentage of null subjects was not the only result of the “impoverishment” of agreement paradigms. This change also seems to have affected word order.

Although the order SVO is assumed to be the basic order in most Romance languages, other constituent orderings are possible (depending on the informational status of arguments, according to Costa 1996). For example, all the orderings in (07) are acceptable in EP, given the right discourse context:

- | | | | |
|------|-------------------------------|-------|------|
| (07) | a. A Maria comeu o chocolate. | (SVO) | (EP) |
| | b. Comeu a Maria o chocolate. | (VSO) | |
| | c. O chocolate comeu a Maria. | (OVS) | |
| | Maria ate the chocolate | | |

In Spanish, a post-verbal subject is also acceptable (preferably if an adverbial or topicalized phrase appears in the pre-verbal position):³⁵

- (08) a. Todos los días compra Juan el diario. (Spanish)
 every day buys Juan the newspaper
 b. A María le regaló su abuelo un caballo de pura raza.
 to María DAT-cl. gave her grandfather a horse of pure breed

In both languages, in some contexts, post-verbal subjects are obligatory. In Spanish, one such context is wh (direct and indirect) questions:

- (09) a. (No sé) qué cosa comió María. (Spanish)
 b. (No sé) *qué cosa María comió.
 (I don't know) what María ate

In BP, on the other hand, a post-verbal subject will always lead to ungrammaticality, even in wh-questions:

- (10) a. A Maria comeu o chocolate. (BP)
 b. *Comeu a Maria o chocolate.
 c. *O chocolate comeu a Maria.
 Maria ate the chocolate
- (11) a. *Todos os dias compra o Pedro o jornal.
 b. Todos os dias o Pedro compra o jornal.
 every day Pedro buys the newspaper
- (12) a. (Eu quero saber) *o que comeu a Maria.
 b. (Eu quero saber) o que a Maria comeu.
 (I want to know) what Maria ate

Morais 1993 exams subject-verb inversion in BP from the 18th century to the present, taking as her corpus data from 5 theatrical plays from different periods. Her findings are summarized in the table below:

³⁵ Zubizarreta (1998) presents sentences like (i) but subsumes them to a topic-comment analysis, taking the topic to be a silent pronominal linked to the indirect object or benefactive dative clitic:

- (i) a. Me devolvió María el libro que le presté.
 DAT-cl. returned Maria the book that to-her (I) lent
 b. Se comieron los niños todo el pastel.
 BENEF-cl. ate the boys all the cake

Table 7: author	Subject verb inversion vs. non-inversion year	inversion in declarative sentences				total
		non-inversion		inversion		
		N	%	N	%	
o Judeu	1734	107	83	23	17	130
Pena	1845	83	74	30	26	113
França	1882	119	87	17	12	136
Gonzaga	1937	141	98	3	2	144
Fernandes	1982	140	100	0	0	140

Morais notes that the study of Duarte (1992) indicates that whatever caused the loss of post-verbal subjects in declaratives also showed its effects in interrogatives. Duarte finds that, in the 18th century, the percentage of occurrence of the order VS in direct interrogatives is 100%. In the first half of the 19th century, that percentage remains the same. However, in the following texts, from 1882 and 1918, the number of interrogatives with the SV order reaches 20% and 19%, respectively. That percentage jumps to 63% in 1937 and finally to 94% in the most recent text.³⁶ As for indirect questions, she reports that the order SV, without inversion, has an average of occurrence of 68% until the first half of the 20th century. Since the beginning of the second half of the century the percentage is already more than 90%, reaching 100% in the synchronic data.

The quantitative data is important here to show that the order VS was banned in BP sometime in the beginning of the 20th century. In particular, it is clear that, by 1937, post-verbal subjects were not allowed in the language anymore. Recall now that 1937 was also the year marking the disappearance of the direct 2nd person and the beginning of the decrease in the number of null subjects in the study of Duarte (1995). The “coincidence” of dates show that those facts are obviously related. In other words, it is clear that whatever explains the absence of the VSO order in BP must also be related to the decrease in number of null subjects.

Morais 1993 tries to explain the disappearance of the VSO order by claiming (based on Roberts 1993) that BP went through a parametric change related to case assignment. Until the 19th century, case could be assigned in BP either by agreement (spec-head relation) or by government. At the turn of the century however, BP lost the possibility of case assignment by government, causing the loss of VSO (which is essentially what is argued for Old French by Roberts). This analysis has a cluster of problems. Besides having to assume two distinct nominative Case positions in Spanish and EP, it does not account for the fact that pre-verbal subjects in these languages seem to have A'-properties. As seen in (9b) above, a pre-verbal subject is ungrammatical in Spanish in (direct or

³⁶ The fact that the percentage found by Duarte is 94%, instead of 100%, must be due to the distortion caused by examining a written corpus. In oral contemporary BP, the order VS in any kind of interrogative is ungrammatical.

indirect) wh-questions, which is interpreted by Zubizarreta (in press) as a minimality effect. (On minimality effects see Rizzi 1990, Aoun and Benmamoun 1998; on the A'-character of pre-verbal subjects in Spanish see also Alexiadou and Anagnostopoulou (1998) and the discussion in section 3.1.3. below).

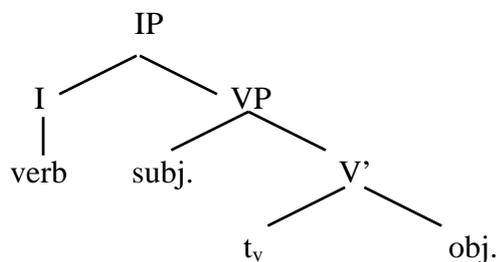
Secondly, the analysis has to assume that case assignment by government is somehow related to “richness” of agreement. If such a relation is not assumed, the analysis would have nothing to say about the fact that, at the same time that subjects started appearing exclusively in the pre-verbal position in BP, they also started to be filled by overt pronouns. However, it is unclear why only “rich” agreement languages should be able to assign case under government. In view of these facts, I will pursue an alternative explanation.

It is standardly assumed that VS orders are derived by moving a finite verb to a position higher than the one occupied by the subject. It is thus very tempting to explain the facts in BP by assuming that the verb does not raise, or at least does not raise as high as in EP or Spanish. Suppose that agreement in BP became “poor” as the result of the loss of the (direct) 2nd person inflection. In consequence, the subject position starts being filled by overt pronouns, since agreement cannot identify null pronouns any longer. If “rich” agreement and verb movement are related (at least in the unilateral sense that all “rich” agreement languages present overt verb movement), as many *pro*-drop theories sustain (cf. chapter 1), then another consequence of the impoverishment of agreement in BP is the loss of overt verb movement.³⁷ The loss of verb movement, in turn, makes the derivation of VS orders impossible. According to this hypothesis, the simultaneity of the decrease in the percentage of null subjects and the loss of VSO orders is explained, since both phenomena were triggered by the fact that agreement in BP became “poor” (which in turn happened as a product of the loss of 2nd person inflection). Such an explanation is empirically adequate and logically convincing, so I will adopt it. The questions left open, which are far from trivial, are the positions occupied by the verb and the subject in VSO and SVO sentences in Spanish and EP and in SVO sentences in BP.

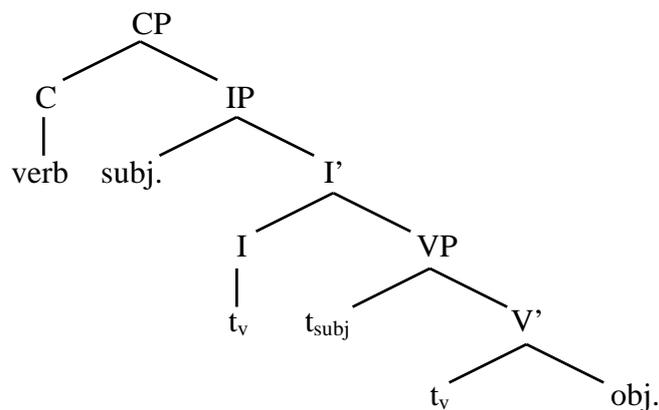
Assuming a unique INFL projection, there are two possible representations for VSO sentences in Spanish and EP:

³⁷ This is not to say that the verb does not move in every poor agreement language. In French, for instance, the impoverishment of agreement did not affect verb movement. It might even be the case that the impoverishment of agreement in BP was a consequence of the loss of long verb movement. The decision about what happened first is not important for the point I want to make, which is the fact that the loss of post-verbal subjects, the decrease in the number of null subjects and the loss of long verb movement are intimately related in the history of BP (either as the causes or as the consequences of the impoverishment of agreement).

(13) a.

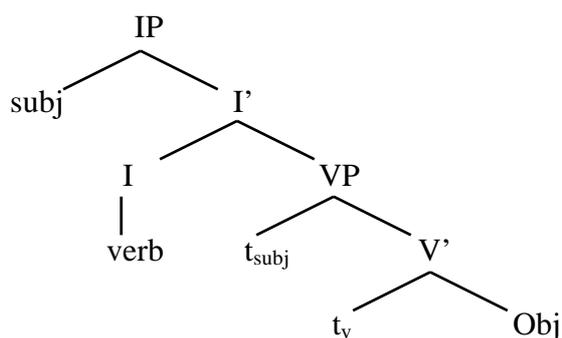


b.

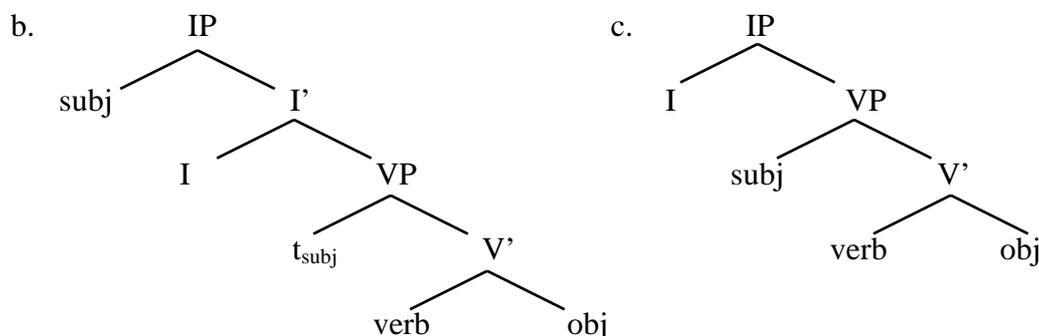


Structure (13b), where VS is a product of I-to-C movement, is not a strong candidate because VS is attested in contexts where I-to-C movement is taken to be impossible, such as relative and (selected) complement clauses. VS is also attested to in embedded questions introduced by the complementizer *se* ‘whether’, which supposedly occupies the head C, leaving I^0 as the only possible landing site for the verb.³⁸ However, assuming (13a) would imply that one of the structures in (14) is the right clause structure in BP:

(14) a.



³⁸ The postulation of a recursive CP in EP, besides implausible, would only solve the latter of the two problems mentioned above.



Structure (14a) implies that the impoverishment of agreement did not affect verb movement but rather Case-assigning possibilities, forcing the subject to move out of the VP, as in Morais' analysis. As discussed above, it is unclear why changes in the inflection paradigm would have such an effect. We are then left with structures (14b) and (14c), where the verb stays in the VP (in overt syntax) and the subject has the option of getting case either by agreement or by government from I^0 . There is, however, indication that the verb does not stay inside VP in BP. Besides the discussion on adverb placement in chapter 1, which indicates that the verb moves out of VP in BP, in VP-ellipsis contexts, the verb may appear in the elliptical conjunct:³⁹

- (15) O Pedro telefonou pra Dani e o Feco também telefonou.
 Pedro called to Dani and Feco also called

If the verb leaves the VP in BP, which seems to be correct, then any analysis involving a single INFL projection in Spanish, EP and BP is doomed. In what follows, I will argue for an analysis which makes use of the Split INFL hypothesis (cf. Pollock 1989) as proposed by Belletti 1990 (with an Agreement projection dominating a Tense projection).

3.1. The position of subjects in Spanish and EP

3.1.1. General assumptions

I will assume, following Bobaljik and Jonas 1996, Jonas 1996 and Thráinsson 1996, that languages are parametrized as to whether the [Spec TP] position is licensed as a syntactic position or not. According to B&J, in the affirmative case, [Spec TP] would be the nominative checking position. They propose that: "In a given language, if tense morphology blocks agreement morphology, then that language does not license [Spec TP]." English would be an example of a language that does not license [Spec TP], since

³⁹ Hoji (1998) argues that this kind of argumentation may be flawed. In chapter 3, however, I argue that sentences such as (15) can in fact be taken as an argument that the verb moves out of VP in BP.

past tense morphology never co-occurs with agreement morphology. Jonas affirms that [Spec TP] is only available as a case checking position in those languages where the verb raises overtly to T. Finally, Thráinsson argues that only languages in which tense and agreement morphology are “independent” will have separate Agr and Tense functional projections. “Independent” morphology is understood in the sense of B&J: if a verb form can bear both an agreement marker and a tense marker simultaneously, then agreement and tense morphology are independent. Thráinsson understands that in languages like English, where agreement and tense morphology are dependent, AgrP and TP are fused into one INFL projection (differing from B&J), deriving the unavailability of two specifier positions in English, in contrast to the availability of two specifier positions noticed by the latter authors in Icelandic. All three theories lead one to expect that Romance would check nominative case in [Spec TP] because the morphology is independent and verb movement is overt. This expectation includes BP, according to B&J and Thráinsson’s proposal, since morphology is also independent in that language.

We have been arguing that the impoverishment of agreement caused BP to lose long verb movement, which explains the simultaneity of the decrease in null subjects and the loss of VSO orders. However, I have also indicated that the verb moves out of the VP in BP. If it is assumed that the verb reaches the head of AgrP in Spanish and EP but only the head of TP in BP, the facts can be accommodated and BP is expected to have [Spec TP] as a licensed syntactic position under Jonas’ theory as well.

For concreteness, I will assume with Thráinsson that independent morphology is the clue to license [Spec TP] as a syntactic position. Spanish, EP and BP will then all have a split INFL, while languages like English and Chinese fuse the two categories into one IP projection. I will also assume, according to the three works cited, that nominative case is checked in [Spec TP] in Spanish, EP and BP, but in [Spec IP] in English and Chinese.

3.1.2. Transitive expletive constructions and the EPP

Although I have assumed that in Romance languages, like in Icelandic, the [Spec TP] position is related to morphologically licensing subjects, I will follow Alexiadou and Anagnostopoulou (A&A) 1998 in arguing that Romance does not present the Transitive Expletive Constructions (TECs) observed in Icelandic (exemplified below from Jonas 1996: 168):

- (16) Það hafa margir jólasveinar borðað búaðinginn. (Icelandic)
 there have many christmas-trolls eaten the pudding

The reason is that, in TECs, there is a Definiteness Restriction (DR) which is absent from sentences with post-verbal subjects in Romance (and other “rich” agreement languages).

The presence of the expletive in (16), according to B&J 1996 and Chomsky 1995, is driven by the need to check a strong D-feature in Agr, which characterizes the EPP. The expletive is viewed by Chomsky as a bare D with no other features, explaining the lack of agreement between it and the verb. DR-effects are then explained by the fact that the associate and the expletive form a discontinuous argument. The expletive contains a D-feature so the associate must be an NP, which moves to the expletive at LF. Since the locus of definiteness is taken to be the head D, the required lack of definiteness of the associate of the expletive follows from the fact that the associate is an NP. Since, in Romance, there are no DR effects in sentences with post-verbal subjects, it can be argued that those sentences do not involve an expletive element like TECs in Icelandic.

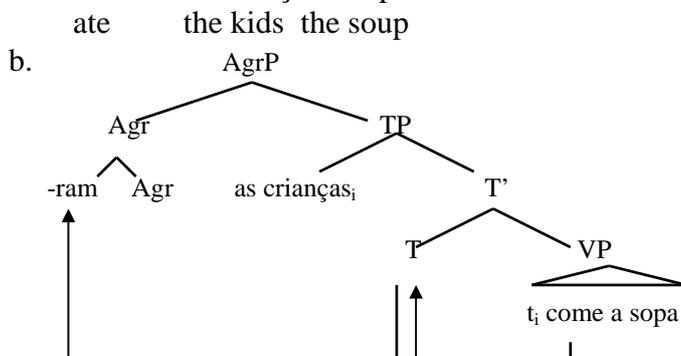
The lack of an expletive in VSO sentences in Romance, however, is not an indication that the EPP does not apply in these languages. Following A&A, I assume that the EPP is universal, meaning that the D-feature of Agr is universally strong (in the sense of Chomsky 1995, i.e. requiring checking in overt syntax), but that there are different ways to check the EPP. “Poor” agreement languages, i.e. non-NSLs, can only check the EPP by inserting an expletive or moving a DP into the [Spec AgrP] (or [Spec IP]) position. “Rich” agreement languages, on the other hand, satisfy the EPP without the need to fill the [Spec AgrP]. Modifying A&A and Rohrbacher’s (1994) theory slightly, I will assume that what characterizes “rich” agreement is to have inflectional morphemes listed as separate heads in the lexicon⁴⁰ and that lexicalized morphemes will be taken from the lexicon carrying a D-feature, being then able to satisfy the EPP. Specifically, inflectional morphemes will be adjoined to the head Agr, checking its strong D-feature. The structure of a sentence like (17a) in EP will then be (17b):^{41, 42}

⁴⁰ This implies that all NSLs will have overt verb movement to Agr⁰. Note also that the property that makes agreement rich (or, indifferently, that signals that inflectional morphemes are stored in the lexicon) is still unspecified.

⁴¹ Note that the structure in (17) is the one used in rich agreement languages, now understood as languages in which inflectional morphemes are lexicalized. As argued in section 1 of this chapter, BP has poor agreement, so inflectional morphemes are not lexicalized and the EPP cannot be checked by base generating an inflectional morpheme under Agr⁰.

⁴² Structure (17) seems problematic in view of the fact that, in some rich agreement languages, i.e. Italian, VOS but no VSO orders are attested. It would have to be assumed that, in Italian, the [Spec TP] position is to the right or that the object is moved to a (specifier or adjoined) position between AgrP and TP.

(17) a. Comeram as crianças a sopa. (EP)



In (17b), the inflectional morpheme is adjoined to the head Agr, checking its strong D-feature (the EPP). The verb then moves from VP to Agr, via T, to license the inflectional morpheme at PF. The subject *as crianças* moves from its theta-position to [Spec TP], where it checks nominative case against the T+V complex. Since the EPP is checked by the inflectional morpheme, [Spec AgrP] remains empty and the lack of DR-effects are explained by the fact that no expletive occupies that position, and so the subject in [Spec TP] can be a full DP.

According to A&A, the semantic features of rich agreement are equivalent to that of a pronoun and, as such, are +interpretable, while poor agreement is -interpretable; hence, only the latter needs to be checked. However, if ϕ -features of the inflectional morpheme in (17) were +interpretable and did not need to be checked, it would be hard to account for the obligatory agreement between the features of the verb and the subject DP. It can then be assumed, following Chomsky 1995 and against A&A, that ϕ -features of the agreement inflection are -interpretable and that, at LF, the features of the subject DP move covertly to check the features of the inflectional morpheme. Suppose now that the subject of (17) was null. *Pro* would check nominative case in [Spec TP] and move at LF to check the ϕ -features of the inflectional morpheme in Agr⁰. This, in turn, would establish the relation between *pro* and Agr necessary to identify the null pronoun.⁴³

Note that, in either overt or null subject clauses, the subject cannot check the ϕ -features of the agreement morpheme overtly, due to Procrastinate. In fact, the subject cannot move overtly any further than [Spec TP], since it has its Case feature checked in that position and the EPP is satisfied by the agreement morpheme. This raises the question of the position occupied by pre-verbal subjects in “rich” agreement languages.

⁴³ *Pro* would still be necessary, even in a theory which assumes that inflectional morphemes contain +interpretable features. This is because the verb must discharge a θ -role. If inflectional morphemes could be assigned θ -roles, then overt subjects and inflectional morphemes would compete for θ -roles (in sentences with overt subjects), deriving the unwanted result that no clause could have overt subjects.

3.1.3. Pre-verbal subjects in Spanish and EP

A&A and Zubizarreta (in press) argue that pre-verbal subjects in rich agreement languages (for the first authors) and Romance (for the second) are base-generated CLLDed elements.⁴⁴ One argument supporting the claim that pre-verbal subjects are CLLDed in rich agreement languages is that they do not seem to be in a Spec-Head relation with the raised finite verb. French, EP and Greek are all languages for which it has been argued that V raises overtly to the highest INFL projection head (see Pollock 1989 for French, Raposo 1995 for EP and Rivero 1994 for Greek). In EP and Greek, unlike French (in which agreement is poor), adverbs may intervene between the pre-verbal subject and the verb. Assuming that adverbs may not adjoin to the X-bar level (cf. Chomsky 1986a, Kayne 1994), the presence of adverbs intervening between the subject and the verb shows that these subjects and the verb are not within the same maximal projection.⁴⁵

- (18) a. O Petros xtes meta apo poles prospathies sinandise ti Maria. (Greek)
 Petros yesterday after from many efforts met Maria
 b. Pedro provavelmente encontrou Maria. (EP)
 Pedro probably met Maria
 c. *Jean probablement a recontr  Marie. (French)
 Jean probably has met Marie

Another argument has to do with interpretative differences between pre and post-verbal subjects. In both Greek and Spanish, pre-verbal subjects differ from post-verbal ones in necessarily having wide scope with respect to a quantified object:⁴⁶

- (20) a. Kapios fititis stihiothetise kathe arthro. (Greek)
 some student filed every article
 b. stihiothetise kapios fititis kathe arthro.
 c. Dos hombres bailaron con tres mujeres. (Spanish)
 two men danced with three women
 d. Bailaron dos hombres con tres mujeres.

(20a) and (20c) above allow only the readings where the subject has wide scope. Examples “b” and “d,” on the other hand, present the same ambiguity seen in English: the

⁴⁴ Recall that BP is not a strong agreement language, so the discussion that follows does not apply to BP. The position of subjects in BP is discussed in the next section.

⁴⁵ All the Greek examples below are taken from A&A 1998.

⁴⁶ I thank Carolina Gonzalez and Marta Jevenois for their judgments on the Spanish data.

subject can have wide or narrow scope with respect to the object. In this respect, pre-verbal subjects behave like CLLDed elements. In (21), a CLLDed object necessarily has wide scope with respect to the subject:

- (21) Kapjo pedi to eksetase kathe kathigitis. (Greek)
 some child cl-acc examined every professor

A similar argument can be drawn on the basis of the interpretation of indefinites in the pre-verbal position. In both Greek and Spanish, indefinite pre-verbal subjects have a partitive or specific interpretation which is the interpretation given to CLLDed elements (cf (24)), while the most natural interpretation for post-verbal subjects is an existential one. This again contrasts with English, where indefinite subjects are ambiguous:

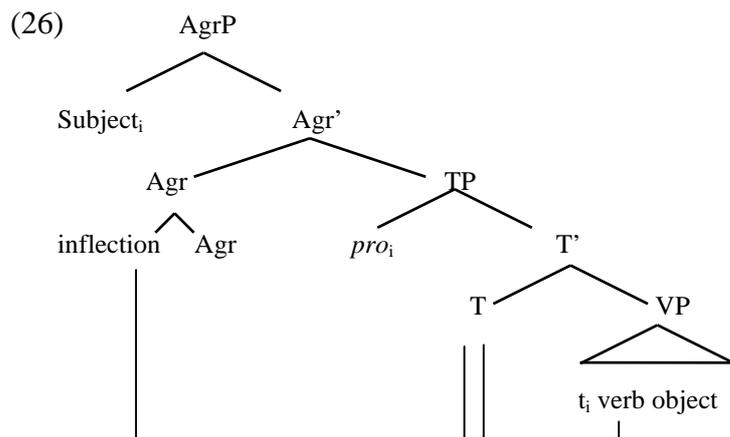
- (22) a. Ena pedhi diavase to ‘Paramithi horis Onoma’. (specific/partitive)
 a child read the ‘Fairy-tale without a title’
 b. diavase ena pedhi to ‘Paramithi horis Onoma’. (existential)
- (23) a. Una mujer salió. (specific/partitive)
 a woman left
 b. Salió una mujer. (existential)
- (24) ?Enan anthropo ton heretise i Maria. (specific/partitive)
 one person cl-acc. greeted Maria
 ‘Maria greeted one person’

A further argument is that, as seen above, pre-verbal subjects cannot intervene between a fronted wh-phrase and the verb. Zubizarreta (in press) explains this fact as a minimality effect:

- (25) a. Qué (*Pedro) compró (Pedro)? (Spanish)
 b. Que (*Pedro) comprou (Pedro)? (EP)
 c. Che (*Piero) ha comprato (Piero)? (Italian)
 what has Peter bought?
 d. Pjon (*o Petros) ide (o Petros)? (Greek)
 who did Petros see?

Minimality effects are expected under the view that pre-verbal subjects are CLLDed, since the wh-phrase would move over an A’-position (see discussion in section 2.4. of chapter 3).

To explain these characteristics, Zubizarreta argues that pre-verbal subjects in Romance occupy the specifier of a CL(itic) projection, above AgrP.⁴⁷ However, assuming the structure proposed above in (17b), it could be assumed that pre-verbal subjects are base-generated in [Spec AgrP], being related to a *pro* subject, as in (26), avoiding the necessity of a functional projection above AgrP:



However, the structure in (26) would predict that pre-verbal subjects would give rise to Minimality effects in both direct and indirect questions (as they in fact do in Spanish). In EP, however, although a pre-verbal subject is impossible in direct wh-questions, a pre-verbal subject can optionally appear in indirect questions:

- (27) a. Que (*Pedro) comprou (Pedro)? (EP)
 what Pedro bought
 b. Não sei o que (Pedro) comprou (Pedro).
 (I) not know what Pedro bought

Although I will not detail here Zubizarreta's analysis, it is important to note that it does explain the difference between Spanish and EP with respect to pre-verbal subjects in indirect questions. I will, therefore, assume that these subjects occupy the specifier of a CL(itic) projection in those languages, and that the [Spec AgrP] position remains empty.

3.2. The position of subjects in BP

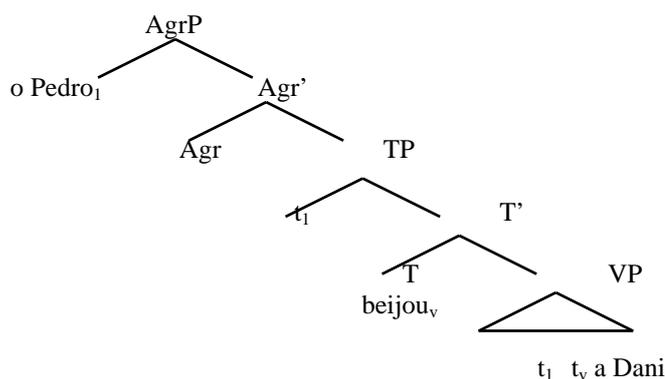
So far, I have argued that both the decrease in the number of null subjects and the loss of VSO orders in BP are a direct result of the fact that the verb does not move as high in

⁴⁷ In fact, there is no AgrP in the structure assumed by Zubizarreta. She locates the CIP over TP. I adapt her theory here to be in accord with what I have assumed just above, i.e. that Romance in general presents a Split INFL with AgrP dominating TP.

that language as it does in Spanish or EP (as a result of the fact that agreement became poor in Brazil due to the loss of the (direct) 2nd person inflection). I have also argued that, although BP does not present long verb movement, the verb does leave the VP. Since BP qualifies as a language where [Spec TP] is licensed as a syntactic position (because tense and agreement morphology are independent), it can be assumed that the phrase structure in BP is identical to the structure proposed for EP and Spanish, with the difference that the verb only moves to the head of TP.

Recall now that Transitive Expletive Constructions in Icelandic show that [Spec TP] is the case-related position in languages where that position is licensed. [Spec AgrP], on the other hand, only has to be filled by force of the EPP (in languages where inflectional morphemes are not lexicalized). It can then be concluded that subjects in BP will check nominative case in the former position, moving to the latter to check the strong D-feature (the EPP):

- (27) O Pedro beijou a Dani. (BP)
 Pedro kissed Dani



3.2.1. VS orders in BP

The structure in (27) correctly predicts that post-verbal subjects will not be possible in BP because V moves to a position lower than the nominative case checking position. However, it also predicts that VS orders would be, in principle, possible in BP in expletive constructions of the kind attested in English sentences like *There arrived a man*, where the argument of an unaccusative verb remains inside the VP until LF. In other words, (27) predicts that BP will have post-verbal subjects only when these subjects are associated with an expletive that checks nominative case. It follows, then, that post-verbal subjects in BP will only occur with unaccusative verbs (but not intransitives), and, according to the discussion in 3.1.2. above, that they will present a definiteness effect. These predictions

are, to the best of my knowledge, borne out (cf. Andrade Berlinck 1995 and Britto 2000, who argue that only unaccusatives allow VS order in BP):⁴⁸

- (28) a. *Ganhou o/um time.
won the/a team
b. *Quebrou a/uma máquina.
broke down the/a machine
c. *Correu o/um convidado.
ran the/a guest
d. Chegou *a/uma carta.
arrived *the/a letter
e. Apareceu *a/uma pessoa.
appeared *the/a person
f. Morreu *a/uma pessoa.
died *the/a person

4. Conclusion

In this chapter, I presented evidence both that the empty category occupying the subject position in BP is pronominal and that agreement in BP cannot be considered “rich,” however “rich” agreement will ultimately be defined. This, of course, leaves as an open question how such null subjects are identified, which I will try to answer in the next chapter. I also showed that some subject gaps in BP are outside the realm of *pro*-drop because they are a product of topicalization.

⁴⁸ Post-verbal subjects can be definite if they are “heavy,” i.e. when modified by a relative clause, as in (i). These cases are amenable to an analysis where the subject is extraposed, so they are not an evident argument against the analysis proposed in the text. However, when non-unaccusative verbs are considered, there is a lot of variance in the acceptability of heavy post-verbal subjects, as seen in (ii), which is unexpected under the extraposition analysis.

- (i) Chegou a carta que você estava esperando.
arrived the letter that you were waiting for
(ii) a. Ganhou o time que estava melhor preparado fisicamente.
won the team that was physically better prepared
b. ?Quebrou a máquina que tinha acabado de voltar do conserto.
broke down the machine that had just come back from repair
c. *Correu a pessoa que eu menos esperava que corresse.
ran the person that I least expected would run

It is important to note that the ungrammaticality of (ii.c) is given only comparatively to (i). However, (ii.c) is grammatical in some contexts, for instance, when the subject is the focus, i.e. when the sentence is the answer of a question like *quem correu?* ‘who ran?’ I believe this data deserves much more careful attention than I can give it at this time, so I will leave the problem as it is, hopefully to come back to it at a more appropriate occasion.

Diachronic data indicated that the impoverishment of agreement in BP caused not only a steep decrease in the number of null subjects but also the loss of VSO orders. To account for those facts, I proposed that, when agreement became poor, it caused the verb to stop at T^0 , instead of Agr^0 as in Spanish and EP. I assumed that [Spec TP] is the nominative case checking position in all the three languages in question. A D-feature in Agr^0 was also assumed to be universally strong. Since inflectional morphemes are lexicalized in Spanish and EP, they can be drawn from the lexicon containing a D-feature and, when base-generated under (or adjoined to) the Agr head, they can check the strong D-feature of Agr. In BP, on the other hand, the subject has to move overtly to [Spec AgrP] in order to check the same feature. Languages like English and Chinese, in which tense and agreement inflection are not independent, will present a fused INFL node and the nominative checking position will be its specifier, i.e. the [Spec IP] position.

Chapter 3

Null Arguments in BP

In the preceding chapter, I argued that the null subject phenomenon in BP presents a problem for the *pro*-drop parameter as it has been described for most Romance languages. Specifically, I showed that agreement in BP must be considered “poor” (under any definition of what “rich” agreement is) but, in spite of that, sentences such as (1) are still grammatical:

- (01) O Pedro₁ disse que *pro*₁ ganhou na loto.
 P. said that (he) won the lottery

I also argued, in that chapter, that the empty category occupying the embedded subject position in (01) is indeed *pro*. The two conclusions, i.e. that (at least some) null subjects in BP are occupied by pronominal categories and that agreement is “poor” in that language, seem incompatible when faced with the widespread belief that null pronominal subjects are identified by “rich” agreement (as discussed in chapter 1). The aim of this chapter will be then to argue that these two conclusions are not incompatible. In other words, I will show that pronominal null categories may be identified by a process which is independent of (verbal) agreement. Such a process consists of the local binding of *pro* by a denoting category in an A'-position (as also proposed by Cinque 1990). In sentence (1), for instance, *pro* is identified by the matrix subject *o Pedro*, which binds it from an A'-position. This is the gist of the analysis. Section 1 clarifies some issues which will be important in elaborating this main claim. Section 2 lays out the analysis (for null subjects), and section 3 extends it to null objects.

1. Paving the way for the analysis

1.1. Why is A'-binding an identification mechanism?

As seen in chapter 1, it is usually assumed, following mainly Rizzi 1982, 1986 and much subsequent work, that null arguments need to be identified. Intuitively, the identification requirement serves the purpose of recovering the reference of a given empty category for the ease of communication. However, it is worth asking if there is a formal requirement which underlies such an intuition. I believe that there is. Specifically, I will take, from now on, *identification* to be the process of furnishing a null pronoun with a denotational index in the sense of Vergnaud and Zubizarreta (V&Z) 1992.

V&Z claim that “grammar does not include any autonomous level of representation that would be the set of entities *referred* to by the nominal expressions in the sentence.” They assume, however, a level of representation of sentence grammar which functions as an indexing of nominal categories. V&Z call such a level L-structure, which is defined as “a set of elements $D = \{i, j, k, \dots\}$ such that each element of D is associated with some nominal phrase in the sentence.” L-structure is to be identified with *Domain D* in the sense of Chomsky (1981) in that if an element n of D in L-structure is associated with a nominal expression XP , it is said that XP denotes n . Crucially, then, expressions lacking an index will have no denotation (and, consequently, no reference). Note, however, that the notion of denotation only partially overlaps with that of reference, since there are non-referential denoting expressions as well as referential ones.⁴⁹ Importantly, though, all referential expressions denote.

Assume now that θ -roles are assigned only to denoting categories, as to prevent expletives, for instance, from receiving an argumental interpretation. The identification requirement on (argumental) *pro* (viewed here as the need to supply *pro* with a denotational index) would then follow from the fact that, without an index, *pro* cannot be interpreted as an argument.⁵⁰ In other words, *pro* is base-generated with no denotational index (in every language) and, therefore, cannot be assigned a θ -role. It then needs to be identified, i.e. it needs to acquire a denotational index, in order to be assigned a θ -role and be interpreted at LF.⁵¹

In chapter 1, it was noted that there is some evidence that *pro* is identified by rich agreement in most Romance languages. In present terms, this can be interpreted as meaning that *pro* acquires a denotational index from the inflectional head to which it is locally related. As discussed in chapter 2, rich agreement languages are those in which inflectional morphemes are available from the lexicon as separate heads. In the spirit of many theories which claim that the real referential element in Romance languages is the agreement inflection (in Rizzi 1982, for instance, agreement has the feature

⁴⁹ Non-adjunct *wh*-phrases, for instance, are denoting expressions, although they are not referential.

⁵⁰ Chomsky 1981:325 affirms that the subject of weather verbs has no denotation. However, Chomsky also claims that such subjects receive a “quasi-argument” θ -role in virtue of the fact that they may control PRO (as in ‘*it sometimes rains after PRO snowing*’). The status of the *pro* subject of weather verbs in NSLs is unclear according to the lines in the text. Possibly, quasi-argumental θ -roles differ from argumental θ -roles in that they may be assigned to non-denoting categories. Since the main topic of discussion here is the identification of null referential categories, I will leave expletives aside. See section 2.4.2. for a brief discussion on indefinite (generic) subjects.

⁵¹ This analysis crucially assumes that grammatical principles like the θ -criterion (or an equivalent condition) are checked at LF, which is in accord with the latest trend in Generative Theory which dispenses with D-structure as a syntactic level.

[+pronominal]), it can be assumed that, in rich agreement languages, the inflectional morpheme is taken from the lexicon with a denotational index.⁵² In this way, in these languages, *pro* can be interpreted as an argument, since it acquires a denotational index from a denotational element (i.e. the inflectional head).⁵³

Recapitulating, overt pronouns, as any other nominal phrase, are (potentially) drawn from the lexicon with denotational indices. Null pronouns, however, are, by assumption, always generated without an index (in every language)⁵⁴, deriving the need for identification. In rich agreement languages, *pro* acquires the denotational index from the verbal inflection by being in a local relation with it at LF (for instance, when *pro* occupies the specifier position of the projection headed by the inflection morpheme). Since *pro* only differs from overt pronouns in that it does not contain a denotational index (besides the obvious lack of phonetic content), a null pronoun becomes a “regular” pronoun after it is identified.⁵⁵

⁵² I do not wish to claim that being denotational is dependent on the rich character of agreement. However, if one assumes that only nominal elements may carry denotational indices, then inflectional morphemes will never be denotational in weak agreement languages, since these morphemes are always part of verbal lexical items. In other words, only rich agreement morphemes can receive denotational indices because only they are taken from the lexicon as lexical items which are separate from verbal stems. So, although the relation between rich agreement and denotational agreement does hold, it is only an indirect relation caused by the fact that only in rich agreement languages are inflectional morphemes independent lexical items. I thank Hagit Borer (p.c.) for raising this issue for me. The fact that lexicalized agreement morphemes bear a denotational index is also in accord with Rohrbacher’s (1994) theory, which claimed that only and all referential elements are lexicalized. If agreement morphemes are lexicalized in some languages because they are referential, then lexicalized morphemes will have denotational indices because all referential elements denote.

⁵³ As noted in chapter 2, *pro* is still necessary even in rich agreement languages because the verb must discharge its θ -role. If denotational inflectional morphemes were interpreted as arguments, overt subjects and inflectional morphemes would compete for θ -roles (in sentences with overt subjects), deriving the unwanted result that no clause in rich agreement languages could have overt subjects.

⁵⁴ The correct generalization seems to be that only overt categories can be (freely) assigned denotational indices (so that every empty category would have to be identified by some identification process in order to acquire a denotational index). Phonological overtiness is then a necessary but not a sufficient condition for having a denotation (in view of the fact that there are overt expletives, for instance). The reason underlying such a generalization is probably related to the communicative function of language. Once again I thank Hagit Borer (p.c.) for bringing up this issue.

⁵⁵ The fact that a *pro* which is identified by agreement is equivalent to an overt pronoun (in NSLs) is true when the empty pronoun has 1st or 2nd person interpretation. However, in the 3rd person, null and overt pronouns seem to differ in the preferred reading they give rise to (at least in European Portuguese, as argued by Gonçalves 1994). This is shown in the paradigm below (adapted from Gonçalves):

- (i) a. A Ana_i pensa que *pro*_{*i/j} encontrei o João na segunda-feira. (EP)
 Ana thinks that (I) met-1st p. João on Monday
 b. A Ana_i pensa que *pro*_{*i/j} encontraste o João na segunda-feira.

Consider now poor agreement languages such as BP and English. In these languages, *pro* reaches LF without a denotational index, since it was not identified by agreement (which is non-denotational). In this case, it still cannot receive a θ -role (and be interpreted as an argument). This derivation will produce an ungrammatical sentence (or, in other terms, it will crash, cf. Chomsky 1995) because the verb has not discharged one of its θ -roles and because *pro* has no interpretation. This is why English does not have sentences with null arguments. BP, on the other hand, does present grammatical sentences with null arguments. It must be the case, then, that *some* process of identification of *pro* is able to save derivations in BP containing null referential pronouns.

I have mentioned that I will argue that such a process consists of local A'-binding, as did Cinque 1990. However, in Cinque's work, the reason why A'-binding should be an identification strategy on a par with identification by agreement is not completely clear. In fact, I will assume that A'-binding is not on a par with identification by agreement. I will defend here that a derivation containing a null pronoun in BP (and other poor agreement languages) is still grammatical because the pronoun is either associated with a variable or interpreted as a (pronominal) variable⁵⁶ (the latter claim being, I believe, very close to what Cinque has proposed). As a variable, null pronouns will be subject to Aoun and Li's (1993) Minimal Binding Requirement (MBR).⁵⁷

- (02) MBR: At LF, variables must be bound by the most local potential A'-binder.
(Where A qualifies as a potential A'-binder for B iff A c-commands B, A is in an

-
- Ana thinks that (you) met-2nd p. João on Monday
 c. A Ana_i pensa que *pro*_{i/?j} encontrou o João na segunda-feira.
 d. A Ana_i pensa que ela_{i/?j} encontrou o João na segunda-feira.
 Ana thinks that (she) met-3rd p. João on Monday

Gonçalves uses this fact to argue that the identification of 3rd person null pronouns is done not only by agreement but also by a discourse operator. As an argument, she gives the fact that the sentence in (iia) is only grammatical in a suitable discourse (and ungrammatical in the "out of the blue" context). However, the ungrammaticality of (iia) clearly has nothing to do with the supposed fact that *pro* is not identified by agreement in that case. In fact, the sentence with an overt pronoun, which does not need to be identified, is only grammatical in the same contexts where (iia) is:

- (ii) a. (Eu_i) penso que *pro*_{*i/?*j} encontrou o João na segunda-feira. (EP - out of the blue context)
 b. (Eu_i) penso que ele_{*i/?*j} encontrou o João na segunda-feira.
 (I) think that (he) met-3rd p. João on Monday

It can be concluded that there is no significant difference between agreement-identified *pros* and overt pronouns in NSLs. The preference of one reading over another in the case of (ic, d) is probably related to conversational principles such as the Avoid Pronoun Principle of Chomsky 1981.

⁵⁶ Pronominal variables are formally defined in the next section.

⁵⁷ Chapter 4 will show that the MBR is also crucial in explaining the differences between English, Chinese and BP in the possible scope relations between quantifiers or wh-phrases and quantifiers.

A'-position, and the assignment of the index of A to B would not violate Principle C of the Binding Theory.)^{58, 59}

Still following Aoun and Li, I will assume that the notion of locality in (02) is defined as in (03), i.e. in terms of c-command, which in turn is defined in (04) (cf. Reinhart 1976):

- (03) A is the most local potential A'-binder for B iff A is a potential A'-binder for B and there is no potential A'-binder C for B that is c-commanded by A and c-commands B.
- (04) A c-commands B iff every branching node dominating A also dominates B.

Under a particular interpretation of the MBR, which I will adopt, the binding relation between a variable and its binder is achieved by assigning the variable the index of its binder. In this way, it is the fact that *pro* is *associated* with a variable (in a way to be made precise) or that *pro* is *interpreted* as a variable that furnishes it with a denotational index. To exemplify, suppose that a certain occurrence of *pro* is interpreted at LF as a pronominal variable. According to the MBR, that (pronominal) variable must be bound by its closest potential A'-binder. In order to be bound, *pro* is then assigned the index of that binder. Acquiring a denotational index, in turn, is synonymous with being identified. Therefore, a null pronoun can be identified at LF by being interpreted as a variable which causes it to acquire a denotational index from its closest potential binder.

1.2. Weak Crossover and the definition of variable

As argued in the last section, the alternative identification mechanism advocated for here depends crucially on null pronouns being interpreted as variables at LF. However, if variables are [-pronominal], [-anaphoric] elements, as it is commonly assumed since at least Chomsky 1986b, it is hard to see how anything like a pronominal variable could exist. Chomsky 1981, 1982 entertained another definition of variable, i.e. one in which a variable was defined not by its intrinsic features but by the context in which that empty category appeared at a given syntactic level:

- (05) X is a variable if it is locally A'-bound and in an A-position.⁶⁰

⁵⁸ Aoun and Li do not state that variables must be bound at LF in the MBR's definition but they do show that the principle applies at that level. It also must be noted that, although the definition of a potential binder says nothing about denotational phrases, it mentions the assignment of indices. In the framework I am assuming, if some phrase is non-denoting, it lacks a denotational index. Since the MBR mentions assignment of the index of the binder to the variable, lack of an index will prevent any phrase from qualifying as a potential binder.

⁵⁹ The definition of "potential A'-binder" will be slightly modified in section 3 of this chapter.

In the framework containing (05), an empty category could be characterized as a pronoun when it was inserted into the syntactic structure (at D-structure, for instance) but as a variable at S-structure or LF. The contextual definition of empty categories can then explain how a null pronoun can be interpreted as a variable at LF in BP (and other languages). However, Epstein (1983/1984), Safir (1984) and Brody (1984) (among others) seem to have proven that a contextual definition of pronouns and anaphors is problematic in many ways, which led Chomsky (1986b) to review his own proposal (and assume intrinsic features).

As discussed by Safir (1984) and adopted by Cinque (1990), however, it is only the contextual definitions of pronouns and anaphors which are problematic. In fact, the contextual definition of variables seems to be needed. Consider the Weak Crossover phenomenon, illustrated in (06):

- (06) a. ??Who₁ did his₁ mother see e_1
 b. ??His₁ mother saw everyone₁.

WCO effects like the ones attested in (06) are usually explained by a prohibition on multiple variable binding, as proposed by Koopman and Sportiche's (1982) *Bijection Principle*:

- (07) There is a bijective correspondence between variables and A'-positions. (That is, each operator must A'-bind exactly one variable, and each variable must be A'-bound by exactly one operator.)

Assuming that the quantifier in (06b) is moved by Quantifier Raising (QR, cf. May 1977) at LF, both sentences in (06) will violate the principle in (07) if and only if the pronoun *his* is taken to be a variable bound by *who/everyone*. Since the two sentences are in fact WCO violations, it is crucial for this account that variables are not intrinsically defined.⁶¹

Another account which makes crucial use of the contextual definition of variables is that of Safir 1984. Although arguing against the contextual definition of pronouns and anaphors, Safir proposes that variables are defined as in (05) above and that WCO effects are explained by the Parallelism Constraint on Operator Binding (PCOB):

⁶⁰ Local binding is defined as follows: X locally binds Z if X binds Z and there is no Y such that Y binds Z and Y does not bind X.

⁶¹ There are, of course, other accounts of WCO phenomenon that do not necessarily rely on the contextual definition of variables: Chomsky 1976 and Reinhart 1983, for example. However, as shown in Safir 1984, those accounts face many problems. See also the discussion about the sentences in (10).

(08) Parallelism Constraint on Operator Binding (PCOB)

If O is an operator and x is a variable bound by O , then for any y , y a variable bound by O , x and y are [α lexical].

The PCOB, like the Bijection Principle, accounts for the ungrammaticality of (06a, b). In these sentences, there will be two variables (the pronoun *his* which is [+lexical], and the trace left by *wh*-movement or QR, which is [-lexical]) bound by the same operator at LF.

Consider now (09), in which no Crossover violation is attested. Both the Bijection Principle and the PCOB predict sentence (09) to be well-formed because the pronoun *his* is not locally A'-bound (it is in fact locally A-bound by the variable left by movement of *who*) so it does not qualify as a (pronominal) variable.⁶²

(09) Who₁ [e_1 saw [his₁ mother]]

There are cases, however, where the predictions made by the two principles differ. Parasitic Gaps, for instance, are (correctly) allowed by the PCOB but (incorrectly) disallowed by the Bijection Principle. The empirical adequacy of the PCOB is even more clear in a language like BP, where overt and empty pronouns may occupy the same positions. In (10), for instance, the PCOB correctly predicts the presence of WCO effects when the pronoun is overt, and its absence when a null possessive is used instead. The Bijection Principle, on the other hand, would not be able to explain such a contrast:⁶³

- (10) a. *Quem₁ que o fato da mãe dele₁ ter arranjado um namorado incomoda t₁?
 b. Quem₁ que o fato da mãe *pro*₁ ter arranjado um namorado incomoda t₁?
 who that the fact of mother (his) to have found a boyfriend bothers
 ‘who does the fact that his mother found a boyfriend bothers?’

Note that the PCOB accounts for the contrast in (10) only because it permits pronouns to be interpreted as variables and it takes into consideration the overt/null character of that pronoun. Accounts of WCO which are formulated in terms of either the position of the pronoun in relation to the variable, or in terms of *c*-command, fail to explain (10), since the two sentences have exactly the same structure. Consequently, both sentences in (10) violate the Leftness Principle of Chomsky 1976 and the principle stated in terms of *c*-command in Reinhart 1983.

⁶² This implies that (local) A-binding will prevent *pro* from being interpreted as a pronominal variable and consequently from being identified, a fact that is exploited by the analysis presented in section 3.

⁶³ The identification of null possessive pronouns will be discussed in chapter 5.

In view of these facts, I will assume the validity of the PCOB as a grammatical principle and conclude, with Safir, that variables should be defined according to (5).⁶⁴

It should be clear, then, that, in the remainder of this work, a *pronominal variable* is defined as a pronominal category, i.e. a lexical or null category carrying a [+pronominal] feature, which occupies an A-position and is locally A'-bound at LF. Pronominal variables, like any variable, are assumed here to be subject to the MBR, as discussed in section 1.1.

As a last remark, I want to call attention to the fact that, assuming definition (5), the pronoun *his* in (11a), which has the LF structure shown in (11b), is not a (pronominal) variable, since it is not locally A'-bound at LF (it is, in fact, locally A-bound by the variable left by QR at LF):

- (11) a. Everyone₁ saw his₁ mother.
 b. Everyone₁ [_e₁ saw [his₁ mother]]

However, that pronoun is usually considered a “variable” in a semantic interpretation of the term because the value for *his* is dependent on (and varies with) every particular value that is chosen for the phrase *everyone*. In the remainder of this chapter, I will only use the term “variable” to refer to pronouns and/or empty categories which satisfy the definition in (5). If the distinction becomes relevant, however, I will use “semantic variable” to refer to this second use of the term, which may be applied to the pronoun *his* in (11).

1.3. The A/A' distinction

Since we will be assuming the definition of variable in (5), repeated below, it becomes crucial to define the A/A' status of different syntactic positions.

⁶⁴ Safir also assumes that [pronominal] and [anaphoric] are “more like properties than features, in that [...] there is [no] element marked [-pronominal] or [-anaphoric]. The element that is both anaphoric and pronominal is *PRO*. An element that has neither the anaphoric nor the pronominal property is simply undefined...” It is not clear to me why this assumption is needed. I will assume, as is generally done, that some categories left by movement are [-pronominal] and [-anaphoric]. However, such category is only a variable if it is locally A'-bound (and uninterpretable otherwise). The features [anaphoric] and [pronominal] are understood in the following manner: if a category is [+pronominal], it is subject to principle B of the binding theory; if it is [+anaphoric], it is subject to principle A; if it is [-pronominal] and [-anaphoric] it is subject to principle C. It is then expected that pronominal variables are only subject to principle B, not C, a fact that will become important in section 2.2.3. below. I thank Maria Luisa Zubizarreta (p.c.) for discussing this aspect of Safir's analysis with me.

- (5) X is a variable if it is locally A'-bound and in an A-position.

In the Government and Binding Framework (cf. Chomsky 1981 and references therein), there was a clear intuition, if not a definition, of the A/A' position distinction. Safir (1984), for instance, writes that "any position to which a grammatical relation is assigned, such as "subject," "object," etc., is an A-position, and A'-positions are those positions, like Comp, to which no grammatical relation is assigned." However, after the proposal and general acceptance of the "VP-Internal Subject Hypothesis" (cf. Kitagawa 1986, and Koopman and Sportiche 1991, among others), the status of the "VP-external" subject position has become debatable. If subjects in general move from [Spec VP] to [Spec IP], there is not a single position to which one can say that the grammatical relation of "subject" is assigned. Since then, some authors have argued that [Spec IP] is always an A-position; others have sustained that it can sometimes be an A'-position as well (cf. Diesing 1990, Koopman and Sportiche 1991, among others); and even others, that it is always an A'-position in certain languages (Goodall 1991, Borer 1995). The picture seems to worsen when it is considered that after Pollock's (1989) influential proposal, IP, in fact, may stand for AgrP, TP or maybe other functional projections, depending on the particular model under examination. For each of these projections, one can raise the question of whether their specifier is an A or A'-position.

Since the phrase structure proposed for BP in chapter 2 involves an Agr and a Tense projection, we now have to debate the status of both of their specifiers. Chomsky (1993) proposes a way out of the dilemma: A-positions are characterized as L-related, while A'-positions are not. L-relatedness, in turn, is defined in the following quote: "we say that a position is *L-related* if it is in a local relation to an L-feature, that is, in the internal domain or checking domain of a head with an L-feature" (Chomsky 1993: 28). This proposal shifts the problem to deciding which are the heads containing L-features. Assuming, with Chomsky 1995, that TP has a +/- strong V-feature, it can safely be concluded that [Spec TP] is always an A-position. The same conclusion applies to the specifier of the IP assumed (in chapter 2) to exist in English and Chinese since that projection is an amalgamated projection of T and Agr. The [Spec AgrP] position in rich agreement languages can also be said to be an A-position. This is because, in these languages, the inflectional morpheme is base-generated adjoined to the Agr head, as discussed in chapter 2, and the inflectional morpheme is a lexical element. How about [Spec AgrP] in BP? Being a poor agreement language, verbs are base-generated already inflected. Moreover, as I have argued, the verb only moves as high as the T head in BP. Since the strong D-feature in Agr which is responsible for the EPP cannot be said to be an L-feature (because Ds are functional categories), it has to be concluded that [Spec AgrP] is an A'-position in BP.

This conclusion is welcome since I argue here, as mentioned in the introduction to this chapter, that *pro* in (1), repeated below, is identified by the matrix subject *o Pedro*, which binds it from an A'-position:

- (1) O Pedro₁ disse que *pro*₁ ganhou na loto.
 P. said that (he) won the lottery

1.4. Binding of copies

The assumption that grammar makes reference to the denotation of phrases by virtue of an indexing mechanism may be problematic when conjoined with simple and taken-for-granted assumptions about movement and binding. Consider, for instance, (12a, b), where non-denoting categories have been moved:⁶⁵

- (12) a. When did Peter say that he fixed the car *t*
 b. How did Peter say that he fixed the car *t*

In (12), an adjunct wh-phrase has been moved to [Spec CP]. Since these adjuncts have no denotation, and so no index, it is unclear how their traces can be bound and therefore satisfy grammatical principles like the ECP, the ban against vacuous quantification, etc. For that reason, I will assume the definition of *binding* in (13), which only slightly differs from the commonly assumed definition:

- (13) A binds B iff A c-commands B and either A is coindexed with B or A is identical to B.

Assuming that movement leaves a copy of the moved element at the launching site (cf. Chomsky 1993, 1995), (13) amounts to saying that a moved element will always bind its trace (as long as it is moved to a c-commanding position).⁶⁶

2. The analysis of null subjects in BP

According to what has been discussed so far, a sentence like (1) would have the (simplified) structure given in (14), below:

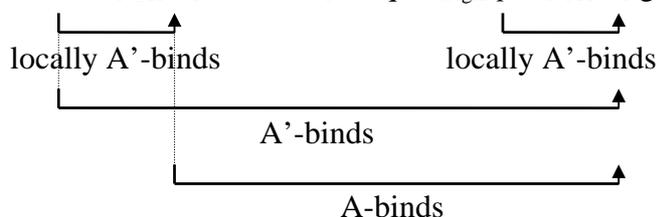
⁶⁵ The embedding in (12) is to make sure that the wh-phrases have not been base-generated in the matrix Comp (see Rizzi 1990).

⁶⁶ Alternatively, it could be assumed that the movement operation creates an index which is active for binding purposes but is distinct from denotational indices. Although this alternative does not require a new definition of binding, the proposal in the text seems more intuitive, so I will adopt it.

(14) [_{AgrP} *o Pedro*₁ [_{TP} *x*₁ disse ... [CP que [_{AgrP} *pro* [_{TP} *x* ganhou ...]]]]]

In (14), *pro* is moved from VP to [Spec TP]. There, *pro* checks nominative Case, as well as the uninterpretable ϕ -features of the verb (which has moved to T⁰). *Pro* then moves to [Spec AgrP], where it checks the EPP feature of Agr. Since [Spec AgrP] is an A'-position, *pro* leaves a variable in [Spec TP]. Exactly the same derivation takes place in the matrix clause. The subject *o Pedro* moves from its VP-internal position to [Spec TP], checking Case, and from there to [Spec AgrP], leaving a variable in [Spec TP]. According to the MBR, the two variables (in the embedded and the matrix clauses) must be bound by their closest potential binder. Consider first the variable in [Spec TP] of the embedded clause. Although this variable is bound by *pro* (the head of its movement chain) according to (13), for the purposes of the MBR, *pro* does not qualify as the closest potential A'-binder because it does not contain an index (cf. footnote 10). The closest potential binder for *pro* is the matrix subject.⁶⁷ That variable is then bound by *o Pedro* and assumes its index. Since the variable in the embedded [Spec TP] is a copy of (and therefore indistinct from) *pro*, assignment of the index of *o Pedro* to that variable is equivalent to assigning that index to *pro* itself. In this way, *pro* in (14) is identified by being associated with the variable in [Spec TP] position.⁶⁸ Note that the resulting structure is (15), a structure in which *pro*₁ locally A'-binds *x*₁ in the lower [Spec TP], [*o Pedro*]₁ locally A'-binds *x*₁ in the matrix [Spec TP] and the latter variable A-binds the former:

(15) [_{AgrP} *o Pedro*₁ [_{TP} *x*₁ disse ... [CP que [_{AgrP} *pro*₁ [_{TP} *x*₁ ganhou ...]]]]]



Assuming that a variable must only be free in the domain of the head of its chain (cf. Chomsky 1981:201, 1986a: 166), the fact that the matrix variable A-binds the embedded one becomes irrelevant.

⁶⁷ In this way, the closest potential A'-binder for the purposes of the MBR is the closest element that can serve as the antecedent (or identifier) of a variable (or pronominal variable) and not the closest A'-binder *strictu sensu*.

⁶⁸ As noted in the introduction to this chapter, the other mechanism of identification of null pronouns in BP is to interpret *pro* as a (pronominal) variable. This is the standard way in which null objects are identified in BP. In the case of null objects, *pro* is not associated with a variable since it has not been moved to an A'-position. I will delay the discussion of this second type of identification until section 3 of this chapter.

The analysis of how null subjects are identified in BP presented here makes a series of predictions regarding their interpretation. Let us review each of them:

- *Only elements occupying A'-positions can be interpreted as an antecedent for a null subject.* Recall that *pro* is generated in the syntactic structure without an index. It remains without an index until LF, where it is identified. Lacking an index, *pro* is unable to “corefer” with any other argument. When it is identified, *pro* receives the index of the binder of the variable with which *pro* is associated. Since, in order to qualify as a binder for that variable, an expression has to occupy an A'-position (according to the MBR), *pro* will always be identified by A'-elements. It is important to keep in mind that the inability of *pro* to be A-bound is not a stipulation. Since *pro* does not have an index until it is identified by the A'-binder of the variable with which it is associated, A-binding *pro* is an impossibility, since binding involves c-command between categories that share identical indices.

- *Pro in BP will not have the interpretative possibilities of a regular pronoun.* In a language like EP, *pro* receives a denotational index from the head Agr. It is then expected to behave like overt pronouns, which come from the lexicon with indices freely assigned. In BP, on the other hand, null pronouns remain without a denotational index because agreement is non-denoting. At LF, *pro* is identified in virtue of being associated with a variable. This will cause *pro* to have the same interpretative possibilities of a variable, which means that *pro* will never be interpreted deictically and its antecedent will always be a c-commanding element

- *Pro in BP always has the interpretation of a semantic variable.* Since *pro* never “corefers” (since it lacks an index) and is always identified by a binder, *pro* will always have the interpretation of a semantic variable. In contexts such as VP-ellipsis, for instance, where the coreferent construal of pronouns determines one reading and the binding construal determines a different reading, a sentence with a *pro* subject in BP will always (and only) derive the reading associated with the binding construal.

The next sections will spell out these predictions and show that, in fact, they are borne out.

2.1. Arguments: the interpretation of null subjects in BP

2.1.1. The c-command requirement on antecedents

As noted by Negrão (1997), null subjects in BP can only take c-commanding phrases as their antecedent. This is unlike what happens with overt pronouns in the same language and null pronouns in (other) *pro*-drop languages like EP. In (16a), which is taken from

Negrão 1997, the null subject can only take the entire c-commanding phrase *o amigo do Pedro* as its antecedent. It cannot take *Pedro* as its antecedent because that DP does not c-command the empty category. The overt pronoun in BP and the null pronoun in EP (in (16b, c) respectively) do not present such a restriction:

- (16) a. [O amigo do Pedro₂]₁ disse que *pro*_{1/*2/*3} ganhou a competição. (BP)
 b. [O amigo do Pedro₂]₁ disse que ele_{1/2/3} ganhou a competição. (BP)
 c. [O amigo do Pedro₂]₁ disse que *pro*_{1/2/3} ganhou a competição. (EP)
 the friend of Pedro said that (he) won the competition

This c-command requirement on antecedents is straightforwardly explained by the analysis presented. Since *pro* has no denotation (and therefore no reference of its own) and the antecedent of a null subject is the element which binds it, only a c-commanding DP will be interpreted as an antecedent.

Note also that (16) attests that one prediction of the analysis presented here is borne out. That paradigm shows that *pro* in *pro*-drop languages like EP patterns with overt, but not with null, pronouns in BP. The difference between overt and null pronouns in BP, as mentioned above, is explained by the fact that only null pronouns need to be identified. The difference between null pronouns in BP and EP is explained by the different ways in which null pronouns are identified in each language.

2.1.2. Null subjects are always interpreted as semantic variables

Another prediction of the analysis presented in this section is that null subjects in BP will always be interpreted as semantic variables, because null pronouns are always identified by being A'-bound (thus becoming or being associated with a syntactic variable) in this language. Negrão (1997) showed that, in fact, null subjects in BP are interpreted in just that way.

Negrão observes that null subjects in BP give rise only to sloppy identity readings in contexts of VP ellipsis. For instance, (17a) below can only be interpreted with the reading that *Paulo* thinks of himself that he is intelligent (the sloppy reading). The sentence cannot be interpreted as having the reading where *Paulo* also thinks that *Pedro* is intelligent (the strict reading), which is available in EP (shown in (17c)). The strict reading is only available in BP if the subject position is occupied by an overt pronoun (as in (17b)):⁶⁹

- (17) a. O Pedro₁ acha que *pro*₁ é inteligente e o Paulo também. (BP - sloppy only)
 b. O Pedro₁ acha que ele₁ é inteligente e o Paulo também. (strict and sloppy)

⁶⁹ This last judgment is different from Negrão's, who claimed that (17b) gives rise to a strict identity interpretation only.

- c. Pedro₁ acha que *pro*₁ é inteligente e Paulo também. (EP - strict and sloppy)
 Pedro thinks that (he) is intelligent and Paulo does too

Still according to Negrão, ambiguity in EP is caused by the fact that the null subject in the first conjunct can be treated either as a variable or as a pronoun, as shown below:

- (18) a. Pedro [_{VP} λx (thinks that x is intelligent)] and Paulo₂ [_{VP} *e*]
 b. Pedro₁ [_{VP} thinks that he₁ is intelligent] and Paulo₂ [_{VP} *e*]

At LF, the elided VP is reconstructed as a copy of the first VP. If the first conjunct is understood as containing a variable, copying the first VP into the elided one will give rise to a sloppy identity reading. If, on the other hand, the VP of the first conjunct is interpreted as containing a pronoun, reconstruction into the second VP will give rise to a strict identity interpretation.⁷⁰ Since BP lacks the strict identity interpretation for sentence (17a), Negrão concludes that null pronouns are always interpreted as in (18a), i.e. as bound variables, in this language. The analysis presented here explains why that should be so. Recall that subjects are A'-moved to [Spec AgrP], leaving a variable in [Spec TP]. When the VP of the first conjunct is copied into the VP of the second conjunct, it will contain the variable left by movement of the subject of the complement clause. That variable is bound by the closest potential A'-binder, which is *Paulo*, i.e. the subject of the matrix sentence in the second conjunct, deriving a sloppy identity interpretation. The difference between BP and EP, once again, is that, in the latter, since null pronouns acquire denotational indices from Agr, *pro* can still be coreferent with *Pedro* when it is copied into the second conjunct. In BP, on the other hand, *pro* does not have the ability to corefer. *Pro* is always identified by the binder of the variable with which it is associated.

Another context which Negrão uses to illustrate the fact that null subjects are always interpreted as variables are sentences in which the matrix subject is the phrase *só DP* 'only DP'. Her point is that overt and null pronouns give rise to different interpretations and, consequently, different truth value conditions, in these sentences:

- (19) a. Só o Maluf₁ acha que *pro*₁ vai ganhar as eleições.
 b. Só o Maluf₁ acha que ele₁ vai ganhar as eleições.
 only Maluf thinks that (he) will win the elections

In (19a), we have the interpretation that *Maluf* is the only candidate who thinks of himself as a winner, so the sentence is true in a situation where the other candidates in the

⁷⁰ Since overt pronouns can be interpreted either as semantic variables (giving rise to a sloppy reading) or as deictic pronouns (which give rise to strict identity readings), sentence (17b) is ambiguous. One of Negrão's claims, however, was exactly that the interpretation of the overt pronoun as a semantic variable is unavailable in BP. Cf. footnote 23 for more discussion.

election think that they will lose. Sentence (19b), on the other hand, says that *Maluf* is the only person who thinks that *Maluf* will win, so it can be true even if *Covas*, another candidate, thinks that he will be the winner. Negrão notes that the different truth conditions between the two sentences come from the fact that “at the appropriate level of representation, the empty category [in (19a) MM] is translated as a bound variable and the sentence can be paraphrased as: the only *x* such that *x* thinks that *x* is going to win the election is *Maluf*.” Sentence (19b), however, is translated as “the only *x* such that *x* thinks that *Maluf* will win is *Maluf*.”⁷¹

⁷¹ In fact, Negrão’s point is that (19b) can only be interpreted as saying that “the only *x* such that *x* thinks that *Maluf* will win is *Maluf*” because (according to her) overt pronouns are never interpreted as semantic variables in BP. Although Negrão is right about the interpretation of (19b), her conclusions about overt pronouns are debatable. They are based on the fact that BP seems to exhibit even stronger restrictions on the distribution of overt pronouns than the ones observed by Montalbetti (1984) for Spanish:

- (i) a. *Quién₁/nadie *t*₁ piensa que él₁ es inteligente ? (Spanish)
 who/nobody thinks that he is intelligent
 b. Quién₁/nadie *t*₁ dijo que *pro* piensa que él₁ es inteligente ?
 who/nobody said that (he) thinks that he is intelligent
 c. Quién₁/nadie *t*₁ quier que María se case con él₁ ?
 who/nobody wants that Maria gets married to him
- (ii) a. *Quem₁/ninguém *t*₁ acha que ele₁ é inteligente ? (BP)
 who/nobody thinks that he is intelligent
 b. *Quem₁/ninguém *t*₁ disse que *pro* acha que ele₁ é inteligente ?
 who/nobody said that (he) thinks that he is intelligent
 c. *Quem₁/ninguém *t*₁ quer que a Maria se case com ele₁ ?
 who/nobody wants that Maria gets married to him

The sentences in (i) illustrate Montalbetti’s generalization, i.e. roughly that overt pronouns cannot be locally bound by variables if a null pronoun is possible in that position. Sentence (ia) is ungrammatical because the variable left by wh-movement locally binds the overt pronoun in the embedded clause. Sentence (ib) is grammatical since the overt pronoun is locally bound by another pronoun, and not by the variable. Sentence (ic) is grammatical because, although the pronoun is locally bound by a variable, it occupies the complement position of a preposition and null pronouns cannot appear in that position in Spanish. The sentences in (ii), in turn, seem to show that the restriction in BP is stronger. All three sentences are ungrammatical in the relevant reading. This led Negrão to conclude that overt pronouns are never interpreted as semantic variables in this language.

However, there are contexts in which the restriction against bound overt pronouns seems to be weaker in BP than in Spanish:

- (iii) a. *[Todo chico]₁ *t*₁ piensa que él₁ es inteligente. (Spanish)
 b. [Todo menino]₁ *t*₁ acha que ele₁ é inteligente. (BP)
 every boy thinks that he is intelligent
 c. * Quién₁ *t*₁ dijo que María piensa que él₁ es inteligente. (Spanish)
 d. Quem₁ *t*₁ disse que a Maria acha que ele₁ é inteligente. (BP)
 who said that Maria thinks that he is intelligent

Summarizing, the facts discussed by Negrão (1997) which indicate that null pronouns in BP are always interpreted as bound variables find an explanation in the analysis proposed here. Null subjects are always associated with a variable and are identified by the binder of that variable. Therefore, null subjects are always interpreted as (semantic) variables.

2.1.3. The ban on split antecedents

A fact noticed by Figueiredo Silva (1994) is that null subjects in BP cannot take split antecedents:

- (20) a. *O Pedro₁ convenceu o Paulo₂ que *pro*₁₊₂ ganharam. (BP)
 b. O Pedro₁ convenceu o Paulo₂ que eles₁₊₂ ganharam. (BP)
 c. O Pedro₁ convenceu o Paulo₂ que *pro*₁₊₂ ganharam. (EP)
 Pedro convinced Paulo that (they) won

The ban on split antecedents is straightforwardly explained by the fact that *pro* is identified by an A'-binder. Although the impossibility of taking split antecedents is not a characteristic of semantic variables in general (as shown by the sentence *Every groom convinced his bride that they should marry in July*), it is a necessary by-product of the way in which *pro* is identified. Since the variable associated with *pro* in complement clauses in BP is bound by the closest potential A'-binder, *pro* will assume the index of that particular binder, so reference to split antecedents is impossible. The overt pronoun in (20b) and the EP null pronoun in (20c), on the other hand, can be coreferent with their antecedents. Therefore, they do not show any restriction on having split antecedents.

For some unclear reason, when the antecedent of the null pronoun is a D-linked quantifier, as in (iiib), that pronoun may be overt in BP, differently from Spanish. Negrão tries to accommodate such data under her generalization by assuming that, in these cases, the pronoun is not exactly bound but it is coreferent with the restriction of the quantifier. However, an overt pronoun can still have a bound reading in (iiid), although the operator presents no restriction. It is interesting to note that (iiid) may be grammatical only because a version of that sentence with a null pronoun in the subject position of the most embedded clause would be ungrammatical. As we will see in the following sections, *pro* must find its antecedent in the most immediately higher clause, so only *Maria* would be a possible antecedent for a null pronoun in (iiid). In any case, it is not very clear if the facts in (ii) and (iiib, d) are really related to the facts noted by Montalbetti. According to the analysis presented here, even if the matrix subject is not a quantified NP, it will occupy an A'-position and, therefore, an overt pronoun in the embedded clause will always be locally bound by a variable (in the relevant reading). However, the pronouns in the embedded clause themselves occupy an A'-position so it is not clear if they should abide by Montalbetti's restriction to start with. Although very interesting, the distribution of overt pronouns with quantifiers or operators as their antecedent in BP is poorly understood and a comprehensive discussion of them would take us too far away from the main concern of this work which is the interpretation and distribution of null pronouns.

2.1.4. Subject orientation of null subjects

As also noted by Figueiredo Silva (1994), *pro* in BP takes only the closest higher subject as its antecedent (where closeness is defined in terms of c-command) and cannot refer to a higher object,⁷² unlike overt pronouns and null subjects in other *pro*-drop languages. This is shown below in (21) and (22), respectively:

- (21) a. O Paulo₁ disse que o Pedro₂ acredita que *pro**_{1/2/*3} ganhou. (BP)
 b. O Paulo₁ disse que o Pedro₂ acredita que ele_{1/2/3} ganhou. (BP)
 c. O Paulo₁ disse que o Pedro₂ acredita que *pro*_{1/2/3} ganhou.⁷³ (EP)
 Paulo said that Pedro believes that (he) won
- (22) a. O Paulo₁ convenceu o Pedro₂ que *pro*_{1/*2/*3} tinha que ir embora. (BP)
 b. O Paulo₁ convenceu o Pedro₂ que ele_{1/2/3} tinha que ir embora. (BP)
 c. O Paulo₁ convenceu o Pedro₂ que *pro*_{1/2/3} tinha que ir embora. (EP)
 Paulo convinced Pedro that (he) had to go away

The facts in (21) are accounted for by the MBR. The variable left by movement of *pro* in the embedded clause has to be bound by the closest potential binder. Only the closest subject, therefore, will be understood as the antecedent of *pro*. The fact that only subjects but not objects are interpreted as the antecedent of a null pronoun (seen in (22)) is also explained by the analysis proposed here. Since subjects occupy A'-positions in BP, they are able to bind the variable associated with *pro*. Objects, on the other hand, occupy A-positions and therefore cannot bind a variable.⁷⁴

The most interesting fact related to the paradigm in (22), however, is that the 'subject-orientation' of null pronouns in BP is not absolute. Although this fact had remained unnoticed, in Modesto 2000, I pointed out that an object which has been wh-moved or topicalized becomes a possible antecedent for a null subject. Further investigation has proved that relativization is another strategy through which an object may become the antecedent of an embedded null subject. The fact that objects become possible antecedents

⁷² I am glossing over some complications caused by subjunctive tenses and modals. Cf. footnote 15 of chapter 1.

⁷³ See footnote 33 of chapter 2.

⁷⁴ Subject orientation is also true for null subjects in adjunct clauses (which was also noted by Ferreira 1999, from whom I borrow the example (ib)):

- (i) a. O Paulo₁ conheceu a Maria₂ depois que *pro*₁ ficou rico.
 Paulo met Maria after that (he) got rich-masc.
 b. *O Paulo₁ conheceu a Maria₂ depois que *pro*₂ ficou rica.
 Paulo met Maria after that (she) got rich-fem.

for *pro* when wh-moved, topicalized or relativized is exactly what the analysis presented here predicts. Consider that objects cannot bind the variable associated with *pro* because they occupy A-positions. If, however, an object was to move into an A'-position, one should expect that object to become a possible antecedent for a null pronoun. This is exactly what I showed in Modesto 2000:

- (23) a. Quem₁ que o Pedro₂ convenceu t₁ que *pro*_{1/?*2} tinha que ir embora?
 who (that) Pedro convinced that (he) had to go away
 b. O cara₁ que o Pedro₂ convenceu t₁ que *pro*_{1/2} tinha que ir embora...
 the guy that Pedro convinced that (he) had to go away
 c. a Maria₁, o Pedro₂ convenceu t₁ que *pro*_{1/2} tinha que ir embora.
 Maria Pedro convinced that (s/he) had to go away

The paradigm in (23) provides strong evidence that the identification of null subjects in BP is not related to agreement. If *pro* were identified by agreement, it would not matter if the object occupied an A or A'-position; coreference with matrix objects would, in principle, be possible in every case and not only when the object occupies an A'-position.

Let us consider each example more closely. In (23a), the wh-word is moved from the object position of the matrix clause. Arguments in that position are not usually understood as the antecedent of *pro* (compare (23) with (22) above). Being moved, however, not only does the wh-phrase become a possible antecedent for *pro* but it becomes the only possible one: *pro* cannot be interpreted as bound by the matrix subject.⁷⁵ Similarly, in (23b, c), an object becomes a possible antecedent for the empty subject through relativization and topicalization, respectively. In these cases, however, the resulting sentence is ambiguous (i.e. the antecedent of the null subject can be either the matrix subject or the head of the relative in (23b) and the matrix subject or the topic in (23c)). These facts seem to indicate that, in (23b, c), both the subject and the moved object occupy A'-positions but that, in (23a), only the wh-phrase occupies an A'-position. But why should that be so? In what follows, I will argue that whenever an object is overtly moved into an A'-position, the subject has to remain in its Case position, therefore losing the ability to bind a null embedded subject. Sentences (23b, c), then, will be ambiguous between structures involving movement (where the object is the binder of the null subject) and structures involving base-generation of the relativized and topicalized element (where the matrix subject is the binder of the nulls subject). Sentence (23a), on the other hand, will be unambiguously analyzed as involving movement of the wh-phrase, so the matrix subject is never a possible antecedent for an embedded subject.

⁷⁵ The same holds when the null subject is inside an adjunct clause:

- (i) Quem₁ que o Pedro₂ entrevistou t₁ depois que *pro*_{1/?*2} ficou famoso?
 who (that) Pedro interviewed after that (he) became famous

2.1.4.1. Subjects do not always occupy A'-positions

Consider the facts discussed in Aoun and Benmamoun (A&B) 1998:

- (24) a. *CLLDed-NP_i...CLLDed-NP_j... t_j/pro_j...t_i (Lebanese Arabic)
 b. *CLLDed-NP_i...Wh_j... t_j/pro_j...t_i
 c. *CLLDed-NP_i...Foc_j... t_j...t_i
 d. CLLDed-NP_i...CLLDed-NP_j... t_j/pro_j...pro_i
 e. CLLDed-NP_i...Wh_j... t_j/pro_j...pro_i
 f. CLLDed-NP_i...Foc_j... t_j...pro_i

A&B show that, in Lebanese Arabic, a Clitic-Left-Dislocated (CLLD) NP may be base-generated in its dislocated position (cf. (24d, e, f)) but cannot be moved to that position (cf. (24a, b, c)) when movement crosses another A'-element such as another CLLDed NP, a wh-phrase or a focused element⁷⁶ that was either moved or base-generated in that position.⁷⁷ This interception effect is explained by A&B as a Minimality effect (cf. Rizzi 1990 and Chomsky 1995).⁷⁸

Modesto (1997) showed that similar facts take place in BP: a topic cannot be moved over another moved or base-generated topic. Consider (25) below. The pronoun contained inside the topicalized NP in (25a) may be bound by the quantified subject of the embedded clause. In (25b, c), however, the pronoun inside the higher topic cannot be bound by the quantified subject. Assuming that a bound reading requires reconstruction of the topic to a position c-commanded by the quantifier in the subject position, and that reconstruction implies movement, the pronoun in the higher topic in (25) could only have a bound reading if that topic had been moved. The absence of that reading, then, indicates that a topic cannot have moved over another (moved or base-generated) topic:

- (25) a. O seu melhor aluno_i, eu acho que todo professor apresentou t_i pra Maria_j,
 his best student I think that every professor introduced to Maria
 b. O seu melhor aluno_i, eu acho que pra Maria_j, todo professor apresentou t_i t_j.
 his best student I think that to Maria every professor introduced

⁷⁶ Although A&B say that these elements would be better referred to as focused phrases, they call them “topics.” I will use the term “focused phrase/element” because “topic” and “topicalization” are already used here in a different sense.

⁷⁷ Note that, in Lebanese Arabic, focused phrases can be dislocated only by movement but wh-phrases and CLLDed elements can be either moved or base-generated in their surface (dislocated) position.

⁷⁸ In section 2.4. I will discuss Chomsky’s (1993, 1995) account of Minimality effects. I will argue that Minimality cannot be reduced to something like the Minimal Link Condition.

- c. O seu melhor aluno, eu acho que empregou_j, todo professor apresentou t_1 a
 his best student I think that a job every professor introduced to
 um empresario que ofereceu t_j .
 one entrepreneur that offered

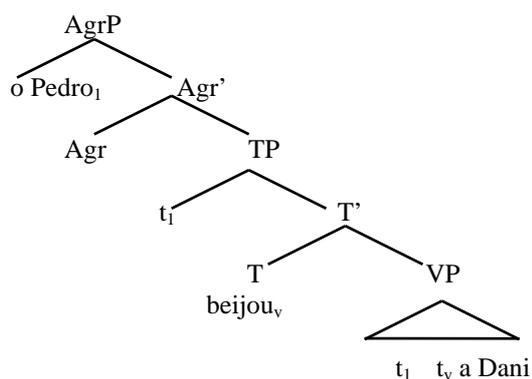
As discussed in chapter 2, Minimality is also used by Zubizarreta (1999) to explain the fact that subjects cannot intervene between a fronted wh-phrases and the verb in Romance. In other words, since pre-verbal subjects in Spanish and EP (for instance) occupy an A'-position, they intervene and therefore exclude wh-movement of an object over them:

- (26) a. Qué₁ (*Pedro) compró (Pedro) t_1 ? (Spanish)
 b. Que₁ (*Pedro) comprou (Pedro) t_1 ? (EP)
 what (Peter) has bought (Peter)

Now consider the sentences in (23) again (which are repeated below) in conjunction with the phrasal structure proposed for BP in chapter 2, repeated in (27):

- (23) a. Quem₁ que o Pedro₂ convenceu t_1 que $pro_{1/?*2}$ tinha que ir embora?
 who (that) Pedro convinced that (he) had to go away
 b. O cara₁ que o Pedro₂ convenceu t_1 que $pro_{1/2}$ tinha que ir embora...
 the guy that Pedro convinced that (he) had to go away
 . c. a Maria₁, o Pedro₂ convenceu t_1 que $pro_{1/2}$ tinha que ir embora.
 Maria Pedro convinced that (s/he) had to go away

- (27) O Pedro beijou a Dani. (BP)
 Pedro kissed Dani

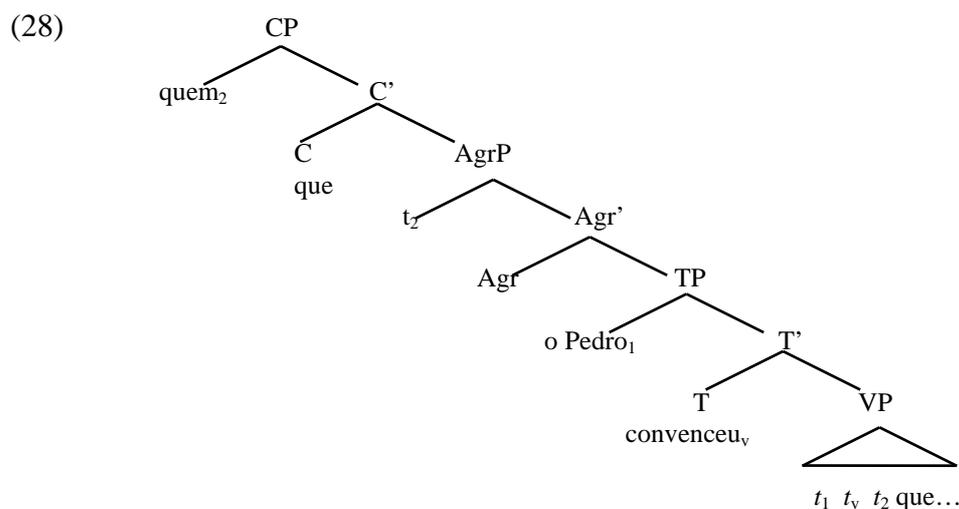


Keeping in mind that the [Spec AgrP] position depicted in (27) as the subject position in BP is an A'-position, consider (23a). If the subject always occupied that position, it

would be unexpected, in view of the facts in (24), (25) and especially (26), that an object could be wh-moved over a subject in BP. In other words, why are Minimality effects absent in (23a)? Since, according to the definition of A/A'-distinction assumed in section 1.3. above, [Spec AgrP] is always an A'-position in BP, the obvious conclusion is that the subject does not occupy that position when wh-movement occurs. This conclusion is corroborated by the fact that the subject in (23a) ceases to be a possible antecedent for the embedded subject when wh-movement applies. The lack of Minimality is then explained by the fact that the wh-phrase is not moved over another A'-position in that case.

The derivation of (23a) will then be as follows. The subject *o Pedro* moves from its VP-internal position into [SpecTP] to check nominative Case, the verb (supposedly) moves into T^0 , and the object remains inside VP. Recall now that movement into [Spec AgrP] is required to satisfy a strong D-feature of Agr, i.e. the EPP feature. The subject is the closest element containing a D-feature, so it is usually moved to that position. If, however, the CP has a feature that must be checked by an element other than the subject, as is the case in (23a), movement of the subject to [SpecAgrP] will always lead the derivation to crash. Suppose for instance, that *o Pedro* is moved from [Spec TP] into [Spec AgrP], which is an A'-position. CP is then projected. Suppose also that that CP contains a strong wh-feature. The object inside VP is the only element capable of checking such a feature. However, movement of the object wh-phrase into [Spec CP] over the subject in [Spec AgrP] violates Minimality. In this situation, then, the only converging derivation is the one in which the subject remains in [Spec TP] and the wh-object moves first into [Spec AgrP] to check the EPP and then into [Spec CP] to check the strong wh-feature of C^0 . The final structure will be (28):

- (23) a. Quem₁ que o Pedro₂ convenceu t₁ que *pro*_{1/?*2} tinha que ir embora?
 who (that) Pedro convinced that (he) had to go away



Take (23b, c) now. The same logic applies here. If the head of the relative clause and the topic were moved over a subject in an A'-position, a Minimality effect would be expected. But if the subject remains in [Spec TP] in these cases as well, how do we explain that, unlike in (23a), the subject is still a possible binder for the embedded *pro*? There is a difference between relativization and topicalization, on one hand, and wh-movement, on the other, which might account for that fact. In BP, heads of relatives and topics can be base-generated in their surface position, while wh-phrases (normally) cannot. This is made clear by the contrast in (29):⁷⁹

- (29) a. *Quem_i que a Maria viu ele_i ?
 who that Maria saw him
 b. O Pedro_i, a Maria viu ele_i.
 Pedro Maria saw him
 c. O cara_i que a Maria viu ele_i...
 the guy that Maria saw him

The fact that sentences in which an overt pronoun resumes a topic or a relativized NP are grammatical, versus the ungrammaticality of resumption of a wh-phrase, shows that topics and relativized NPs can be base-generated already in their A'-positions.⁸⁰ Sentences (23b, c), then, would be assigned two possible structures: one involving movement and another which does not involve movement. It is possible to hypothesize that the ambiguity of (23b, c) with respect to the binder of *pro* is related to these two possible structures. Specifically, one is tempted to conclude that, whenever there is movement, the subject remains in an A-position (since otherwise Minimality would be violated), and the moved element is the sole possible binder for *pro*. On the other hand, if the sentences are analyzed as involving base-generation of the topic or the relativized head, then the subject is free to be moved to [Spec AgrP], therefore occupying an A'-position and being the only

⁷⁹ Obviously, if the object position of the sentences in (29) is a gap, the contrast disappears, since the wh-phrase, the head of the relative and the topic can be moved from their argument positions. However, if the gap is embedded in an island, as in (i), the contrast reappears, since that gap must not be the product of movement, i.e. it must be pronominal:

- (i) a. *Quem_i que a Maria conhece o jornalista que entrevistou *pro*_i ?
 who that Maria knows the journalist who interviewed (him)
 b. O Pedro_i, a Maria conhece o jornalista que entrevistou *pro*_i.
 Pedro Maria knows the journalist who interviewed (him)
 c. O cara_i que a Maria conhece o jornalista que entrevistou *pro*_i ...
 the guy that Maria knows the journalist who interviewed (him)
 The licensing and interpretation of object *pros* are discussed in section 3.

⁸⁰ Modesto (1997), based on Aoun and Benmamoun (1998), shows that topics related to overt pronouns do not show reconstruction effects in BP. The lack of reconstruction effects, in turn, argues that topics related to overt pronouns are base-generated in their dislocated position. See also Ross (1967).

possible binder for *pro*. The subject is the only possible binder, in this case, because it is closer to the null subject than the base-generated topic or relativized NP.

If the ambiguity in (23b, c) is in fact related to the two possible structures of relativization and topicalization, it is predicted that, whenever the movement derivation is blocked for the topic or the relative head, they should not be able to bind an embedded *pro*. This prediction is borne out:

- (30) a. O Pedro₁, a Maria₂ convenceu ele₁ que *pro**_{1/2} tinha que ir embora.
 Pedro Maria convinced him that (she) had to go away
 b. O cara₁ que a Maria₂ convenceu ele₁ que *pro**_{1/2} tinha que ir embora.
 the guy that Maria convinced him that (she) had to go away
- (31) a. O Pedro₁, a Maria₂ quase chorou depois que ela₂ convenceu *pro*₁ que *pro**_{1/2}
 Pedro Maria almost cried after that she convinced (him) that (she)
 tinha que ir embora.
 had to go away
 b. O cara₁ que a Maria₂ quase chorou depois que ela₂ convenceu *pro*₁ que *pro**_{1/2}
 the guy that Maria almost cried after that she convinced (him) that (she)
 tinha que ir embora...⁸¹
 had to go away

In (30) and (31), the topics and relative heads are base-generated in the dislocated position. In (30), this is clear, since the argumental position related to the topic/relative head is occupied by an overt pronoun. In (31), base-generation of these elements is indicated by the fact that the gap related to the topic or the relative head is inside an adjunct island. In all the examples, the subject immediately c-commanding the embedded subject *pro* is its only possible binder. This data confirm the hypothesis that movement is somehow related to the possibility of being the antecedent of *pro*.

⁸¹ The empty pronouns in object position in (31) could be bound by the subjects *ela*₂ and *Maria*₂, which are moved from [Spec TP] to [Spec AgrP] of their respective clauses. It is then natural to ask how they can end up bound by the base-generated topic/relative head. If these pronouns in object position are identified by being interpreted as variables, as I claimed in the introduction to this chapter, they seem to violate the MBR because they are (apparently) not bound by the closest potential binder. However, one must note that assignment of the index 2 to these pronouns in (31) would cause them to be locally A-bound by the variable left by movement of the subject to [Spec AgrP]. Being locally A-bound, those pronouns could not be interpreted as variables and, therefore, would fail to be identified. The only possible derivation, then, is the one in which the pronouns in object position take a base-generated A'-element as their antecedent. I ask the reader to wait until section 3 for a detailed discussion of these questions.

Other arguments point in the same direction. Although *wh*-phrases cannot normally be related to resumptive pronouns, as seen in (29), there are instances where base-generation of a *wh*-phrase is marginally possible in order to escape an island violation, as shown in (32a). It is then predicted that, in these cases, the *wh*-phrase will not bind the null subject (cf. (32b)):

- (32) a. ?*Quem*₁ *que* a *Maria*₂ *quase* *chorou* *depois* *que* *ele*₁ *foi* *embora*?
 who that Maria almost cried after that he went away
 b. ?*Quem*₁ *que* a *Maria*₂ *quase* *chorou* *depois* *que* o *Daniel*₃ *convenceu* *ele*₁ *que*
 who that Maria almost cried after that Daniel convinced him that
 *pro*_{*1/*2/3} *era* *feio*?
 (he) was ugly

By the same token, the relation between being moved and being the antecedent of *pro* leads to the prediction that, if a certain element can never be base-generated, then it should always be interpreted as the antecedent for an embedded null pronoun. Quantified phrases with *só* ‘only’ and *nem* ‘not even’ seem to always be moved, as indicated by the impossibility of resumption:⁸²

- (33) a. *Só* a *Maria*, o *Pedro* viu (**ela*).
 only Maria Pedro saw (her)
 b. *Nem* a *Maria*, o *Pedro* viu (**ela*).
 not even Maria Pedro saw (her)

Although judgments are quite subtle in this case, I believe the interpretation of the examples in (34) to go in the expected direction:

- (34) a. *Só* a *Maria*₁, o *Pedro*₂ *convenceu* *ec*₁ *que* *pro*_{1/?2} *tinha* *que* *ir* *embora*.
 only Maria Pedro convinced (her) that (she) had to leave.
 b. *Nem* a *Maria*₁, o *Pedro*₂ *convenceu* *ec*₁ *que* *pro*_{1/?*2} *tinha* *que* *ir* *embora*.
 not even Maria Pedro convinced (her) that (she) had to leave.

Now take sentences in which a *wh*-phrase has remained *in situ*, which is always a possibility in BP. Since the object has not been moved, the logic of the argument being developed here would lead us to expect that the subject would be the only possible binder for an embedded *pro*. This is indeed what we get:

⁸² I thank Jairo Nunes for bringing these examples to my attention.

- (35) O Pedro₂ convenceu quem₁ que *pro**_{1/2} ganhou o prêmio?⁸³
 Pedro convinced who that (he) won the prize

The facts in (30) - (35) show that, although an object cannot usually be the antecedent of an embedded null subject (cf. (22) above), an object becomes a possible binder when it is overtly A'-moved (either by wh-movement, relativization or topicalization). However, they do not show conclusively that the position that the subject occupies is different depending on whether the object has been A'-moved or not. Recall now from chapter 2 that pre-verbal subjects in Romance languages like Spanish and EP have special properties because they occupy A'-positions (therefore triggering the Minimality effects shown above in (26)). Among these properties, discussed in chapter 2, is the fact that pre-verbal subjects always receive a specific or partitive interpretation, whereas post-verbal subjects are interpreted existentially (as shown in (36) below). If the specific interpretation of pre-verbal subjects in Spanish is a product of the fact that pre-verbal subjects occupy an A'-position, it is expected that the interpretative characteristics of subjects in BP will change depending on which position they occupy. This prediction is borne out:

- (36) a. Una mujer salió. (specific/partitive) (Spanish)
 a woman left
 b. Salió una mujer. (existential)
- (37) a. Uma mulher beijou o Pedro. (specific reading only) (BP)
 a woman kissed Pedro
 b. Quem₁ que uma mulher beijou t₁ ? (existential reading preferred)
 who that a woman kissed

In (37a), the subject *uma mulher* moves to [Spec AgrP] to satisfy the EPP. Since this position is an A'-position, the subject is interpreted as being specific, similarly to pre-verbal subjects in Spanish. In (37b), on the other hand, the object has been wh-moved. If the ideas discussed here are correct, the wh-phrase is moved to [Spec AgrP] on its way to [Spec CP] and the subject remains in an A-position. It is then expected that this subject should behave like post-verbal subjects in Spanish, which also occupy A-positions. The subject in (37b) is, in fact, interpreted in the same way post-verbal subjects in Spanish are. This fact, then, argues that not only does an object become a possible antecedent for a

⁸³ As pointed out by J.-R. Vergnaud (p.c.), the ungrammaticality of the sentence in (i) seems to provide an argument against analyses of sentences involving multiple wh-phrases which rely on "absorption." Discussion of such implications, however, would take us too far afield:

(i) *Quem₁ convenceu quem₂ que *pro*₁₊₂ ganharam na loto?
 who convinced who that (they) won the lottery

null embedded subject when overtly A'-moved but that the subject itself is not moved to an A'-position when the object is moved.

In conclusion, I have shown that, in sentences like (23a) above, the matrix subject cannot be moved to [Spec AgrP] because this would cause movement of the wh-object to violate Minimality. In other words, wh-movement (and A'-movement in general) cannot skip an A'-specifier when moving to [Spec CP]. The data also makes it clear that Minimality effects are triggered only when elements are moved (as argued by A&B). When a topic or a head of a relative clause is base-generated, it can establish a chain with a pronominal category in object position across the A'-subject, so these structures are subject only to the MBR but not to Minimality (see section 2.4 for discussion). (As for how the MBR is respected in such structures, see section 3.)

Before leaving the subject of the relation between movement and the possibility of being interpreted as the antecedent of a null pronoun, it has to be noted that the data presented here implies that topics and heads of relative clauses cannot be base-generated in [Spec AgrP] and then moved to their final position. In other words, Procrastinate is always violated in those structures: although topics and heads of relative clauses could check the strong nominal feature of Agr, first the matrix subject is moved to [Spec AgrP], then the topic or relative head is base-generated in [Spec TopP] or [Spec CP]. The reason why is straightforward: the derivation which does not violate Procrastinate violates the Parallelism Constraint on Operator Binding (PCOB). Take, for instance, the examples in (30) and (31), repeated below:

- (30) a. O Pedro₁, a Maria₂ convenceu ele₁ que *pro**_{1/2} tinha que ir embora.
 Pedro Maria convinced him that (she) had to go away
 b. O cara₁ que a Maria₂ convenceu ele₁ que *pro**_{1/2} tinha que ir embora.
 the guy that Maria convinced him that (she) had to go away
- (31) a. O Pedro₁, a Maria₂ quase chorou depois que ela₂ convenceu *pro*₁ que *pro**_{1/2}
 Pedro Maria almost cried after that she convinced (him) that (she)
 tinha que ir embora.
 had to go away
 b. O cara₁ que a Maria₂ quase chorou depois que ela₂ convenceu *pro*₁ que *pro**_{1/2}
 the guy that Maria almost cried after that she convinced (him) that (she)
 tinha que ir embora...
 had to go away

If the topics and heads of relative clauses in these examples were base-generated in [Spec AgrP] and then moved to their final position, they would be able to bind the null embedded subject. However, in that case, the topic or head of a relative clause would bind

two variables (locally): the one created by movement, which is -lexical, and the pronoun in object position, which is +lexical; this would violate the PCOB. Consequently, Procrastinate has to be violated and the topics and heads of relatives have to be base-generated in their final position, after the matrix subject has checked the EPP feature in [Spec AgrP].

2.1.4.2. When Minimality is violated

I have been assuming all along that some nominal phrase must be moved to [Spec AgrP] to check the EPP feature (a strong D-feature of the Agr head). As discussed above, [Spec AgrP] is an A'-position. Movement of a subject to that position prevents other phrases from being A'-moved to CP or to other positions, due to Minimality. Therefore, when an object has to be moved (either by topicalization, relativization, or wh-movement), the subject remains in [Spec TP], an A-position, and the EPP is checked by the moved object. Sentence (23a), repeated below, illustrates this: since the wh-object is moved to [Spec CP] through [Spec AgrP] and therefore the subject remains in [Spec TP], the wh-phrase is the only potential binder for the embedded null subject:

- (23) a. Quem₁ que o Pedro₂ convenceu t₁ que *pro*_{1/?*2} tinha que ir embora?
 who (that) Pedro convinced that (he) had to go away

Note, however, that movement of another phrase will exclude raising of the subject to [Spec AgrP] only if that phrase is able to check the EPP. Contrast the behavior of DP wh-phrases (seen in (23a)), on one hand, and PP and adjunct wh-phrases, on the other:

- (38) a. Pra quem₁ que o Pedro₂ disse t₁ que *pro*_{*1/2} tinha que ir embora?
 to whom that Pedro said that (he) had to go away
 b. Com quem₁ que o Pedro₂ falou t₁ depois que *pro*_{*1/2} foi embora?
 with whom that Pedro talked after that (he) went away
 c. Como₁ que o Pedro₂ convenceu a Maria₃ que *pro*_{*1/2/*3} tinha que ir embora?
 how that Pedro convinced Maria that (he) had to go away
 d. Quando₁ que o Pedro₂ convenceu a Maria₃ que *pro*_{*1/2/*3} tinha que ir embora?
 when that Pedro convinced Maria that (he) had to go away

Contrasting with (23a), the sentences in (38) only allow for the reading where the matrix subject binds the embedded *pro*, in spite of wh-movement. It is possible to say that, in (38c, d), the adjunct wh-phrases are generated in their surface position in Comp, as suggested in Rizzi 1990 and Zubizarreta 1998. Since no wh-movement is involved, the subject itself would have to be moved to [Spec AgrP] to check the EPP, explaining the fact that the embedded subject takes the matrix subject as its antecedent. However, this explanation cannot be extended to (38a, b) straightforwardly. There, the wh-phrases seem

to move over an A'-subject, violating Minimality, since the subject binds the embedded *pro*. Apparently, then, Minimality may be violated if no Minimality-obeying derivation is well-formed. In (38a, b), for instance, the object position is occupied by a PP instead of a DP. Consequently, the object cannot check the strong D-feature of Agr. Raising the subject to [Spec AgrP] is thus the only choice to satisfy the EPP. A derivation violating Minimality is the only grammatical derivation available, and, in this case, Minimality may be violated.

Similar observations apply to the sentences below:⁸⁴

- (39) a. Pro Paulo₁, o Pedro₂ disse *t*₁ que *pro**_{1/2} tinha que sair.
 to Paulo Pedro said that (he) had to go out
 b. O que₁ que o Pedro₂ disse *t*₁ depois que *pro**_{1/2} saiu ?
 what that Pedro said after that (he) left

In section 2.1.4.1. above, it was shown that topicalization in matrix clauses usually gives rise to an ambiguity regarding the possible antecedent of the embedded null subject. If the topic is base-generated in its surface position, then the matrix subject occupies an A'-position and is the antecedent of the null subject. If, on the other hand, the topic is dislocated by a movement operation, then the subject stays in an A-position and the topic is the antecedent of the null embedded subject. In (39a), a PP topic is related to the object position of the matrix clause. Since PPs do not have pronominal forms, it is expected that topicalization of such categories should always involve movement. However, being a PP, the topic in (39a) is unable to check the EPP. The sentence, therefore, exhibits the expected lack of ambiguity seen in (38). The subject moves to [Spec AgrP] to check the EPP and the topic is moved over the subject, violating Minimality. Since the subject ends up in an A'-position which is closer to the embedded subject than the position of the topic, the subject is taken to be the only possible antecedent for *pro*.

In (39b), a wh-phrase is moved from the object position of the matrix clause. As discussed in detail above, in cases like this (which are identical to sentence (23a)), the subject remains in an A-position and the EPP feature is checked by the wh-phrase itself. The wh-phrase in (39b) could indeed check the EPP, since it is a phrase of the right kind (a DP). If it did, it would be necessarily interpreted as the antecedent of the embedded *pro*. The problem with this is that the wh-phrase *o que* does not contain the appropriate semantic features to identify the subject of a verb like *sair* 'to leave'. The structure in which the wh-phrase checks the EPP is, thus, ungrammatical. In that case, although the EPP could have been checked by the wh-phrase, it is the subject which will be moved to [Spec AgrP]. The wh-phrase is moved to [Spec CP] over the subject, violating Minimality.

⁸⁴ I thank Cilene Rodrigues (p.c.) for bringing these sentences to my attention.

Since the subject is in an A'-position and is closer to the embedded subject than the wh-phrase in CP, the subject is the only possible antecedent for *pro*. Once again, it is possible to violate Minimality in this case because no Minimality-obeying derivation would converge.

Consider now a wh-phrase which is moved from the object position of an embedded clause:

- (40) a. Quem₁ (que) o Pedro₂ disse que *pro*₂ contratou t₁ ?
 who (that) Pedro said that (he) hired
 b. Pra quem₁ (que) o Pedro₂ acha que *pro*₂ falou isso t₁ ?
 to whom (that) Pedro thinks that (he) told this

In (40), we see that neither a PP wh-phrase nor the DP *quem* is a possible antecedent for the embedded subject when moved from the embedded clause. Sentence (40a), then, strongly contrasts with (23a), where *quem* is extracted from the matrix clause:

- (23) a. Quem₁ que o Pedro₂ convenceu t₁ que *pro*_{1/?*2} tinha que ir embora?
 who (that) Pedro convinced that (he) had to go away

The difference between the two structures is that *pro* c-commands the trace left by wh-movement in the former but not in the latter. This causes the wh-phrase not to be a possible antecedent for *pro*, which, if the subject stays in an A-position, will have no potential antecedent at all and, therefore, will not be identified. Consider the derivation of (40). Let's suppose Minimality is observed. The wh-phrase would move to [Spec AgrP] of the embedded clause and from there to [Spec CP]. After the matrix AgrP is formed, the wh-phrase would move to [Spec AgrP] of the matrix clause and from there to the highest [Spec CP]. In this structure, the closest potential binder for *pro* is the trace of the wh-phrase in the embedded [Spec AgrP]. However, because *pro* c-commands the variable left by wh-movement, assignment of the index of the wh-phrase to *pro* would lead to a principle C violation. The matrix subject is also not a possible antecedent for *pro* in this structure because it occupies an A-position. The null subject, hence, has no potential binder and the Minimality-obeying derivation is ungrammatical. Consider now the derivation where Minimality is not observed. The null subject is A'-moved to [Spec AgrP] in the embedded clause. The wh-object is moved over that subject to [Spec CP]. The matrix subject is then moved (from VP to [Spec TP] and then) to [Spec AgrP]. The wh-phrase is then moved from the embedded CP to [Spec CP] of the matrix clause. In this

structure, the matrix subject is a potential antecedent for (the variable associated with) *pro*, which gets bound and is thus identified.⁸⁵

Similarly to the case just discussed, Minimality is also violated when null subjects appear in indirect questions (i.e. wh-islands). These cases are discussed in detail in section 2.2.2.

To conclude, I have argued that Minimality prevents A'-movement of an object over a subject occupying [Spec AgrP]. In this case, it is the object itself that is moved to that position in order to check the strong D-feature of Agr. However, as seen in (38), (39) and (40), Minimality can be violated if no Minimality-obeying derivation is available. This implies that Minimality has to be treated as an economy constraint, which will be discussed more thoroughly in section 2.4.

2.2. Further arguments for the analysis: intervention effects⁸⁶

2.2.1. Intervening subjects

I have been trying to show that the behavior of null subjects in BP is derived from the fact that a *pro* subject is associated with a variable in this language, and that *pro* is identified by the binder of that variable. I have also argued that that variable is subject to Aoun and Li's (1993) MBR, repeated below:

- (2) MBR: At LF, variables must be bound by the most local potential A'-binder. (Where A qualifies as a potential A'-binder for B iff A c-commands B, A is in an A'-position, and the assignment of the index of A to B would not violate Principle C of the binding theory.)

The action of the MBR is seen in (21a), also repeated below. In this sentence, it can be attested that a null subject must take the closest subject as its antecedent:

- (21) a. O Paulo₁ disse que o Pedro₂ acredita que *pro*_{*1/2/*3} ganhou.
 Paulo said that Pedro believes that (he) won

Since, in the analysis presented here, subjects occupy A'-positions, this fact follows naturally from the MBR. The subject *o Pedro* in (21a) is a closer potential binder for the variable associated with *pro* than *o Paulo*, so the presence of *o Pedro* prevents *o Paulo*

⁸⁵ Note that the derivation where Minimality is violated only in the matrix clause is also going to be ungrammatical because the variable left by A'-movement of the matrix subject will locally A-bind *pro* which, for this reason, will not be able to be interpreted as a variable.

⁸⁶ I am indebted to Joseph Aoun for much discussion on this topic.

from binding the variable. In this section, I will be showing other cases where one DP *intervenes* between the variable and another DP, preventing the latter from being the antecedent of a null pronoun. These cases will have the schematic structure shown in (41):

(41) [... α ... [... β ... [... *pro* ...]]] (where α and β are potential A'-binders)

Importantly, intervention effects between two potential binders are not due to the concept of Minimality, discussed in section 2.1.4.1. This is because Minimality affects only chains generated by movement (as argued by Chomsky 1995, A&B 1998).⁸⁷

The same intervention effect seen in (21a) above is observed when the closest subject is a complex NP. However, in these cases, the resulting sentence is ungrammatical:

- (42) a. *O Pedro₁ acha que o fato da Maria₂ ter sorrído mostra que *pro*_{1/2} é inteligente.
 Pedro thinks that the fact that Maria has smiled shows that (s/he) is intelligent
 b. *O fato do Pedro₁ ter fugido mostra que *pro*₁ é culpado.
 the fact that Pedro has run away shows that (he) is guilty

In (42a), the subject *a Maria* inside the complex NP subject is not a possible antecedent for *pro* since it does not c-command the pronominal. The matrix subject is also not a possible antecedent because the complex NP – *o fato da Maria ter sorrído* – is a closer binder. The complex NP, then, is the only DP able to bind *pro*, however, although being referential and so having a denotational index, the complex NP does not have the appropriate features to satisfy the selectional restrictions of the embedded verb and the sentence is ungrammatical. In other words, (42a) could be interpreted as saying that “Pedro thinks that the fact that Maria has smiled shows that the fact that Maria has smiled is intelligent” and it is ungrammatical in the same way its paraphrase is. The same applies to (42b): *o Pedro* does not c-command *pro* so it cannot bind it, and the complex subject in the matrix clause is unable to serve as an antecedent for *pro*.

The only case in which an intervening subject does not prevent *pro* from being bound by a higher subject is when that subject is non-denoting:

⁸⁷ Note that Minimality is not reducible to the MBR. This is because in (23a), for instance, the wh-phrase would be the only potential binder for its own variable, even if the subject occupied an A'-position:

- (23) a. Quem₁ que o Pedro₂ convenceu t₁ que *pro*_{1/?*2} tinha que ir embora?
 who (that) Pedro convinced that (he) had to go away

Even if the matrix subject was moved to [Spec AgrP] in (23a), assignment of the index of *o Pedro* to the variable left by wh-movement would violate principle C. Therefore, the fact that the subject does not move to [Spec AgrP] in this sentence (as shown by the interpretation of the embedded subject) cannot be attributed to the MBR.

- (43) O Pedro₁ disse que *pro*_{exp} parecia que *pro*₁ ia ganhar o prêmio.
 Pedro said that (it) seemed that (he) was going to win the prize

The difference between (42) and (43) seems to be that, although the complex NP subjects in (42) do not have the appropriate features, they are possible binders for *pro* because they bear a denotational index. The expletive subject in (43), on the other hand, does not denote so it does not count as a possible binder and, therefore, does not intervene between *pro* and the matrix subject. As mentioned in footnote 10 above, although the definition of a potential binder does not mention its denotational properties, it does imply that a potential binder must have an index.

2.2.2. Islands

Consider now the behavior of null subjects in islands. Since the derivation of null subjects advocated here does not involve syntactic movement, null subjects are expected to appear freely in island contexts. The sentences in (44) and (45) with complex NPs and adjunct islands, respectively, indicate that this expectation is borne out:⁸⁸

- (44) a. A Maria₁ se esquece do fato de que *pro*₁ vai ganhar menos no novo emprego.
 Maria is not considering the fact that (she) will earn less in the new job
 b. O presidente₁ negou os rumores de que *pro*₁ tinha recebido dinheiro de empresários
 The president denied the rumors that (he) had gotten money from businessmen
- (45) a. A Maria₁ quase chorou depois que *pro*₁ viu o estrago.
 Maria almost cried after that (she) saw the damage
 b. O Pedro₁ estava bêbado no dia em que *pro*₁ entrevistou o Daniel.
 Pedro was drunk on the day that (he) interviewed Daniel

Consider now relative clauses and wh-islands. Although null subjects are not derived by movement, a *pro* inside relative clauses and indirect questions produces the environment where one expects intervention effects to occur. This is because both in relatives and indirect questions, an A'-element will intervene between *pro* and a matrix subject. However, the two island contexts differ in that a null subject is always grammatical in wh-islands but never in relative clauses:⁸⁹

⁸⁸ Compare the grammatical (44a, b), where the null subject appears inside a complex NP, to the ungrammatical (42a, b), where a complex NP intervenes between *pro* and a matrix subject.

⁸⁹ Sentence (46a) is taken from Figueiredo Silva (1994), who first noted the ungrammaticality of null subjects in relative clauses.

- (46) a. *A Maria₁ achou [um carro₂ [que *pro*₁ tem grana pra comprar *t*₂]].
 Maria found a car that (she) has (enough) money to buy
 b. *A Maria₁ não gostou de [o escritor₂ [que *pro*₁ entrevistou *t*₂]].
 Maria not liked the writer that (she) interviewed
- (47) a. A Maria₁ não sabe quem *pro*₁ entrevistou *t*.
 Maria doesn't know who (she) interviewed
 b. A Maria₁ não sabe mais que presente *pro*₁ comprou *t*.
 Maria doesn't know anymore what present (she) bought
 c. A Maria₁ não sabe direito pra quem *pro*₁ telefonou *t*.
 Maria doesn't know well to whom (she) telephoned
 d. A Maria₁ não sabe como *pro*₁ chegou em casa *t*.
 Maria doesn't know how (she) got home
 e. A Maria₁ não sabe onde *pro*₁ comprou o presente *t*.
 Maria doesn't know where (she) bought the present

The grammaticality of the sentences in (47) follows from the analysis presented here. Consider the structure of direct and indirect questions below:

- (48) a. [_{matrix clause} wh_i [subject_j ... t_i ... [_{embedded clause} *pro*_i [*x*_i ...]]]]
 b. [_{matrix clause} subject_j [*x*_j ... [_{embedded clause} wh_i [*pro*_j [*x*_j ... t_i]]]]

Sentences (47) have the structure in (48b). In these structures, assignment of the index of the wh-phrase to *pro* would cause a principle C violation because (the variable associated with) the null subject c-commands the trace of the wh-phrase. The embedded wh-phrase, then, is not a potential A'-binder for *pro* (according to the MBR) and the sentence is grammatical with the matrix subject binding *pro*. Note that in (48a), which is the structure of sentences like (23a), discussed above, (the variable associated with) *pro* does not c-command the launching site of wh-movement. The MBR, coupled with the definition of potential binder, thus, explains the fact that null subjects are grammatical in wh-islands in BP and that they take the closest higher subject as their antecedent (and not the wh-phrase as in (23a/48a)). Note also that the structure in (48b) violates Minimality, as mentioned in section 2.1.4.2. above. Suppose it did not. The wh-phrase would not be a potential binder for *pro*, as just discussed. The matrix subject would be a potential binder. However, since *pro* was not moved to an A'-position in its own clause, assignment of the index of the matrix subject to *pro* would cause that empty category to be locally A-bound by the variable left in [Spec TP] of the matrix clause. Since it could not be interpreted as a variable, *pro* would not be identified and the sentence would be ungrammatical. So, as discussed in 2.1.4.2., Minimality is violated when null subjects are inside wh-islands because that is the only way in which a derivation is able to converge.

Consider now the case of relative clauses in (46). The relativized NP occupies an A'-position and is related to a gap which is c-commanded by the null pronoun in subject position. This is exactly the same configuration seen in *wh*-islands. One would therefore expect that, for the same reason *wh*-phrases do not qualify as potential binders for null subjects in (47), the relativized head would not as well, allowing the null subject to search for a binder in the domain outside the relative clause. However, as seen in (46), a null subject cannot take an antecedent other than the head of the relative. Since it is principle C that makes *wh*-phrases not qualify as potential binders for null subjects in (47), the difference in grammaticality between (46) and (47) could be explained if the empty category left by relativization was not subject to principle C. In that case, the relativized head would qualify as a potential A'-binder for *pro* and assign its index to it, making the sentence ungrammatical. Consider the two possible structures for a sentence like (46a):⁹⁰

- (49) a. *A Maria₁ não gostou de [o [escritor₂ [que [AgrP x₂ [TP *pro* entrevistou x₂]]].
 b. *A Maria₁ não gostou de [o [escritor₂ [que [AgrP *pro*_s [TP x_s entrevistou *pro*_o]]].

In (49a), the relativized head was moved from the object position of *entrevistar* 'interview' to [Spec AgrP] and from there to [Spec CP]. In (49b), on the other hand, the relativized head was base-generated in its position and a null pronoun (call it *pro*_o) was base-generated in the object position. In that case, the null pronominal subject is moved to [Spec AgrP] to check the EPP feature, as discussed above.⁹¹

In (49b), *pro*_s is the closest A'-element to *pro*_o. However, *pro*_s does not have an index, so *pro*_o is bound by the head of the relative, its closest potential binder, and assumes its index. The head of the relative is also the closest A'-element to (the variable associated with) *pro*_s. Since *pro*_o is not subject to principle C (because it is a pronominal), the head of the relative is the closest potential binder for (the variable associated with) *pro*_s, which, therefore, also assumes the index of the head of the relative. However, the resulting structure is one in which the pronoun in object position is locally A-bound by the variable associated with *pro*_s. Since it is locally A-bound, *pro*_o does not qualify as a variable and thus cannot be identified.⁹² The structure (49b) is thus expected to be ungrammatical.

⁹⁰ I am crucially assuming a raising analysis of relatives (cf. Vergnaud 1974, Kayne 1994) which will become important in differentiating *wh*-islands from relative clauses. Note also that it must be the case that the EPP can be satisfied by any nominal phrase and not only by DPs because it is an NP, not a DP, that moves to [Spec AgrP] in (49a).

⁹¹ As previously discussed, only the head of the relative but not a *wh*-phrase can be base-generated in its s-structure position.

⁹² Note that the order in which the two pronouns in (49b) find their closest potential antecedent is irrelevant. The resulting structure will always be one in which the pronoun in object position is locally A-bound, therefore failing to be interpreted as a variable and to acquire a denotational index (which makes θ -assignment impossible).

In (49a), on the other hand, the pronoun does not move to [Spec AgrP] and, therefore, is not associated with a variable. Since agreement cannot identify null subjects in BP, *pro* will only be identified if, at LF, it is interpreted as a (pronominal) variable. Assuming that the variable in object position is not subject to principle C, the trace of the relativized head in [Spec AgrP] is the closest potential binder for *pro*. The null subject, thus, assumes the index of the head of the relative. However, similarly to the case just discussed, the resulting structure is one in which the trace left by relativization (in object position) is locally A-bound by *pro*. Since it is locally A-bound, it does not qualify as a variable and will not be interpretable at LF. Structure (49a) will then be ungrammatical if *pro* takes the head of the relative as its antecedent. However, *pro* does not have any other option in (49a), according to the MBR. Since the head of the relative qualifies as the closest potential binder for *pro*, the null subject is not free to look for another binder in a higher domain.

To summarize, the grammaticality of the sentences in (47), the cases of null subjects in wh-islands, versus the ungrammaticality of null subjects in relative clauses (in (46)) can be explained if the empty category occupying the gap related to the head of the relative is not subject to principle C, unlike the trace left by wh-movement in (47). If the relativization gap is occupied by a null pronoun, as in (49b), the absence of principle C is expected, since the category in question, although being locally A'-bound, is a [+pronominal] category. If, on the other hand, the gap is created by movement, it is nevertheless different in nature from the category left by movement of wh-phrases. Since we are assuming here a raising analysis of relatives, one possible reason for the difference between the trace left by relativization and wh-movement is the nature of wh-phrases themselves. As argued by Borer (1995), wh-phrases belong to a well defined set which also includes quantifiers and certain adverbs, i.e. the set of Operators. Names, she continues, “may undergo movement, but such movement does not give rise to first order logic representations of the type familiar from QR representations.” The fact that the gap in relatives is not subject to principle C can then be explained by the fact that it was created by movement of a name, not an operator.

2.3. A few remarks

2.3.1. First and second person null subjects

At this point, I would like to stress the fact that the analysis presented in the preceding sections is meant to cover null pronouns with 1st, 2nd and 3rd person interpretation. A null subject in BP assumes 1st and 2nd person interpretation when its binder is a 1st or 2nd person pronoun:

- (50) a. *Eu*₁ disse que *pro*₁ ganhou. (cf. **Eu*₁ disse que *pro*₁ ganhou)
 I said that (I) won-1st I said that (you/he) won-2nd/3rd
 b. *Você*₁ disse que *pro*₁ ganhou. (cf. **Você*₁ disse que *pro*₁ ganhou)
 you said that (you) won-2nd you said that (I) won-1st

All the properties of null subjects discussed above remain the same, irrespective of their person interpretation.

2.3.2. *The ungrammaticality of matrix null subjects*

As noted in chapter 2, referential null subjects are impossible in matrix clauses in BP because agreement is incapable of identifying them. Now, it must be added that null subjects in matrix clauses cannot be identified by A'-binding either, since there is no possible binder above the subject (but see section 2.4.2.).

2.3.3. *Null subjects in preposed adjuncts*

Another timely observation is that, according to the analysis developed here, it may seem problematic that null subjects are grammatical in preposed adjunct clauses (as in (51a)), since the matrix subject does not c-command that position, as shown by the lack of a bound reading in (51b):

- (51) a. *Depois que ec*_{1/*2} entrou no quarto, o *Pedro*₁ viu a *Maria*₂.
 after that (he) walked into the room, Pedro saw Maria
 b. **Depois que pro*₁ entrou no quarto, todo *menino*₁ viu a *Maria*.
 after that (he) walked into the room, every boy saw Maria

However, the empty subject in the adjunct clause of (51) need not be *pro*. The contrast between (51a) and (51b) is explained if the empty category in the former sentence is bound by a zero topic.⁹³ Even in an out of the blue context, the matrix clause of (51a) furnishes a salient discourse topic, which will be coindexed with the zero topic. In (51b), however, since the matrix subject is a quantified phrase and such phrases cannot serve as (discourse) topics, the sentence is expected to be bad. As for the fact that only the subject of the matrix clause (but not the object) can be interpreted as the discourse topic, this is not problematic for the analysis proposed here, since subjects seem to be more “salient”, even in languages like Italian, where the judgments for (51a) are reproduced (cf. Calabrese 1986 and, especially, Cardinaletti 1997).

⁹³ This null topic can be assumed to be adjoined to the adjunct CP. From that position, it does not c-command the matrix subject, so no principle C violation is expected.

2.3.4. *PRO* and *pro*

As discussed in chapter 2, null subjects of infinitives in BP behave differently than null subjects of finite clauses:

- (52) O Pedro₁ convenceu a Maria₂ a *PRO**_{1/2} sair.
 Pedro convinced Maria to go out

As also mentioned in that chapter, I attribute these differences to the fact that, unlike Agr in finite clauses, the Agr of infinitives is anaphoric (as proposed in Borer 1989 and updated in Landau 1999).⁹⁴ In spite of the interpretative differences, however, subjects of finite and infinitival verbs occupy the same syntactic position. The structure of (52), for instance, is given below:

- (53) [_{AgrP} O Pedro₁ [_{TP} *x*₁ convenceu a Maria₂ ... [_{AgrP} *PRO*₂ [_{TP} *x*₂ sair]]]]

Just like in finite clauses, *PRO* checks its null Case in [Spec TP] and moves to [Spec AgrP] to check the EPP feature. Since Agr is anaphoric, it is bound by (or, according to Landau, enters into an “Agree” relation with) a matrix argument. Both the matrix object and the variable associated with the matrix subject (in [Spec TP]) may bind the anaphoric Agr, so *PRO* may have as its controller either the object or the subject (when under subject control verbs such as *promise* for instance). After control takes place, i.e. after the anaphoric Agr is bound and transfers its index to *PRO*, *PRO* itself qualifies as the binder of the variable left in [Spec TP] of the embedded clause.

Since *PRO* has to check the EPP and thus, as any other subject, occupies [Spec AgrP], which is an A'-position, it is not surprising that it can itself be the antecedent of a null subject. This will derive the effect of having a matrix object as the antecedent of a null pronoun, as shown below:⁹⁵

- (54) O Pedro₁ convenceu a Maria₂ a *PRO**_{1/2} dizer que *pro**_{1/2} tinha acabado o projeto.
 Pedro convinced Maria to say that (she) had finished the project

Although the (ultimate) antecedent of *pro* is a matrix object in (54), it is easy to see that that sentence provides no argument against the analysis proposed here because the relation between *pro* and its antecedent is mediated by the subject of the infinitival clause.

⁹⁴ For Borer, the subject of infinitivals is *pro*, a null pronoun, but Landau maintains the existence of a pronominal anaphor. Although I use *PRO* in the text, I am impartial on this issue, since nothing I have to say hinges on that choice. The subject, irrespective of being *PRO* or *pro*, is identified by Agr, which acquires an index by virtue of being anaphoric.

⁹⁵ I thank Cilene Rodrigues for bringing sentence (54) to my attention.

2.3.5. Hyper-raising

In chapter 1, I argued that analyses involving movement of DPs from an embedded subject position to a higher argument position cannot account for all the data related to null subjects in BP. However, Ferreira (1999), discussed in that chapter, raises a potential problem for the analysis presented here. As he put it, the sentence in (55a) cannot be analyzed as (55b) straightforwardly, since the matrix subject would have no θ -role in that structure. The analysis presented here would then have to analyze that sentence as involving a base-generated topic, as in (55c):

- (55) a. O João₁ parece que *e*₁ comprou um carro novo.
 J. seems that (he) bought a new car
 b. O João₁ parece que *pro*₁ comprou um carro novo.
 c. [_{TopP} O João₁ [_{AgP} *pro*_{expl} parece [_{CP} que *pro*₁ comprou um carro novo]]]

The problem with assuming that *o João* is a topic related to the embedded subject position followed by an null expletive in matrix subject position (as in (55c)), as pointed out by Ferreira, is that *o João* may be substituted by a weak pronominal form (56a) or by a quantifier like *alguém* ‘somebody’ (56b), both of which do not normally appear as topics (56c, d).⁹⁶

- (56) a. Cê parece que *e* está doente.
 you seems that is sick
 b. Alguém parece que *e* está doente.
 somebody seems that is sick
 c. *Cê₂, O João₁ me disse que *e*₂ seria aprovada.
 you, J. told me that (you) would be approved
 (cf. Você₂, O João₁ me disse que *e*₂ seria aprovada)
 d. *Alguém₂, O João₁ me disse que *e*₂ seria aprovada.
 somebody, J. told me that would be approved
 (cf. A Maria₂, O João₁ me disse que *e*₂ seria aprovada)

The data in (56) seems to indicate that (55c) is not the correct structure underlying sentence (55a). However, contrary to Ferreira’s impression, it is in fact possible to argue that (55b) is the correct structure underlying (55a). Suppose that, after the binding chain which identifies the null subject is established, the θ -role of the null subject can be transferred to the matrix subject. It is plausible that only one θ -role is sufficient for the chain created by the two subjects, since that is exactly what happens when a topic binds a null pronominal element. In a sentence like *Mary, I like her*, for instance, the topic *Mary*

⁹⁶ I provide the judgments described in Ferreira 1999, for now. To my ears, (56b) is bad.

is interpreted as the person who is liked through its relation with the pronoun in object position. In other words, the chain *Mary-her* receives the internal θ -role of the verb *to like*, although that chain is not a movement chain. The same applies in (55b). Alternatively, whatever explains how the topic *Mary* receives its interpretation will also explain the interpretation of the matrix subject in (55b). The binding chain between the two subjects is, then, enough to account for the grammaticality of sentence (55a). However, it is not even clear that (55a) is a grammatical sentence. As pointed out to me by Jairo Nunes (p.c.), the existence of such sentences like (55a) may simply be a performance phenomenon. Although such sentences sound relatively well-formed, they rapidly degrade when the subject assumes a grammatical person other than 3rd person singular:⁹⁷

- (57) a. *Eu pareço que estou doente.
I seem that (I) am sick.
b. *Nós parecemos que estamos doentes.
we seem that (we) are sick
c. ??Eles parecem que estão doentes.
they seem that (they) are sick

If, in fact, the structure involved in these sentences is ungrammatical, the occurrence of sentences like (55a) in colloquial speech does not provide any insight about BP as “internalized language” (the I-language of Chomsky 1986b), which is what we seek to investigate here, and the problem disappears. Otherwise, an analysis of sentence (55a) involving the structure in (55b) could be pursued.

2.3.6. Indefinite subjects

Consider the sentences in (58):

- (58) a. *pro* dirigem muito devagar em São Paulo.
(people) drive very slow in São Paulo
b. A Maria disse que *pro* dirigem muito devagar em São Paulo.
Maria said that (people) drive very slow in São Paulo

The null subjects in (58) have an indefinite or generic interpretation. Unlike referential null subjects, indefinite null subjects are grammatical in matrix clauses and do not need to have a higher subject as their antecedent. That these subjects bear a θ -role is clear from their interpretation and also by the control test used in Chomsky 1981:

⁹⁷ If I am right in assuming that (56b) above is ungrammatical, that sentence provides further evidence that the structure depicted in (55a) is not a grammatical structure.

- (59) Em São Paulo, *pro* dirigem devagar pra *PRO* evitar acidentes.
 in São Paulo (people) drive slow in order to avoid accidents

According to the assumptions laid out in this chapter, null indefinite subjects should also be identified, i.e. be assigned a denotational index, in order to be able to be assigned a θ -role. Since identification through agreement is not available in BP, the only other option is that indefinite null subjects are A'-bound. As suggested to me by Hagit Borer (p.c.), this may be exactly the case if indefinite subjects are bound by a generic operator. In sentence (58a), for instance, the variable left by movement of *pro* to [Spec AgrP] is bound at LF by a generic operator which has scope over the entire sentence. Sentences like (58a) would then contrast with the examples given in chapter 2, repeated here in (60):

- (60) a. **pro* trabalho/trabalhei na universidade.
 (I) work/worked at the university
 b. **pro* trabalha/trabalhou na universidade.
 (you/she/he) works/worked at the university

The ungrammaticality of (60a) is explained by the fact that the generic interpretation of the pronoun does not match the 1st person marking on the verb. The same applies for (60b) when it has 2nd person interpretation. The cases where (60b) has 3rd person interpretation are ungrammatical if the subject is taken to be deictic but are grammatical if the subject is taken to be generic, although the generic reading is somewhat implausible in this sentence.

As for (58b), the closest potential binder for *pro* is the matrix subject, as usual. However, assignment of the index of *Maria* to *pro* in (58b) will lead to ungrammaticality, since the marking on the embedded verb is plural. The embedded subject can then be bound by the generic operator and interpreted as an indefinite subject.

2.4. Discussion: minimality and the MLC

In section 2.1.4.1., I followed A&B (1998) and Zubizarreta (1999) in assuming that movement of a wh-phrase (or other elements) to an A'-position could not cross an A'-specifier occupied by another element due to a Minimality effect. Chomsky 1993 notes that, intuitively, in all cases involving Minimality, “the moved element has “skipped” a position it could have reached by a shorter move, had that position not been filled.” Chomsky 1995, then, proposes to subsume Minimality under the Minimal Link Condition, defined below:

(61) Minimal Link Condition (Chomsky 1995: 311)

K attracts α only if there is no β , β closer to K than α , such that K attracts β .⁹⁸

The MLC is argued by Chomsky to be part of the definition of the operation Move. As part of the definition of Move and not as an economy condition which chooses among convergent derivations, the MLC is inviolable. As Chomsky puts it: ““shortest moves” are the only ones there are.”

Consider again some of the BP data we have discussed so far:

(22) a. O Paulo₁ convenceu o Pedro₂ que *pro*_{1/*2/*3} tinha que ir embora.

Paulo convinced Pedro that (he) had to leave

(23) a. Quem₁ que o Pedro₂ convenceu *t*₁ que *pro*_{1/*2} tinha que ir embora?

who (that) Pedro convinced that (he) had to go away

According to the MLC, the subject in (22a) moves from [Spec TP] to [Spec AgrP] to check the EPP feature (necessarily). Since the subject is closer to [Spec AgrP] than the object, movement of the object to check the EPP is barred by the MLC. However, as argued above, in (23b), the object is moved to that position. Sentences (22a) and (23a) seem to show, then, that subjects and objects can both move to [Spec AgrP], contrary to the prediction made by the MLC.

The MLC would also be problematic when trying to account for the cases of Minimality discussed in 2.1.4.1. above:

(24) a. *CLLDed-NP_i...CLLDed-NP_j... *t*_j/*pro*_j...*t*_i (Lebanese Arabic)

b. *CLLDed-NP_i...Wh_j... *t*_j/*pro*_j...*t*_i

c. *CLLDed-NP_i...Foc_j... *t*_j...*t*_i

d. CLLDed-NP_i...CLLDed-NP_j... *t*_j/*pro*_j...*pro*_i

e. CLLDed-NP_i...Wh_j... *t*_j/*pro*_j...*pro*_i

f. CLLDed-NP_i...Foc_j... *t*_j...*pro*_i

(26) a. Qué₁ (*Pedro) compró (Pedro) *t*₁ ? (Spanish)

b. Que₁ (*Pedro) comprou (Pedro) *t*₁ ? (EP)

what (Peter) has bought (Peter)

⁹⁸ K attracts F if F is the closest feature that can enter into a checking relation with a sublabel of K. (Chomsky 1995: 297).

As previously discussed, the paradigms in (24) and (26) are explained by Minimality. In (24), a CLLDed element in Lebanese Arabic cannot be moved over another (moved or base-generated) CLLDed element, a (moved or base-generated) wh-phrase or a Focused phrase. Just like the BP sentence (23a) above, A'-moving an element over an A'-specifier which is already occupied by another phrase is barred in Lebanese Arabic. The same generalization applies to (26): assuming that pre-verbal subjects occupy an A'-position in Spanish and EP, a wh-phrase cannot be moved over a pre-verbal subject. Since the MLC is defined in terms of *attraction*, all the data in (24) and (26) is unaccounted for. To see why, consider (24c), which is exemplified below in (62):

- (62) *ʃaħəbt-a fakkaro Kariim ʕarrafit kəll mʕallme ʕalay-a.
 friend-her asked-3p Karim introduced-3sf every teacher to-her
 'Her friend, they thought every teacher introduced KARIM to her'

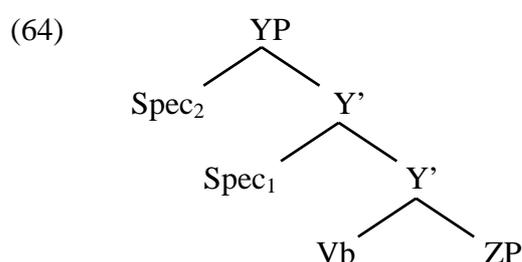
In (62), the focused element is attracted by some head in the embedded clause. Since the subject is not attracted to that position, it must be the case that the feature being attracted was something like a Focus-feature and not a category feature such as a D-feature because the subject would have been attracted in that case. The derivation continues until some head in the matrix clause attracts the CLLDed element. Since the subject of the matrix clause is not attracted, it must again be the case that that head does not attract a category feature, but some specific feature like a Topic-feature. However, if a CLLDed element is attracted by having a topic-feature, it is very surprising that a focused-element should cause any intervening effect. The ungrammaticality of (62) is then unexpected according to the MLC. The same logic applies to the structure in (24b) since wh-phrases are, if anything, focused elements. In (26), once again, we see Minimality effects arising from the interaction between a wh-phrase and a topic-like element (since we have assumed that pre-verbal subjects in Spanish are Clitic Left Dislocated). All these facts are not accounted for by the MLC.

To conclude, there is empirical evidence against subsuming Minimality under the MLC from several languages. The generalization which can be drawn from the languages cited above is that A'-movement cannot cross an A'-specifier that is already occupied by another element. Although Shortest Move does seem to be at play here, this generalization cannot be explained by the MLC, which makes incorrect empirical predictions. As suggested to me by Hagit Borer (p.c.), a definition of Minimality that would be in accord with the facts mentioned here, and, at the same time, the Shortest Move principle, would be one that takes into consideration not the closest launching site of movement, like the MLC, but the closest target. I will then propose that Minimality be subsumed under the principle in (63):

- (63) Closest Target Principle (CTP)

If a phrase A moves to a position B, there is no position C which is a possible target for movement of A and C is closer to A than B.⁹⁹

For A-movement, the CTP is equivalent to the MLC. Consider, for example, the discussion in Chomsky 1995: 357. There, he argues that the Subject in Spec₁ of (64), his (188), is unable to check the (strong) features of *v*, the head Y, because it does not head a non-trivial chain. Movement of the object from inside ZP (VP in this case) to the outer Spec of Y is then necessary:



According to the MLC, movement of the object to Spec₂ is allowed because both Specs are equidistant from the object. The object, then, checks the strong feature of *v* as well as its Case and agreement (ϕ -) features. It is necessary, now, to check the Case feature of the subject in Spec₁. This is done by moving the subject to the checking domain of T. Once again, movement of the subject over the object in Spec₂ is allowed because Spec₂ is not closer to T than Spec₁. All other possible derivations are ruled out by economy considerations. Nothing changes when the MLC is substituted by the CTP. Both targets for object movement are equidistant. Movement of the subject to T over the object does not even require explanation since [Spec TP] is the closest target, so any phrase can, in principle, move there. If the object moves to [Spec TP], however, the derivation either crashes (since Case features are not checked or they mismatch) or is barred by being longer (i.e. having more steps) than an alternative derivation.

Things are different, however, for A'-movement. Consider, for example, wh-movement over a (moved or base-generated) topic. When the wh-phrase moves to CP in order to perform the necessary checking operations, it skips a possible target for A'-movement (the topic position), violating the CTP. Adjunction of the wh-phrase to TopP in order to escape the minimality violation is not allowed, since no feature is checked in that position (the wh-phrase having no topic feature). Even if the moved phrase contains a matching feature, i.e. movement of a topic over another topic or CLLDed phrase over another CLLDed phrase, adjunction of one topic to the other should check the former phrase's feature which, then, is not allowed to move any further. Multiple topics are

⁹⁹ β is closer to K than α unless β is in the same minimal domain as (a) τ or (b) α . (Chomsky 1995: 356)

therefore allowed (and do in fact exist in many languages) but movement of a topic from an embedded clause that already contains a topic to the matrix clause is not allowed (cf. Modesto 1997).

On a side note, it is worth mentioning that, as observed by Hilda Koopman (p.c.), the facts in BP resemble very closely some facts related to the V2 phenomenon in Germanic languages, where an A'-position needs to be filled overtly (in non-complement clauses). Once again, the CTP makes the correct prediction, allowing both subjects and objects to be moved to the pre-verbal position.

Another relevant point is that the data presented here indicates that Minimality, although only relevant in derivations involving movement, must be an economy constraint, which is violable. Indeed, the fact that a principle applies only to movement chains does not necessarily mean it must be part of the definition of Movement. It may only mean that an economical Movement operation is the one in which that principle is respected. The existence of essentially derivational or representational principles is, in my opinion, not problematic. As mentioned in footnote 39, Minimality and the MBR coexist in the system developed here. One principle applies only to movement derivations; the other, only to representations (at LF).

Minimality, subsumed under the CTP, is violated in the sentences discussed in section 2.1.4.2., which shows that PPs cannot be moved to [Spec AgrP] in order to check the EPP. In this particular case, the BP facts differ from V2 in Germanic, since it is not the case that only DPs can satisfy the constraint in the latter languages. Still, the CTP seems to make the correct empirical predictions and, therefore, should be preferred over the MLC.

3. The analysis of null objects in BP

I have been arguing that null pronouns must be identified, i.e. given a denotation index, in order to be interpreted as an argument at LF. Some languages can only assign null pronouns with a denotational index through a relation with Agreement. Both French and Spanish are such languages. In Spanish, null pronominal subjects are allowed because the Agr head is itself a denoting element and so is able to pass its index on to the subject. In French, Agr is non-denoting, so null subjects are not allowed at all. Shifting our attention now to null objects, since these languages can only identify null pronouns through agreement, it is predicted that none of them should present grammatical derivations where a null pronoun occupies the object position. Neither Spanish nor French presents object agreement inflection. Since agreement is the only source of a denotational index for null pronouns (in these languages), null pronominal objects are expected to be

impossible, as they are indeed (see discussion on the Spanish and EP null objects below).¹⁰⁰

Languages like BP (and Chinese; see chapter 6), unlike French and Spanish, are not restricted to identify null pronouns only through agreement. (As for some speculative remarks on why BP and Chinese differ from Spanish and French, see chapter 7.) As seen in section 2 of this chapter, null pronouns may acquire a denotational index by being associated with a variable, which is how null subjects in BP get identified. Furthermore, as mentioned in the introduction to this chapter, null pronouns may also acquire an index by being interpreted as a pronominal variable at LF. This is, I will argue, the strategy taken by (some) null objects in BP and Chinese. Consider (65):

- (65) (O Pedro₁) [_{AgrP} a Maria₂ [_{TP} x₂ convenceu *pro*₁ que [_{AgrP} *pro*₂ [_{TP} x₂ é boa dançarina]]]]
 (Pedro) Maria convinced (him) that (she) is a good dancer- fem.

As discussed in the previous sections, some phrase must be A'-moved to [Spec AgrP] in both the embedded and the matrix clause of (65) in order to check the EPP. In the embedded sentence, the null pronominal subject moves to [Spec AgrP], leaving a variable in [Spec TP]. In the matrix clause, there are two possible candidates: the subject *a Maria* and the topic *o Pedro*. As seen in section 2.1.1.1., the matrix subject occupies [Spec AgrP] when the topic has been base-generated in its surface position. If, however, the topic is moved from its argument position, it is the topic that checks the EPP, moving later to its final landing site. The subject, in this case, stays in [Spec TP], its Case position. In any case, the phrase which occupies [Spec AgrP] is interpreted as the antecedent of the null embedded subject. The fact that the null embedded subject is bound by the matrix subject in (65) indicates that *a Maria* has been A'-moved and that the topic was base-generated. In fact, since the predicate in the embedded clause contains a feminine adjective, movement of the topic in the matrix clause would derive an ungrammatical sentence. In this sentence, then, the topic is (unambiguously) base-generated and it is related to a null pronoun in the object position of the verb *convencer*.

The crucial question here is how this pronoun in object position can be identified. BP presents no object agreement, so agreement cannot be claimed to identify null objects. In accord with what was discussed in this chapter, the null pronoun may acquire a denotational index if it is interpreted as a pronominal variable. In this case, the pronoun is subject to the MBR. One potential binder for the object *pro* would be the matrix subject,

¹⁰⁰ Once again, I will limit the discussion to referential null objects, since it is not clear that null objects with arbitrary interpretation need to be identified (see Rizzi 1986).

which occupies an A'-position. However, assignment of the index of *Maria* to the object *pro* in (65) will lead to an ungrammatical structure because *pro* will end up locally A-bound by the variable associated with *Maria*. Being locally A-bound, *pro* does not qualify as a variable at LF and is, therefore, uninterpretable. The MBR, as defined in section 2, repeated below, would then predict null object pronouns to be ungrammatical in BP:

- (02) MBR: At LF, variables must be bound by the most local potential A'-binder.
(Where A qualifies as a potential A'-binder for B iff A c-commands B, A is in an A'-position, and the assignment of the index of A to B would not violate Principle C of the binding theory.)

According to the definition of potential binder in (02), the subject *Maria* in (65) is a potential binder for the null pronominal object in the matrix clause: assignment of the index of *Maria* to *pro* does not violate principle C. However, it causes *pro* to be locally A-bound by the variable left by movement of the subject *Maria* to [Spec AgrP]. Therefore, the definition of potential A'-binder in (02) predicts sentences like (65) to be ungrammatical. The grammaticality of (65) indicates that the definition of “potential binder” must be adjusted.¹⁰¹

- (66) A qualifies as a potential A'-binder for B iff A c-commands B, A is in an A'-position, and the assignment of the index of A to B would not either:
a) cause B to be uninterpretable or
b) violate principle C of the Binding Theory.

The definition of potential binder in (66) has the effect of preventing the subject *a Maria* in (65) from being a potential A'-binder for the null pronominal object. If that definition is assumed, the only possible binder for the object *pro* in (65) is the base-generated topic, which is not associated with any variable in an A-position. The binding of *pro* by any c-commanding element which is associated with a variable in an A-position would cause *pro* not to be interpreted as a variable and, therefore, not be interpreted.¹⁰²

¹⁰¹ This adjustment makes sense, since pronominal variables are not subject to principle C. Therefore, the definition of potential A'-binder needs to be augmented with a condition that applies to pronominal variables (which were not considered by Aoun and Li, who dealt only with variables created by movement). In chapter 6, however, we will see that the definition of potential A'-binder is subject to some parametric variation: in Chinese, for instance, the relevant restriction for the definition of potential binders of pronominal variables is principle B (instead of interpretability), which restricts the occurrence of null pronominal objects in that language.

¹⁰² Note that we still account for the ungrammaticality of null subjects in relative clauses. As seen in section 2.2.2., sentence (46b) is ungrammatical:

- (46) b. *A *Maria*₁ não gostou de [o [escritor]₂ [que *pro*₁ entrevistou *t*₂]].
Maria not liked the writer that (she) interviewed

This analysis derives the two basic properties of null objects in BP (and Chinese): null objects cannot take any c-commanding argument as their antecedent, and they can only be interpreted in contexts where (null or overt) topics can be posited:

- (67) O Pedro₁ convenceu a Maria₂ que a Dani₃ viu *pro**_{1/*2/*3/4}
 Pedro convinced Maria that Dani saw (him/her/it)

In (67), both embedded and matrix subject occupy A'-positions. The matrix object, on the other hand, occupies an A-position. Neither of them, however, can be taken to be the antecedent of the null pronoun in object position of the embedded clause. The sentence is also uninterpretable in an out of the blue situation. Both of these facts are explained by the analysis proposed here. Taking any argument of its own sentence as its antecedent will cause the object *pro* to be A-bound and thus uninterpretable at LF. The only possible interpretation for that *pro*, then, is to be bound by a null topic, which makes the presence of such a topic mandatory (and thus eliminates that sentence from being interpreted as an out of the blue statement).

This is, once again, the gist of the analysis. The details are spelled out in the following sections.

3.1. Null objects in EP and Spanish

Based on Huang 1984, Raposo 1986 and Campos 1986 argue that null objects in EP and Spanish are not pronominal categories, but variables left by topicalization (i.e. movement). Their main argument is the following: although null objects are grammatical in the sentences in (68), the presence of a null object in island contexts is not tolerated in either of the two languages (the examples are taken from the works cited):

- (68) a. A Joana viu *ec* na TV ontem. (EP)
 Joana saw (it) on TV yesterday
 b. Compraste café? Sí, compré *ec*. (Spanish)

In (46b), the relative head is the closest A'-element to the subject *pro*. Assignment of the index of the relative head to *pro* does not cause *pro* to be uninterpretable or violate principle C, so the head of the relative is the closest potential binder for that pronominal. However, because *pro* c-commands the variable left by topicalization, and hence A-binds it, that trace will not be able to take the head of the relative as its binder. In other words, the relative head (=A) is a potential A'-binder for *pro* (=B) because the assignment of A's index to B does not cause B to be uninterpretable. This assignment, however, causes C (the trace of relativization) to be uninterpretable. The matrix subject is also not a potential binder for the relativization trace for the same reason (i.e. the subject is related to a variable in A-position which would A-bind the trace). The trace of relativization, then, has no interpretation in (46b) and that is what causes the sentence to be ungrammatical.

bought-2p.sg. coffee? Yes, bought-1p.sg. (some)

- (69) a. *Eu informei à polícia da possibilidade de o Manel ter guardado (EP)
 I informed the police of the possibility that Manel had kept
ec no cofre.
 (it) in the safe
- b. *O rapaz que trouxe *ec* mesmo agora da pastelaria era o teu afilhado.
 The boy that brought (it) just now from the pastry shop was your
 godson
- c. *Que a IBM venda *ec* a particulares surpreende-me.
 That IBM sells (it) to private individuals surprises me
- d. *O pirata partiu para as Caraíbas depois de ter guardado *ec* no cofre.
 The pirate left for the Caribbean after he had guarded (it) in the safe
- (70) a. Juan traerá cerveza a la fiesta? *Existe el rumor de que (Spanish)
 John will bring beer to the party? There exist the rumor that
 traerá *ec*.
 he will bring (some)
- b. Quién trajo cerveza? *No conozco al muchacho que trajo *ec*.
 who brought beer? I don't know the guy that brought (some)
- c. Pepe necessita de gafas? *Que necessita *ec* es obvio.
 Does pepe need glasses? That he needs (them) is obvious
- d. Encontraron entradas para la película? *Sí, pudimos entrar
 did you find tickets for the movie yes, we were able to go
 al cine porque encontramos *ec*.
 into the cinema because we found (some)

The fact that null objects are not allowed in islands in EP and Spanish seems to show that that empty category is not pronominal. Null objects are a product of topicalization of a null topic in those languages.¹⁰³ The prediction made in the introduction of this section is then borne out: because these languages lack the possibility of identifying a null pronoun by A'-binding, the only syntactic positions where null pronouns will be acceptable are the ones that can be identified by agreement. Since Spanish and EP do not present object agreement, null pronominal objects are not allowed.¹⁰⁴ However, Raposo's and Campos' analyses cannot be applied to BP because null objects are readily accepted in island contexts:

¹⁰³ Still unexplained by Campos' analysis is the fact that null objects in Spanish must be indefinite. See Cyrino 1996 for a tentative answer.

¹⁰⁴ Although the analyses of EP and Spanish were inspired by Huang's analysis for Chinese, the latter language differs from the former two in that it does allow null objects inside islands. See chapter 6 for discussion.

- (71) a. Eu informei à polícia da possibilidade do Manuel ter guardado *ec* no cofre.
 I informed the police of the possibility that Manuel had kept (it) in the safe
 b. O rapaz que trouxe *ec* agora mesmo da padaria era o teu afilhado.
 the boy that brought (it) right now from the bakery was your godson
 c. Que a IBM venda *ec* a particulares me surpreende.
 that IBM sells (it) to private individuals surprises me
 d. O pirata partiu para o Caribe depois de ter guardado *ec* no cofre
 the pirate left for the Caribbean after he had guarded (it) in the safe

The sentences in (71) show that the null object in BP cannot be considered a variable left by movement of a topic in all cases (although it may be considered so in non-island contexts). The grammaticality of null objects in islands is accounted for if, unlike EP and Spanish, the empty category in object position in BP is pronominal (at least when in islands).

3.2. Null objects in BP

In the last subsection, I showed that there are at least two ways to derive null objects in BP. Object gaps in this language are either a variable, a product of movement (topicalization), just like in EP and Spanish; or a pronoun, which is interpreted as a pronominal variable at LF. In both cases, the only possible antecedent for the gap will be a (overt or null) topic or head of a relative clause. The double source of object gaps in BP is in fact expected since, as discussed previously, topics and heads of relatives can usually be either moved or base-generated in their argument position in BP. When topics/relative heads are base-generated, a null pronoun will occupy the argument position related to these phrases. This happens obligatorily in sentences involving gaps inside island contexts, as in (71) above. The analysis of object gaps which are variables left by topicalization, i.e. those gaps that are the product of movement, is straightforward. The analysis of pronominal object gaps will follow from the MBR, using the definition of potential binder in (66).

Take structure (65), discussed above, and repeated below:

- (65) (O Pedro₁) [_{AgRP} a Maria₂ [_{TP} *x*₂ convenceu *pro*₁ que [_{AgRP} *pro*₂ [_{TP} *x*₂ é boa
 (Pedro) Maria convinced (him) that (she) is a good
 dançarina]]]]
 dancer-fem.

As mentioned before, since the predicate in the embedded clause is feminine, the topic in (65) must have been base-generated in order to allow the matrix subject to bind the

embedded null subject. The object gap is then pronominal and must be interpreted as a pronominal variable at LF in order to acquire a denotational index and be interpreted. The pronominal in object position in BP will differ from the null pronoun in embedded subject position in not being able to take the matrix subject as its antecedent. The reason is straightforward. Recall that the embedded subject *pro* is moved to an A'-position, being then associated with a variable. The *pro*-associated variable can take the matrix subject as its antecedent because, even though it will end up being A-bound by the matrix subject-associated variable, it will still be locally A'-bound by *pro* (see graph in (15) above). The pronoun in object position, on the other hand, has not been moved and is therefore not “shielded” by its own operator. If the object *pro* acquires the index of the matrix subject, it will be locally A-bound by the matrix subject-associated variable. When locally A-bound, *pro* is no longer able to be interpreted as a variable (see definition (5) above) and, for that reason, is uninterpretable. According to definition (66), then, the subject is not a potential binder for the object *pro*. In that case, the *pro* object in (65) must take the base-generated topic as its antecedent. Since the topic has been base-generated, it is not associated with any other variable. The topic, therefore, can A'-bind *pro* without making it locally A-bound. Note that this analysis explains not only why an object *pro* cannot take a clause-mate argument as its antecedent, but it also explains why a topic is necessary in order to interpret a sentence like (65). For instance, if there is no overt topic in (65), a null topic has to be assumed. The sentence is thus ungrammatical in the out of the blue context. This is because, without a topic, the object *pro* cannot be interpreted as a variable and, consequently, *pro* cannot be interpreted as an argument because it does not acquire a denotational index.

The fact that null objects in BP (and Chinese) cannot usually be interpreted as coreferent with other arguments in their sentences is well known and documented (see Huang 1984, 1989; Maia 1994, Cyrino 1996). However, this fact has been used as an obstacle in analyzing null objects as pronominal categories. This is because authors have assumed that null and overt pronouns should behave similarly. So, the contrast between (72a) and (72b) was used as an argument that object gaps in BP (and Chinese) were not pronominal:

- (72) a. *O Pedro₁ disse que o Daniel conhece *pro*₁.
 Pedro said that Daniel knows (him)
 b. O Pedro₁ disse que o Daniel conhece ele₁.
 Pedro said that Daniel knows him

We now see that the contrast between (72a) and (72b) in no way argues that object gaps are not pronominal. In fact, as discussed in this work, null and overt pronouns are expected to differ because only the null ones will have to acquire a denotational index (overt pronouns being already taken from the lexicon with indices).

3.3. Some problems and discussion

Farrell 1990, unlike most analysis of null objects in BP, also argues that the empty category occupying the object position in BP is a pronoun. However, since, in his theory, there is nothing that would distinguish overt and null pronouns, the ungrammaticality of (71) above is problematic in face of the grammaticality of (72). Farrell's (p. 331) answer to the problem is to say that "regardless of the syntactic structure in which it occurs, a null object cannot be anteceded by an argument of a verb that selects a clausal complement." In support of such a claim, Farrell gives the following contrast (where (73b, c) are possible continuations for the sentence (73a); possibly uttered by a different speaker):

- (73) a. O João₁ falou que a Júlia₂ esteve no Rio a semana passada.
 João said that Julia was in Rio last week
 b. mas ele₁ nem viu *pro*₂.
 but he didn't even see (her)
 c. *mas ela₂ nem viu *pro*₁.
 but she didn't even see (him)

Farrell then affirms that an analysis which claims that the null object is bound by a null operator (or a null topic) such as Huang 1984 would be necessarily silent about this contrast.¹⁰⁵ The same objection extends to the analysis presented here, which is very similar to Huang's (see chapter 6). However, it is not the case that Huang's or my analysis is necessarily silent about the contrast in (73). There are pragmatic rules that are, for the most part, not well understood, which regulate which expression may serve as a discourse topic. It can be argued, for instance, that the sentence in (73a) is "about" the embedded subject *Julia* and therefore only *Julia* qualifies as a discourse topic for (73b, c).¹⁰⁶

In any case, whatever the answer is to the contrast in (73), a generalization such as Farrell's that a null object cannot take an argument of a verb that selects a clausal complement as its antecedent is obviously *ad hoc*. Therefore, it is problematic when learnability is concerned and should not be adopted.

¹⁰⁵ Farrell gives other arguments against the null operator analysis of null objects but most of these arguments are based on the idea that null objects could only be produced by movement of an operator. Since these arguments do not carry over to the analysis presented here, I will not review them.

¹⁰⁶ On the "aboutness" relation between a topic and its comment, see Xu and Langendoen (1985) and Chafe (1976).

Another fact noted by Farrell, this one being problematic for the analysis proposed here, is that null objects in fact can take clause mate arguments as their antecedents when in adjunct clauses.¹⁰⁷ See, for instance, the sentence in (74) from Cyrino 1996:

- (74) Eu comprei o casaco₁ sem experimentar *ec*₁.
I bought the coat without trying (it) on

If the null object in (74) were a null pronoun, it could not take a matrix object as its antecedent, according to the analysis defended here, because the object occupies an A-position and, therefore, cannot A'-bind *pro*. The null object could not even take the matrix subject as its antecedent, according to my analysis, because, as discussed above, the variable associated with the matrix subject would locally A-bind the null object, preventing it from being interpreted as a variable. Sentence (74) is thus problematic for the analysis presented here if all null objects are considered to be pronominal. However, I will argue in the next section that some instances of null objects in BP (i.e. the ones that find their antecedent in the matrix clause) are a product of VP ellipsis. Sentence (74) would then be accounted for by having the structure below, where the VP in the adjunct has been elided (details omitted):

- (75) [_{AgRP} eu₁ [_{TP} x₁ comprei [_{VP} [_{VP} t_v o casaco] sem [_{AgRP} PRO₁ [_{TP} x₁ experimentar [_{VP} t_v o casaco]]]]]]]]

3.3.1. VP ellipsis

Raposo (1986) noted that VP ellipsis may produce sentences which are very similar, and sometimes indistinguishable, from sentences with null objects. For instance, Raposo gives the following pair, where the answer contains an elided VP which may be confounded with a null object:

¹⁰⁷ In fact, Farrell claims that null objects can take clause-mate arguments as antecedents not only when in adjuncts but also in relative clauses, giving the example in (i) below:

- (i) Aquela casa₂ nunca foi pintada pelo cara₁ que t₁ comprou *pro*₂ de mim.
that house was never painted by the guy who bought (it) from me

The grammaticality of (i), however, is debatable, since judgments about (i) vary considerably among speakers. That the structure of (i) is, in fact, not well-formed seems to be indicated by the non-acceptability of the sentences in (ii):

- (ii) a. ?*A fábrica₂ foi fechada pelo cara₁ que t₁ comprou *pro*₂ da família Suplicy.
the factory was shut down by the guy who bought (it) from the Suplicy family.
b. ??A escultura₂ foi comprada pelo cara₁ que t₁ tinha depredado *pro*₂.
the sculpture was bought by the guy who had damaged (it)
c. ?*[A equipe econômica]₂ agora é presidida pelo cara₁ que t₁ sabotou *pro*₂ durante toda a década de 80.
the economic team now is presided by the guy that sabotaged (it) all through the 80's

- (76) Q: Quem é que viu o filme?
 ‘who saw the movie?’
 A: O Manel viu _.
 ‘Manel saw it’

Raposo argues that the elliptical construction should be kept apart from sentences with null objects because the former, in contrast with the latter, does not obey island constraints (see Doron 1998 for a similar claim with respect to Hebrew). To exemplify, consider (77), below, in which a VP is elided and contrast it with the ungrammatical sentences in (68) above where null objects appear in island contexts in EP:

- (77) A Maria entregou o dinheiro ao Manel, mas eu sei de algumas pessoas que nunca
 Maria gave the money to Manel but I know some people that would
 never
 teriam entregue _.
 have given

Recall now that sentences in BP equivalent to the ones in (68) are grammatical (as shown in (70) above). However, it is easy to see that these sentences could not have been generated by VP ellipsis. When a VP is elided, all the material inside VP must be elided, as shown by the ungrammaticality of (78) in EP:

- (78) *A Maria entregou o dinheiro ao Manel, mas eu sei de algumas pessoas que
 Maria gave the money to Manel, but I know some people that would
 nunca teriam entregue _ ao Pedro.
 never have given _ to Pedro

With the exception of (70c), all the sentences in (70) present a locative PP following the empty category in object position. Therefore, VP ellipsis cannot be used to account for the grammaticality of those sentences. As argued in the previous section, those sentences are grammatical because the empty category in object position is a null pronoun.

Although VP ellipsis cannot be postulated to be involved in the derivation of the sentences in (70), there seems to be evidence that some cases of empty object positions in BP are in fact derived by that strategy. As noted by Huang (1991) (cf. also Otani and Whitman 1991), the Chinese sentence in (79a) is on a par with VP-ellipsis sentences in English (in (79b)) in that both sentences are ambiguous between a strict and a sloppy identity reading:

- (79) a. John kanjian-le tade mama, Mary ye kanjian-le *ec*.
 John saw his mother Mary also saw
 b. John saw his mother and Mary did [_{VP} *e*] too.

The same is true for the BP sentence in (80):

- (80) O John viu a mãe dele e a Mary também viu *ec*.
 ‘John saw his mother and Mary did too’

The sloppy reading of (79a) and (80) is unexpected if these sentences contain a null object. Suppose that the gap in (79a) and (80) is a null object, i.e. a null pronoun. According to the analysis developed so far, the object *pro* should be bound by a null topic in both sentences. Even if we accept that the first conjunct can furnish a discourse topic for the second conjunct, such a topic would have to be interpreted as being John’s mother. It is then expected that the sentence with a null object would allow only the strict reading. Since (79a) and (80) allow for the sloppy reading, the gap in the second conjunct must be a product of VP ellipsis.

Although this is a plausible conclusion for the BP sentence, the case for Chinese is not that clear. This is because, in the Chinese example, (79a), the verb is not elliptical in the second conjunct. Huang (1991) assumes that, as in BP, the verb has been moved into an abstract INFL node, thus making INFL able to L-mark the VP, which appears as an empty category.¹⁰⁸ However, in chapter 2, I have assumed that Chinese is like English in lacking (overt) verb movement. It is then expected that the verb survives VP ellipsis, i.e. is phonologically overt, in BP but not in Chinese.

In fact, Hoji (1998) argues against the VP-ellipsis analysis proposed by Huang. Although Hoji’s data is from Japanese, the author claim that “essentially the same seems

¹⁰⁸ Although Huang (1991) claims that some instances of null objects in Chinese should be treated as a product of VP-ellipsis, his main claim in that paper is that null objects in that language are a kind of null R-expression, a null epithet. Null objects in BP were also argued to be null epithets by Maia 1994. Cyrino (1996), however, argues against such an analysis. One of her arguments is that (overt) epithets and null objects give rise to different interpretations in BP:

- (i) O João usa o seu computador todos os dias, e o Pedro usa a engenhoca uma vez por semana.
 João uses his computer every day and Pedro uses the gadget once a week
 (ii) O João usa o seu computador todos os dias, e o Pedro usa *ec* uma vez por semana.
 João uses his computer every day and Pedro uses (it) once a week

While (ii) is ambiguous between a sloppy and a strict reading, (i) is unambiguous: the epithet *a engenhoca* can only refer to João’s computer while the empty category in (ii) may refer to either João’s or Pedro’s computer. This seems to indicate that the empty category in (ii) cannot be characterized as an epithet, or the contrast between the two sentences would not be explained.

to hold of Chinese.” His argument is that, if object gaps in Japanese (and Chinese) were the product of VP-ellipsis, then those sentences should give rise to the same possible readings VP-ellipsis sentences have in English. This, however, is not the case:

(81) A: John_i-wa zibun(zisin)_i-o nagusameta.

John-TOP self-ACC consoled

‘John consoled himself.’

B: Bill-mo *ec* nagusameta.

Bill-also consoled

‘Bill consoled too.’

B’: Bill_i-mo zibun(zisin)_i-o nagusameta.

Bill-also self-ACC consoled

‘Bill consoled himself too’

(82) A: John consoled himself.

B: Bill did too.

While a sloppy reading is available in sentence (82B), it is not available in (81B). In other words, contrary to the prediction made by the VP-ellipsis analysis, (81B) cannot mean (81B’).

Another argument given by Hoji involves sentences like (79):

(83) Every Japanese couple recommended the same student, and every American couple did too.

Sentence (83) may have (among others) the reading in (84):

(84) For each Japanese couple, the husband recommended the same student as his wife; and for each American couple, too, the husband recommended the same student as his wife. But crucially, different students could have been recommended by different couples; hence, there might have been as many students as there were couples involved in the event described.

In Japanese, however, it is not possible to obtain reading (84) in examples like (85B):

(85) A: Subete-no nihonjin huuu-ga onazi gakusei-o suisensita.

all-GEN Japanese couple-NOM same student-ACC recommended

‘Every Japanese couple recommended the same student.’

B: Subete-no amerikazin huuu-mo *ec* suisensita.

‘Every American couple recommended *ec* too.’

The unavailability, in Japanese sentences containing object gaps, of certain readings present in English VP-ellipsis sentences, constitutes, according to Hoji, evidence that those gaps are created by a mechanism other than VP-ellipsis. Assuming that the same facts hold in Chinese, we can dismiss the VP-ellipsis analysis for that language as well. I will not discuss here how sloppy readings are produced in Japanese and Chinese in sentences such as (79a) for instance, referring the reader to Hoji 1998, who presents an alternative analysis.

The question I will pursue is whether the VP-ellipsis analysis can still be assumed to hold in BP. The first argument given by Hoji is not reproducible in BP due to the fact that reflexives are not free standing words but clitics attached to the verb root:

- (86) A: O Pedro se consolou.
 Pedro self-consoled
 ‘Pedro consoled himself.’
 B: O Daniel também *(se) consolou.
 Daniel also (self-)consoled

As for the second argument, judgments are far from clear cut. Although examples such as (80), repeated below, are possible in BP, they are not the most readily accepted instance of ellipsis. In fact, elliptical sentences in BP usually contain not an elided VP but some higher functional category which includes the verb. Sentence (87), then, is usually used instead of (80):

- (80) O John viu a mãe dele e a Mary também viu *ec*.
 John saw his mother and Mary also saw
- (87) O John viu a mãe dele e a Mary também *ec*.
 John saw his mather and Mary also

For reasons that are not clear at this point, a BP sentence similar to that used by Hoji only seem to be grammatical if the verb is also elided:

- (88) lo casal japonês recomendou o mesmo aluno e todo
 every Japanese couple recommended the same student and every
 casal americano também(??recomendou).
 merican couple also (recommended)

Repetition of the verb in the second clause is more acceptable, however, if the second conjunct is negated:

- (89) lo casal japonês recomendou o mesmo aluno mas nem todo
 every Japanese couple recommended the same student but not every
 casal americano recomendou *ec.*
 American couple recommended

Sentence (89) does have the reading where there are as many students recommended as there are Japanese couples. Therefore, I will take (89) as evidence that the arguments presented by Hoji do not extend to BP. This conclusion is also plausible in view of the fact that some null objects in EP must be analyzed as VP-ellipsis as the discussion of Raposo 1986 above indicates. Although Brazilian and European Portuguese differ in many ways, there is no compelling reason to assume that they should differ with regard to VP-ellipsis. Concluding, then, I will assume that, in both EP and BP, some object gaps are derived by VP-ellipsis, while the same is not true for Chinese.

3.3.2. Verbal Identity

That some instances of null objects in BP are a product of VP-ellipsis is also argued by Cyrino 1996. However, in that work, she assumes (mistakenly, in my opinion) that ellipsis requires identity between the verbs in the antecedent and the elided VP. For instance, (80), repeated below, could be considered a case of VP-ellipsis by Cyrino, but not (90):

- (80) O John viu a mãe dele e a Mary também viu *ec.*
 ‘John saw his mother and Mary did too’

- (90) O John fotografou o professor dele e a Mary entrevistou *ec.*
 John photographed his professor and Mary interviewed *ec*

The sentence in (90), however, can mean that Mary interviewed John’s professor (the strict identity reading) or her own professor (the sloppy reading) in much the same way (80) is interpreted. This seems to indicate that (90) too should be considered an instance of VP-ellipsis. The grammaticality of (90) indicates that Cyrino’s assumption was empirically inadequate.¹⁰⁹ Moreover, there is no theoretical reason why VP-ellipsis should require identity between the verbs in BP, since those verbs do not occupy the VP which is

¹⁰⁹ The example Cyrino cites to prove that verbal identity is necessary in VP-ellipsis (in (i)) is from Matos (1992). Although I agree that example is not perfect, it becomes much better in a more plausible pragmatic situation, for instance, if João’s books are being contrasted with Mary’s books:

- (i) *O João colocou os livros na estante mas a Maria não pôs *ec.*
 João placed the books on the shelf but Maria did not put *ec*
 (ii) O João colocou os livros dele na estante mas a Maria não pôs *ec.*
 João placed his books on the shelf but Maria did not put *ec*

elided (i.e. the verbs have moved out of VP to the head T, as assumed in chapter 2). Take the simplified structure of (90), for instance:

(91) O John fotografou [_{VP} t_v o professor dele]] e a Mary entrevistou [_{VP} t_v ~~o professor dele~~]]

It is plausible to require that a VP may only be elided if identical to an antecedent VP, as proposed in Chomsky 1965 and more recently in Fiengo and May 1993. In fact, the two VPs in (91) are identical. Therefore, it is hard to see why the antecedent of the verb trace inside the VPs should be identical, as required by Cyrino. In fact, Otani and Whitman (1991) and Doron (1998) have proposed that the identity of the verb is not a necessary condition on VP ellipsis. In face of the grammaticality of (90) and many other sentences (and the fact that those sentences allow a sloppy identity interpretation), I will then conclude that verbal identity is not a necessary condition for VP-ellipsis.

3.3.3. Using VP-ellipsis

Consider again the sentence in (74), from Cyrino 1996, which is an example of Farrell's generalization that null objects in adjunct clauses may take a matrix argument as their antecedent:

(74) Eu comprei o casaco₁ sem experimentar *ec*₁.
I bought the coat without trying (it) on

I have noted that the grammaticality of (74) is problematic for the theory developed here if the null object in this sentence is pronominal. However, since it was argued above that some instances of null objects in BP are a product of VP-ellipsis, it is possible that the empty category in (74) is not pronominal after all. Contrast the grammatical (74) with the ungrammatical (92) from Maia 1994:¹¹⁰

(92) *A Júlia₁ sempre chora quando eu vejo *ec*₁.
Júlia always cries when I see (her)

¹¹⁰ The example in (i) is given by Farrell in support of the claim that null objects in adjunct clauses can take matrix antecedents. However, I will follow Cyrino (1996) in assuming that such a sentence is ungrammatical (and that is the reason why I have been using Cyrino's example in (74)):

(i) ??A Júlia₁ sempre chora quando eu ponho *ec*₁ no berço.
Júlia always cries when I put (her) in the crib

The (clear) ungrammaticality of (92) in the text corroborates Cyrino's judgment that (i) is not well-formed.

The contrast between (74) and (92) seems to indicate that there is an asymmetry between objects and subjects: a null object in an adjunct clause may take a matrix object as its antecedent, but not a matrix subject. This subject/object asymmetry is explained in a simple fashion if those instances of null objects which take matrix antecedents are produced by VP-ellipsis. Since the VP in the adjunct clause in (74) is elided by being identical to the VP in the matrix, the resulting structure gives the impression that a null object is taking a matrix object as its antecedent. Note that, then, the right generalization is that a null object will never take a matrix subject as its antecedent. If the object is pronominal, it will not take any matrix argument as its antecedent; if it is a product of VP-ellipsis, it will only be interpreted as taking the matrix object as its antecedent. The ungrammaticality of (92) and other similar sentences is then explained. Since the matrix verb is intransitive, the VP of the transitive verb in the adjunct clause cannot be elided; the null object in (92) has to be pronominal and, therefore, cannot take any matrix argument as its antecedent.

In conclusion, since the null object in (74) is actually an instance of VP-ellipsis, this sentence is not problematic for the theory presented here.

3.4. Null operator constructions

I have been arguing that null pronouns in BP are not identified by agreement, which is poor in the case of subjects and absent in the case of objects. Instead, a *pro* is identified by being associated with a variable or by becoming a pronominal variable. The latter claim is basically the one proposed by Cinque (1990) for parasitic gaps (93a), gaps of apparent (NP-) extraction from islands (93b), and gaps of complement object deletion (COD) constructions (93c) in English:

- (93) a. (?) The article that we filed without reading *e*...
 b. (?) The article that we went to England without reading *e*...
 c. The article was too long for us to read *e*.

For Cinque, the gaps in (93) are null pronouns (i.e. pronominal variables) A'-bound by a null operator base-generated in an A'-position. The similarity between his analysis and the one presented here is clear. He says: "Let us suppose, then, that alongside identification of *pro* via Agr (in tensed sentences of *pro*-drop languages) there is a second way to identify *pro*, namely, via A'-binding at S-structure." The analysis presented here, therefore, can be viewed as an extension of Cinque's analysis to null pronouns in tensed sentences of non *pro*-drop languages. However, if English is among the languages in which null pronominals can be identified by A'-binding, a question can be raised as to why English only uses the A'-binding option in the contexts identified by Cinque. In other

words, one might wonder why sentence (94) is not grammatical in English, as it is in BP:

(94) *Who_i did John convince t_i [*pro*_i wrote the article] ?

Firstly, consider the structure of the sentences in (93), shown in (95), and the structures for the equivalent sentences in BP, in (96):¹¹¹

- (95) a. the [article_i [that [we filed t_i [without reading *pro*_i]]]]...
 b. the [article_i [that [we went to England [without reading *pro*_i]]]]...
 c. the article_i was too long [O_i for [us to read *pro*_i]]
- (96) a. o [artigo_i [que [nós archivamos *pro*_i/ t_i [sem ler *pro*_i]]]]...
 b. o [artigo_i [que [nós fomos pra Inglaterra [sem ler *pro*_i]]]]...
 c. O artigo_i era muito grande [O_i pra [a gente ler *pro*_i]]...

In both (95) and (96), *pro* must be A'-bound in order to be identified, i.e. interpreted at LF. In (95a, b), the head of the relative is the closest potential binder for *pro*, and in fact the only possible binder since arguments in English occupy A-positions. In (95c), the closest and only potential binder is the null operator. If English is considered to be among the languages which can identify a null pronoun by A'-binding, the sentences in (95) are grammatical, since the null pronoun is interpreted as a (pronominal) variable.

Recall now that subjects in BP usually occupy A'-positions. If the head of the relative has been base-generated in its A'-position, the subject *nós* in (96a) will be moved to [Spec AgrP] and thus will also occupy an A'-position. If, on the other hand, the head of the relative is moved, the subject *nós* will remain in an A-position. In (96b), since the head of the relative cannot have moved from the position inside the adjunct clause, the subject *nós* is moved to satisfy the EPP and occupies an A'-position. In (96c), again, the subject *a gente* occupies an A'-position. However, irrespectively of occupying an A or A'-position, none of the subjects in (96) will be a potential binder for the *pro* in the adjunct or the purpose clause. This is straightforward if the subject occupies an A-position. If the subject occupies an A'-position, as seen in this section, binding of *pro* by the subject would make that pronoun uninterpretable (the variable left by A'-movement of the subjects A-binds the object *pro* which, then, does not get interpreted as a variable).¹¹² The *pros* in (96),

¹¹¹ Only (95c) has the structure actually proposed by Cinque. The structure in (95a, b), where the head of the relative is moved to [Spec CP] is in accord to the structure of relatives assumed in section 2 of this chapter.

¹¹² Note that the variable or null pronoun in the clause dominating the adjunct in (95a) and (96a) does not c-command the *pro* inside of the adjunct, so the latter *pro* can be interpreted as a variable. If, however, the real gap was in subject position, it would c-command and hence A-bind the (parasitic) gap in the adjunct

therefore, are bound by the relative head and the null operator, the sentences are grammatical and have the same readings as the sentences in English.

Going back to our initial idea, accepting Cinque's analysis may seem problematic since English does not allow a *pro* subject in contexts where it could be A'-bound, just like in BP. Sentence (97), repeated below, for instance, is ungrammatical in English:

(97) *Who₁ did John convince t₁ [*pro*₁ wrote the article] ?

The fact that sentences like (97) are ungrammatical in English but possible in BP will follow from the fact that subjects move to an A'-position only in the latter language. Unlike in BP, subjects in English do not move to an A'-position; therefore, a *pro* subject cannot be interpreted as a variable in a structure like (97), since *pro* would be A-bound by the variable left by wh-movement in the matrix clause. The sentence is, then, ungrammatical because *pro* has no possible binder.

So far, then, Cinque's analysis and the one presented here seem to support one another. However, one may certainly wonder why the presence of a topic cannot save sentence (98):

(98) *(As for Mary₁), who₂ did John convince t₂ [*pro*₁ wrote the article] ?

If English in fact allows null pronouns to be identified by being A'-bound, the presence of a topic in (98) should be enough to make the sentence grammatical. Similarly, sentence (99) is expected to be possible in English, as it is in BP:

(99) *Mary₁, John knows the woman who interviewed *pro*₁.

Sentences (98) and (99) seem to indicate that English does not make use of A'-binding as an identification strategy for null pronouns.

Even if Cinque's analysis could be assumed to hold in English, it is not clear if null operator constructions could be taken as evidence in favor for the analysis proposed here. Consider for instance purpose clauses in English, which are usually analyzed as involving a null operator:

(100) I bought this book for John to read *ec*.

clause, preventing it from being interpreted as a variable. This is a welcome result, since gaps cannot in fact be parasitic on gaps of subject extraction.

The null operator in (100) may be base-generated in an A'-position and bind a null pronoun in object position, as in Cinque's analysis, or it may be moved from object position. There is even the possibility that the null operator is in fact a null pronoun that is moved to an operator position, as in the analysis of Browning 1987. In any case, it is difficult to see what distinguishes constructions like the one in (100) and sentences with null subjects in BP according to the analysis put forth in this chapter. Consider, for instance, (101):

- (101) O Feco₁ disse que *pro*₁ t₁ leu o artigo.
 Feco said that (he) read the article

In (101), the null subject is moved from its case checking position, i.e. [Spec TP], to an A'-position, [Spec AgrP]. In this way, both in (100) and in (101), a null element binds a gap in argument position. However, the null operator in English takes the object of the matrix clause, which sits in an A-position, as its antecedent; while the null pronoun in BP cannot take objects as its antecedent (as seen above). In section 3.3.3., I argued that sentences like the one in (100) in BP may be derived by VP ellipsis, which would explain the fact that the empty category in the embedded clause is interpreted as being identical to the object of the matrix. Something along these lines could be assumed for English. Alternatively, the difference between null operators and null pronouns which are moved to A'-positions in BP may be associated with the positions they occupy. A null operator in CP may be "close enough" to the matrix clause to be identified by predication or some other syntactic mechanism (see Browning 1987). Null pronominal subjects in BP, however, may not have access to that identification strategy, since they stay in [Spec AgrP], which is too far from the matrix arguments. Naturally, all of these notions (close enough, far from, etc.) need to be clarified and the comments presented here are assumedly sketchy.

4. Conclusion

In this chapter, I argued that a *pro* subject in BP is identified by being associated with a variable which, in turn, is identified by its A'-binder. Since *pro* and the variable are related by movement, the index acquired by the variable is transferred to *pro*. A null pronoun in object position, on the other hand, since it is interpreted as a pronominal variable, is identified directly by its binder. In both cases, then, identification is done through A'-binding and it is completely independent of agreement inflection, which explains the peculiar characteristics of null arguments in this language.

Chapter 4

Quantified Phrases and Scope

In the preceding chapter, I argued that subjects usually occupy an A'-position in BP, which gives a way for null embedded subjects to be identified. In this chapter, I will show that taking the position normally occupied by subjects in BP to be an A'-position can explain other facts unrelated to the existence of null subjects. In particular, I will show that the A'-character of [Spec AgrP], coupled with the theory of Aoun and Li (1993), explains the fact that BP differs from other languages in its scope interaction possibilities. For instance, BP is like Chinese, and unlike English, in not allowing scope interactions between quantified phrases in declarative sentences. However, BP is unlike Chinese in not allowing scope interactions in passive sentences as well. BP is also unlike both English and Chinese in disallowing scope interactions between a wh-phrase and a quantified subject.

Another argument in favor of the phrase structure proposed in the preceding chapter will come from the behavior of quantified subjects in BP. In the preceding chapter, it was noted that a matrix object may be interpreted as the “antecedent” of a null subject if the object has been A'-moved in the overt syntax. In that case, the subject remains in an A-position and cannot bind an embedded *pro*. This was illustrated by sentence (23a) of chapter 3, repeated below:

- (01) Quem₁ que o Pedro₂ convenceu *t*₁ que *pro*_{1/?*2} tinha que ir embora?
 who (that) Pedro convinced that (he) had to go away

Consider now a similar sentence with a quantified NP occupying the matrix subject position:

- (02) Quem₁ que todo aluno₂ convenceu *t*₁ que *pro*_{1/2} tinha que ir embora?
 who (that) every student convinced that (he) had to go away

Sentence (01) differs from (02) in that the latter has a quantified matrix subject. The sentences also contrast in that the reading where the matrix subject is a possible antecedent for the empty embedded subject is much easier to obtain in the latter sentence. This state of affairs is, to a certain extent, predicted by the theory developed in the preceding chapter. In (01), Minimality prevents the wh-phrase from moving over a subject that has been moved to [Spec AgrP]. The wh-phrase itself, then, checks the EPP on its way to CP. Since the subject in this case does not occupy an A'-position, it cannot bind

(hence identify) the empty pronoun. The same applies for (02). However, assuming a rule of Quantifier Raising (QR, May 1977, 1985), the subject in (02) is moved to an A'-position at LF (because it is a scope-taking element), thus becoming a possible binder for the empty subject. Unfortunately, things are not that simple. An analysis of (02) based on the existence of QR as described in May 1985 would nicely explain that either the wh-phrase or the quantified subject can bind the embedded null subject, however, it would lead to the expectation that the sentence should also be ambiguous with respect to scope. In other words, May's analysis (which is reviewed in detail below) predicts that (02) should allow for an interpretation where the wh-phrase scopes over the quantifier and another interpretation where the quantifier scopes over the wh-phrase. Only the former interpretation, however, is available in BP.

Another related problem we will be dealing with in this chapter is the behavior of quantified phrases in object positions. Consider (03). We see that a matrix object cannot bind the embedded *pro*, even if it is a quantified phrase. If, on one hand, sentence (02) is taken to be evidence of the effects of QR at LF, sentence (03), on the other hand, seems to negate that QR exists. This is because QR cannot be thought to apply only to phrases occupying certain syntactic positions but not others (i.e. subjects but not objects). But if QR does apply to the quantified phrase in object position in (03), one should expect that the object would become a possible binder for the embedded subject, contrary to fact:

- (03) Um professor₁ convenceu todo aluno₂ que *pro*_{1/*2} tinha que ir embora.
 some professor convinced every student that (he) had to go away

I will show that the assumption that subjects usually occupy A'-positions in BP, coupled with the theory of scope developed by Aoun and Li (1993), can explain the facts above. This way, the facts about scope interaction in BP will provide an argument in favor of the theory argued for in chapter 3. We turn now to a more detailed discussion of the facts.

1. Syntax of scope

1.1. English

A widely well-known fact about English is that a sentence such as (4) is ambiguous. This sentence may be taken to affirm that, for every student x , there is a certain professor y , such that x admires y . Under this interpretation, there might be as many professors as

there are students involved in the event. The sentence may also be taken to imply that there is a certain professor, such that every student admires him:¹¹³

(04) Every student admires some professor.

It is commonly assumed that the former reading takes place when the quantifier *every* scopes over the quantifier *some* and the latter reading when *some* scopes over *every*. In this way, May 1977 assigns structure (05a) to the former reading and (05b) to the latter, where the scope domain of a quantifier is equivalent to its c-command domain:

- (05) a. [_S [_S every student₂ [_S some professor₃ [_S e₂ admires e₃]]]]
 b. [_S [_S some professor₃ [_S every student₂ [_S e₂ admires e₃]]]]

May 1985 notes that there might be a problem with such structures. If the ECP holds at LF, as first proposed by Kayne 1981, then structure (05a) should be unavailable. Kayne's arguments included the distribution of the polarity item *personne* in French. *Personne* normally occurs with the negative particle *ne*. Although *personne* need not occur in the same clause with *ne*, if it does not, then it can only occur in object position:

- (06) a. Je n'ai exigé qu'ils arrêtent personne.
 I neg have required that they arrest no one
 b. *Je n'ai exigé que personne soit arrêté.
 I neg have required that no one be arrested

Kayne explains such facts by assuming that *personne* must be adjoined to the clause containing *ne* at LF, which is accomplished by QR:

- (07) a. personne₂ [je n'ai exigé qu'ils arrêtent e₂]
 b. personne₂ [je n'ai exigé que e₂ soit arrêté]

In (07a), the trace of QR of *personne* is properly governed by being a complement to a lexical category, V, in accordance with the ECP. In (07b), on the other hand, the trace is not lexically or antecedent governed, violating the ECP.

It has also been suggested that the ECP is responsible for "superiority" effects in multiple wh-constructions (cf. Chomsky 1981, Aoun, Hornstein, Sportiche 1981). For instance, the sentence **what did who admire* can be taken to violate the ECP if *who* is moved to Comp at LF:

¹¹³ The same ambiguity is present in the sentence *Some student admires every professor*, which may involve only one student or a multiplicity of students.

(08) *[who₂ what₃ [_S e₂ admires e₃]]

May 1985 then concludes that the structure (05a) is in fact unavailable at LF, since it violates the ECP in the same way (07b) and (08) do, and that structure (05b) represents both scope interpretations of sentence (04) simultaneously. He achieves this by proposing that “a single multiple quantified LF-representation can be seen to manifest a uniquely specifiable class of interpretations just in case the quantified phrases mutually c-command, or govern, one another.” In May’s theory, government and c-command (in fact m-command) are defined as follows:

(09) α governs β =_{df} α c-commands β and β c-commands α , and there are no maximal projection boundaries between α and β . (May 1985: 33)

(10) α c-commands β =_{df} every maximal projection dominating α dominates β , and α does not dominate β . (May 1985: 34)

In structure (05b), repeated below, the two quantifiers c-command each other according to the definition in (10). They also govern each other since S is not a maximal projection. In that case, according to May, *some* may scope over or under *every*:

(05) b. [_S’ [_S some professor₃ [_S every student₂ [_S e₂ admires e₃]]]]]

May then notes that a grammar which incorporates the idea that quantifiers that govern each other are free to take on any type of relative scope relation, and also assumes the general application of the ECP, will be extensionally equivalent to a grammar that simply stipulates that the ECP is not relevant to representations like those in (05). The latter choice might, in fact, be more economical. However, he continues, there is evidence indicating the correctness of the former approach. Consider, for instance, the contrast between (11a) and (11b):

(11) a. What did everyone buy for Max?

b. Who bought everything for Max?

The two sentences in (11) contrast in that (11a) is ambiguous, being understood either as a single question or a “distributed” question (the pair list reading); while (11b) lacks that second reading. The reason why can be seen by comparing the structures in (12):

(12) a. [_S’ what₃ [_S everyone₂ [_S e₂ bought e₃ for Max]]]]

b. [_S’ who₂ [_S everything₃ [_S e₂ bought e₃ for Max]]]]]

In (12a), the first maximal projection dominating the quantifier *everyone* is S', which also dominates *what*. The quantified phrase and the wh-phrase, then, c-command (and hence govern) each other; therefore, the ambiguity of (11a) is explained. Considering now (12b), this structure should also allow the wh-phrase and the quantifier to interact freely with respect to scope. However, (12b), unlike (12a), violates the ECP. The only possible representation for sentence (11b), then, according to May, is (13), which satisfies the ECP but is necessarily interpreted with the wh-phrase taking scope over the quantifier because *who* asymmetrically c-commands *every*:

(13) [S' who₂ [S e₂ [VP everything₃ [VP bought e₃ for Max]]]]

To conclude, May 1985 accounts for the scope interaction facts in English by assuming that a) maximal projections (instead of the first branching node, for instance) are the relevant structural point of reference when calculating the c-command domain of quantifiers and wh-phrases at LF (m-command instead of c-command) and b) that the ECP applies uniformly.

1.2. Chinese

Huang 1982 notes that, in Chinese, the sentences in (14a, b), contrary to the corresponding English sentences in (15a, b), are unambiguous. In the former language, the QP in subject position must have scope over the object QP, while in the latter, as just discussed in the last section, subject and object QPs may interact freely with respect to scope:

- (14) a. Youyige xuesheng mai-le meiyiben shu.
 one student buy-ASP every book
 'A student bought every book'
 b. Meige xuesheng dou mai-le yiben shu.
 every student all buy-ASP one book
 'every student bought one book'

- (15) a. A/Some student bought every book.
 b. Every student bought a/some book.

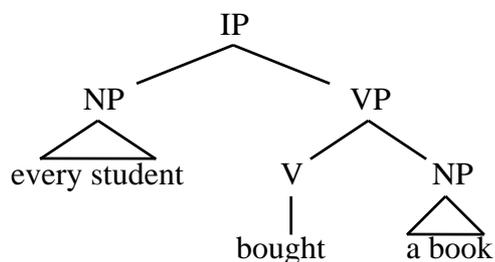
Huang argues that Chinese shows that there is an isomorphism between the S-structure c-command relation between any two quantifiers and their relative scope. This is made evident by his Condition on Scope Interpretation:

(16) The General Condition on Scope Interpretation¹¹⁴

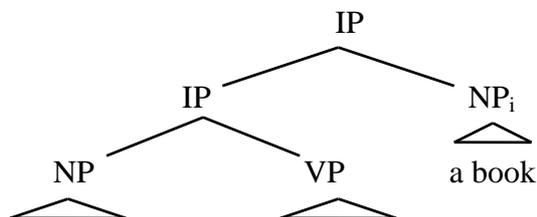
Suppose A and B are both QPs or QNPs. Then if A c-commands B at S-structure, A also c-commands B at LF.

Huang accounts for the ambiguity in the English sentences in (15) as a structural ambiguity. Specifically, he assumes the existence of a restructuring process in English which optionally takes place in a given language as long as it does not violate any of that language's phrase structure rules. In the case of English, because it is essentially a head-initial language, a structure such as $[_{IP} NP_1 [_{VP} V NP_2]]$ can be reanalyzed as $[_{IP} [_{IP} NP_1 [_{VP} V]] NP_2]$ without violating the head initial pattern. In other words, an object in English can always be analyzed either as a sister of V or as a phrase adjoined to IP. Restructuring takes place either via extraposition or simply via rebracketing of the structures. Consider the structures below. In the first case, when restructuring did not apply (in (17)), the subject NP c-commands the object NP inside VP and, therefore, the subject scopes over the object. However, when restructuring applies (in (18)), the object NP c-commands the subject NP, giving rise to the reading where the quantified phrase in object position scopes over the subject. In this way, English also complies with the isomorphic principle in (16) but its effects can be hidden by restructuring:

(17) every student bought a book (reading: $\forall \exists$)



(18) every student bought a book (reading: $\exists \forall$)



¹¹⁴ Huang (1982) distinguishes QPs such as *sange* (Q + classifier) from quantificational NPs (QNPs) such as *sange ren* 'three men'. Following Aoun and Li (1993), I will use the term QP to stand for both of these phrases.

every student bought (t_i)

In Chinese, on the other hand, restructuring is prohibited by the phrase structure constraints of the language. Chinese is essentially a head-final language. If restructuring applied and adjoined the object NP to IP, this NP would occur finally under IP (i.e. it would be a non-head occurring in final position of a constituent (IP)). Restructuring is then barred in Chinese because it would produce a violation of the head-final constraint. The absence of scope interaction between subject and object QPs thus follows.

However, as pointed out by Aoun and Li (1989), there are instances in which English preserves the S-structure c-command relations at LF and others in which Chinese does not. For example, passive sentences in Chinese do allow for inverse scope readings, while sentences containing double objects in English are unambiguous:

- (19) a. Yaoshi liangge xiansuo bei meigeren zhaodao... (ambiguous)
 if two clues by everyone found
 ‘If two clues were found by everyone...’
 b. John assigned someone every problem. (unambiguous)

Sentence (19a) is problematic, since the passive subject c-commands the quantifier in the by-clause, but the sentence is ambiguous nevertheless. The English sentence in (19b), on the other hand, is expected to be unambiguous, since restructuring could have applied. The facts in (19), then, argue against the idea that there is an isomorphism between the S-structure c-command relation between two quantifiers and their relative scope at LF.

Note now that the fact that Chinese lacks those readings where an object QP scopes over a subject QP is problematic for May’s (1985) theory discussed above. This is because a sentence like (14a), repeated below, is expected to have, at LF, a structure like (20), which is very similar to the structures of the English sentences and so should give rise to at least two different interpretations with respect to scope:

- (14) a. Youyige xuesheng mai-le meiyiben shu.
 one student buy-ASP every book
 ‘A student bought every book’

(20) [_S [_S meiyiben shu₃ [_S youyige xuesheng₂ [_S e₂ mai-le e₃]]]]

The two QPs c-command and hence govern each other in (20). According to May, then, the quantifiers should be free to take on any type of relative scope.

The lack of ambiguity in (14a) is even more unexpected when contrasted with the fact that Chinese behaves like English when *wh*-phrases interact with QPs. Both languages present a subject/object asymmetry. A pair list reading is available in Chinese when the *wh*-phrase is in object position, but not when it is in subject position:

- (21) Meigeren dou (gei Zhangsan) maile shenme? (ambiguous)
 Everyone all for Z. bought what
 ‘what did everyone buy for Zhangsan?’
- (22) Shei (gei Zhangsan) maile meige dongxi? (unambiguous)
 who for Z. bought every thing
 ‘who bought everything for Zhangsan?’

Sentence (21) shows that the kind of structure depicted in (20) is indeed possible in Chinese, assuming May’s framework, and that it does give rise to an ambiguous interpretation. Suppose now that, in order to account for the lack of ambiguity in (14) using May’s theory, one resorted to some subterfuge (whatever that could be). It is very hard to imagine any such a subterfuge which would make the two QPs in (14) not govern each other but which would maintain the symmetric government relation in (21). The inescapable conclusion is that the analysis developed by May, although reasonable for English, cannot handle the facts in Chinese.

1.3. BP

As mentioned in the introduction of this chapter, BP is like Chinese in not allowing an object QP to scope over a subject QP:

- (23) a. Um professor ofendeu todo aluno do primeiro ano.¹¹⁵ (unambiguous)
 a professor offended every student of first year
 ‘a professor offended every first-year student’
- b. Todo professor entrevistou um aluno. (unambiguous)

¹¹⁵ The literal translation of an English sentence like “a professor offended every student” is not felt to be very natural in BP. My example contains the NP “every first year student” to make it more acceptable. The reason for this is unclear. Negrão (1996) argues that *todo* in BP, when in object position, requires a restriction (usually a relative clause) on to which it can distribute. Since the universal quantifier cannot distribute over the subject in BP, it distributes over the event provided by a relative clause. The restriction in the example in (23a), however, does not contain an event but nevertheless makes the sentence more acceptable. Also noted by Negrão is the fact that the scope interaction phenomena in BP may be far more complex than is assumed here. Since her findings were very preliminary, I will gloss over some details in order to achieve a first approximation of the facts (but see section 2.1.1. for discussion).

every professor interviewed a student

However, BP differs from Chinese in that the unambiguity seen in (23) is still attested to in passive sentences:

- (24) Duas pistas foram achadas por três crianças. (unambiguous)
two clues were found by three kids

Finally, unlike both Chinese and English, BP does not allow scope interactions between QPs and wh-phrases, irrespectively of where the wh-phrase has been extracted from:

- (25) a. O que que todo mundo comprou (pro Max)? (unambiguous)
what that every body bought (for Max)
b. Quem comprou tudo (pro Max)? (unambiguous)
who bought everything (for Max)

BP poses similar problems for the theory of May 1985 as did Chinese. In other words, it is unclear why subject and object QPs cannot interact with respect to their relative scope in BP, like they do in English. Secondly, BP presents a second argument against Huang's (1982) claim that restructuring masks an isomorphism between S-structure c-command and relative scope at LF. BP is, like English, a head-initial language. Therefore, one should expect restructuring to apply in BP as it does in English and, consequently, for declarative sentences in BP to be ambiguous as they are in English, contrary to fact.

Naturally, the best possible theory would account for the similarities and the differences between the three languages. In the next section, I will argue that Aoun and Li 1993 (A&L) is such a theory, however, only when it is coupled with the assumption that the subject position in BP is an A'-position, as described in chapter 3. Since the similarities and differences between the three languages can be accounted for by A&L only when a crucial assumption of chapter 3 is taken to be true of BP, the scope facts described here will furnish an argument for the analysis of the null subject in BP given in that chapter.

1.4. Aoun and Li 1993

A&L's theory is based on the Minimal Binding Requirement (MBR) (in (26)) and the scope principle (reproduced in (27) below):

- (26) MBR: Variables must be bound by the most local potential A'-binder. (Where A qualifies as a potential A'-binder for B iff A c-commands B, A is in an A'-position,

and the assignment of the index of A to B would not violate Principle C of the binding theory.)

- (27) Scope Principle: an operator A may have scope over an operator B iff A c-commands B or an A'-element coindexed with B.

The MBR rules out LF representations with multiple fronted quantifiers of the kind used by May (1977, 1985) (shown in (28)):

- (28) Q₂Q₁ [... subject₁ verb object₂ ...]

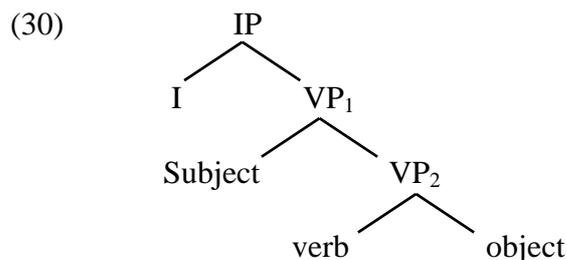
The MBR makes it impossible to represent inverse scope readings with structures such as the one in (28), usually assumed to represent those readings. The alternative representation proposed by A&L involves taking QR as an optional rule. Adopting (and adapting) an idea from Chomsky (1986a), A&L assume that adjunction is prohibited to expressions in theta marked positions. They then postulate a rule of QR in which a bare quantifier adjoins to the NP that contains it. In addition, they assume a rule of NP adjunction which moves a whole quantified NP to an A'-position. In contrast to the former Q-adjunction, the NP-adjunction rule is optional. For instance, assuming that [Spec IP] is not a theta position in English (as is the case if the subject moves from a VP-internal position), Q-adjunction may apply to a subject in [Spec IP]. An object, on the other hand, because it occupies a theta position inside the VP, must be moved by NP-adjunction to an A'-position in order for the obligatory Q-adjunction rule to take place. A quantified object can be either adjoined to the VP, in which case its whole chain is c-commanded by the quantified subject, or it may be adjoined to IP, from where it would c-command the subject. The two possible adjunction sites, then, allow both the reading where the subject scopes over the object and the one in which the object scopes over the subject. The structures are as follows:

- (29) a. [IP [NP every₁ [NP x₁ one]]_i [VP [NP a₂ [NP x₂ woman]]_j [VP t_i loves x_j]]]
 b. [IP [NP a₂ [NP x₂ woman]]_j [IP [NP every₁ [NP x₁one]]_i [VP t_i loves x_j]]]

Structure (29a) has only one reading: the QP *everyone* c-commands and thus scopes over the QP *a woman*. Similarly, in (29b), the QP *a woman* c-commands and thus scopes over *everyone*. The ambiguity of the sentence *everyone loves a woman* is then explained by the two possible LF representations associated with it.¹¹⁶

¹¹⁶ Note that the variable x_j inside the VP obeys the MBR not only in (29a) but also in (29b): the QP *everyone* in (29b) has remained in [Spec IP], an A-position, therefore it does not qualify as a potential binder for the variable which gets bound by the QP *a woman*.

In order to account for the lack of ambiguity in active sentences involving two quantifiers in Chinese, A&L assume that, unlike in English, the subject in Chinese is not raised from its θ -position inside the VP to the [Spec IP] position. For instance, a simple active sentence in Chinese would have the following structure, according to A&L:



The second crucial assumption made by A&L is that variables left by movement of quantifiers like *every* and *some*, unlike variables left by *wh*-movement for instance, are not subject to principle C.

Take now the two assumptions into consideration when calculating the relative scope of an active sentence involving two quantifiers in Chinese. Since the subject occupies a θ -position, the whole NP subject must be adjoined to VP_1 (or IP) in order for Q-adjunction to take place. Since the variables left by QP adjunction of quantifiers are not subject to principle C, adjunction of the subject to VP_1 leaves adjunction to VP_2 as the only option for the object QP (as adjunction of the object QP to VP_1 or any projection higher than VP_1 would lead to a violation of the MBR).

It is, then, the fact that the subject position is a theta position that explains the lack of inverse scope readings in active sentences in Chinese. In passive sentences, on the other hand, the deep object is moved to [Spec IP], which is not a theta position. The presence of inverse scope readings in Chinese passive sentences are, then, accounted for.

Consider now the interaction between *wh*-operators and quantifier phrases, exemplified in (31) below:

- (31) a. What did everyone buy? (ambiguous)
 b. Who bought everything? (unambiguous)

Consider (31b), which will have the LF structure in (32). In that structure, adjunction of the object QP to IP is barred by the MBR. If *everything* was adjoined to IP, it would qualify as the closest potential A'-binder for the subject variable. Assignment of the index of *everything* to the variable in subject position would not give rise to a principle C violation, since the variable left by *everything* is not subject to that principle. However, in

that case, the wh-operator *who* would not bind any variable and the structure would be ill-formed. VP is then the only possible adjunction site for the object QP, deriving only the reading where *who* scopes over *everything*:

(32) [CP who_i [IP x_i [VP [NP every₁ [NP x₁ thing]]]_j [VP t_i bought x_j]]]

Take (31a) now, represented in (33a) and (33b):

(33) a. [CP what_j did [IP [NP every₁ [NP x₁ one]]]_i [VP t_i buy x_j]]]
 b. [CP what_j did [IP [NP every₁ [NP x₁ one]]]_i [IP x_i [VP t_i buy x_j]]]

In (33a), Q-adjunction has applied to the subject QP in [Spec IP], since that is a non- θ position (in English). Alternatively, the whole subject may first adjoin to IP and only then Q-adjunction applies, as in (33b). In both structures, the wh-phrase asymmetrically c-commands the subject, giving rise to the reading where *what* scopes over *every*. In order to explain the ambiguity of the sentence (31a), A&L argue that there is one more possible LF structure which represents that sentence. Such a structure is the one in which the wh-phrase has adjoined to VP on its way to CP, as shown in (34):

(34) [CP what_j did [IP [NP every₁ [NP x₁ one]]]_i [IP x_i [VP t_j [VP t_i buy x_j]]]]

In (34), the wh-phrase still c-commands the subject, giving rise to the reading where *what* has scope over *every*. However, in that structure, the QP subject c-commands the trace of *what* left by adjunction to VP, giving rise to the reading where *every* scopes over *what*. The existence of structure (34), then, explains the ambiguity of sentence (31a).

It can be concluded that the theory developed in A&L 1993 is empirically adequate both for English and Chinese. In the next subsection, I will demonstrate how A&L's theory can be used to account for the scope facts in BP, using the phrase structure proposed in chapter 3.

2. Scope facts in BP

As mentioned above, BP is like Chinese in not allowing the readings where an object QP takes scope over a subject QP:

(35) a. Every student bought a book. (ambiguous)
 b. Meige xuesheng dou mai-le yiben shu. (unambiguous)
 every student all buy-ASP one book
 ‘every student bought one book’

- c. Todo estudante comprou um livro. (unambiguous)
 every student bought a book

Sentence (35c), like its Chinese counterpart, means that for every student x , there is a book y , such that x bought y . Although the book bought by the students may be accidentally the same, the sentence cannot mean that there is a single book such that every student bought it. A&L's explanation for the lack of ambiguity in the Chinese sentence could be applied to BP. Let's suppose that subjects occupy a θ -position in BP. Although it would be impossible to assume that the subject does not leave the VP (in view of all the discussion so far), it could be assumed that subjects are base generated in their S-structure position (say [Spec IP]) and that that position is a θ -position in BP.¹¹⁷ If the position occupied by subjects is a θ -position, the subject has to be raised (i.e. NP-adjoined) in order for the Q-adjunction rule to apply. Since the subject QP would be adjoined to IP, adjunction to VP would be the only option for the object QP, which would then be c-commanded by the subject QP. The sentence would then be unambiguous in the same way Chinese sentences are.

However, now consider passives. In BP, unlike both Chinese and English, the passive subject must have wider scope than a QP in the by-phrase:

- (36) a. Two clues were found by everyone. (ambiguous)
 b. Yaoshi liangge xiansuo bei meigeren zhaodao... (ambiguous)
 if two clues by everyone found
 'If two clues were found by everyone...'
 c. Duas pistas foram achadas por três crianças. (unambiguous)
 two clues were found by three kids

Both (36a) and (36b) have the reading where there are two unique clues that were found by every person. Additionally, they have the reading where *everyone* has scope over *two clues*. (36c), on the other hand, has only the reading where two unique clues were found by a group of three kids. It does not have the reading where each of the kids found two clues. Recall that A&L's account for the ambiguity of (36b) was related to the fact that, in passives, the subject occupies a non-theta position in Chinese. Since the position of the subject in passives is a derived position and thus has to be considered a non-theta-position, the lack of the inverse scope reading in passives in BP seems problematic.

In chapter 3, I have argued that BP presents a different phrase structure than both English and Chinese. I have assumed, with Jonas (1996), Bobaljik & Jonas (1996) and Thráinsson (1996), that INFL is split into an Agr and a T projection in BP, while English

¹¹⁷ This actually is the interpretation of A&L's theory used by Hornstein 1995 for Chinese.

and Chinese have only one specifier position able to host subjects (probably the specifier of an amalgamated IP projection, as argued by the latter author). Note also that I have argued that [Spec AgrP] is an A'-position in BP, which needs to be occupied by force of the EPP. This is true even in passives, as the ability of the passive subject to bind an embedded null subject shows:

- (37) O Pedro foi detido pela polícia porque *pro* não tinha um álibi.
 P. was held by the police because (he) didn't have an alibi

What (37) shows, according to the discussion in chapter 3, is that the subject *o Pedro* is moved from its D-structure position to [Spec TP], where it checks nominative case, and from there to [Spec AgrP], from where it can A'-bind *pro* in the adjunct clause.

My point here is that the different phrase structures of BP, on one hand, and Chinese and English, on the other, coupled with the fact that [Spec Agr] is an A'-position in BP, is responsible for the differences in possible scope readings in the three languages. Take the sentences in (35) again. The ambiguity and lack of ambiguity in (35a-b) can be explained exactly as A&L do: by the fact that the subject occupies a theta position in Chinese but not in English. The lack of ambiguity in (35c), however, is explained by the fact that the subject in BP ends up in an A'-position. The assumption that subjects in BP are base generated in their S-structure position, which was problematic, can thus be dropped. The S-structure of sentence (35c) is given in (38a) and three possible LF representations are given in (38b-d) (irrelevant details omitted throughout):

- (38) a. [_{AgrP} todo estudante_i [_{TP} x_i comprou [_{VP} t_i t_v um livro]]]
 every student bought a book
 b. [_{AgrP} [_{NP} todo₁ [_{NP} x_1 estudante]]_i [_{TP} x_i comprou [_{VP} um livro_j [_{VP} t_i t_v x_j]]]]
 c. [_{AgrP} [_{NP} todo₁ [_{NP} x_1 estudante]]_i [_{TP} um livro_j [_{TP} x_i comprou [_{VP} t_i t_v x_j]]]]
 d. [_{AgrP} um livro_j [_{AgrP} [_{NP} todo₁ [_{NP} x_1 estudante]]_i [_{TP} x_i [_{VP} t_i comprou x_j]]]]

Structure (38a) shows that the subject is raised from its VP internal position to its case checking position [Spec TP] by A-movement and then to [Spec AgrP] by A'-movement. As discussed in chapter 3, this last movement is necessary to check a strong D-feature on Agr (the EPP). At LF, since the subject does not occupy a theta-position, the Q-adjunction rule applies and the subject remains in [Spec AgrP].¹¹⁸ There are, then, three conceivable LF positions for the object QP: it can be adjoined to VP, to TP or to AgrP. The first option

¹¹⁸ Alternatively, Q-adjunction does not apply in this case, since the NP already occupies an A'-position. This choice bears no importance for the fact discussed below, so I will leave it open.

- (42) a. O que que todo mundo comprou (pro Max)? (unambiguous)¹²⁰
 what that every body bought (for Max)
 b. Quem comprou tudo (pro Max)? (unambiguous)
 who bought everything (for Max)

In A&L's framework, the subject wh-phrase in (40b) is moved to [Spec CP] and, by force of the MBR, the object QP can only be adjoined to VP. Since NP-traces are not relevant for the Scope Principle, (40b) is unambiguous. In (40a), it is the object that moves to [Spec CP]. The subject QP, in this case, may (or may not) adjoin to IP by NP-adjunction. However, since variables are also not relevant for the Scope Principle, A&L argue that the wh-operator leaves an A'-trace by adjoining to VP on its way to Comp (following Chomsky 1986a). (Basically, the same analysis applies to the Chinese sentences in (41)). The two structures are repeated below:

- (43) a. [CP what_j did [IP [NP every₁ [NP x₁ one]]_i [IP x_i [VP t_j [VP t_i buy x_j]]]]
 b. [CP who_i did [IP x_i [VP [NP every₁ [NP x₁ one]]]_j [VP t_i buy x_j]]]

Consider now the BP sentences. The lack of ambiguity in (42b) is expected. (42a), on the other hand, everything being equal, should be ambiguous. Fortunately, not everything is equal. The absence of the interpretation where *everyone* takes wide scope in (42a) can be explained if the wh-operator fails to adjoin to VP on its way to Comp.

Suppose that the structure in (43a) is the only possible structure for sentence (40a) and not just an alternative option, as claimed by A&L. Assuming Chomsky 1986a, if the wh-phrase fails to adjoin to the VP in (40a), it will cross two barriers: VP itself and IP, which

¹²⁰ Although most speakers agree that a wide scope reading for *todo* 'every' is impossible, a few of my informants claimed that that reading is indeed possible. One point of confusion is the fact that sentence (42a) can in fact be answered by a list of pairs including people and the respective thing he or she bought. This, however, does not mean that the subject QP takes scope over the wh-operator. Take this scenario: the speaker knows that a set of people, say, John, Bill and Sue, bought different things at the flea market and s/he wants to know who bought what. In English, it is possible, in that situation, to ask "What did everyone buy?" In BP, on the other hand, it seems that, giving the scenario above, the question in (42a) makes no sense. Better saying, sentence (42a) is felt to be inappropriate if the speaker has the knowledge (or imagine to be possible) that each person bought a different thing. In this way, even though it might be the actual case that each person in the relevant set bought a different thing, when (42a) is uttered as a question in BP, it presupposes that the speaker believes that everyone bought the same thing (as a group). This is why I take that sentence to be unambiguously interpreted with the wh-operator taking wide scope (as do many of my informants). Nevertheless, a few speakers tell me that the interpretation where the QP scopes over the wh-operator, although it is not the preferred reading, is indeed possible. In the discussion below, I claim that, for these speakers, the wh-operator can be reconstructed into [Spec AgrP], deriving the desired interpretation. Note, however, that reconstruction must be a marked operation since the interpretation it derives is, even for the speakers who get it, marked.

inherits barrierhood from VP. Since, in that framework, crossing two barriers causes ungrammaticality, it must be assumed that (43a) is the only possible representation for the sentence (40a).

Recall now, from chapter 2, that in BP, unlike in English and Chinese, the verb leaves the VP, raising to TP. Following Chomsky, verb movement makes TP able to L-mark the VP, which, in this case, is not a barrier. Therefore, the *wh*-phrase does not need to adjoin to VP on its way to CP, unlike the state of affairs in English. The lack of ambiguity in BP indicates further that adjunction to VP, since it is unnecessary, it is forbidden (probably, an economy related constraint). In this way, verb raising in BP, versus its absence in English and Chinese, explains the contrast between (40a) and (42a).

Summarizing, we have seen that the theory developed by Aoun and Li (1993) coupled with the phrase structure defended in the preceding chapter can account for the scope interpretations in BP and its differences from both English and Chinese. In the next subsection, I will show how this theory accounts for the facts related to null subjects in BP noted in the beginning of this chapter.

2.1. The quantified subject problem

I have mentioned that sentence (02) contrasts with (01), repeated below, in that the former allows the subject DP to bind the embedded null pronoun. Since there is no scope interaction between *wh*-phrases and quantified subjects in BP (see the preceding section), the *wh*-phrase in (02) must have wide scope, irrespective of the choice of the binder. In other words, sentence (02) may be interpreted as (44a) or (44b) but not as (44c, d):

(01) Quem₁ que o Pedro₂ convenceu t₁ que *pro*_{1/??2} tinha que ir embora?
 who (that) Pedro convinced that (he) had to go away

(02) Quem₁ que todo aluno₂ convenceu t₁ que *pro*_{1/2} tinha que ir embora?
 who (that) every student convinced that (he) had to go away

- (44) a. what person x, for every student y, y convinced x that x had to go away
 b. what person x, for every student y, y convinced x that y had to go away
 c. for every student y, what person x, y convinced x that x had to go away
 d. for every student y, what person x, y convinced x that y had to go away

The theory of scope discussed above, coupled with the phrasal structure argued for BP in the preceding chapter, can account both for the fact that (02) is ambiguous with respect to the binder of *pro*, and that (02) is unambiguous with respect to the wide scope of the

wh-phrase with respect to the quantifier in the matrix subject position. The structure of (02) by Spell Out is (45a). (45b, c) are two possible LF structures for (02):

- (45) a. [CP quem₁ [AgrP quem₁ [TP todo aluno₂ convenceu [VP t₂ t_v x₁ que *pro* ...]]]]
 b. [CP quem₁ [AgrP x₁ [TP [NP todo_i [NP x_i aluno]]₂ convenceu [VP t₂ t_v x₁ que *pro*₁ ...]]]]
 c. [CP quem₁ [AgrP x₁ [TP [NP todo_i [NP x_i aluno]]₂ [TP x₂ convenceu [VP t₂ t_v x₁ que *pro*₂ ...]]]]

As discussed in chapter 3, (45a) shows that the wh-phrase is moved to [Spec AgrP] to check the EPP, and from there to [Spec CP]. At LF, since the matrix subject does not occupy a theta-position, the quantifier *todo* may adjoin to the subject NP, deriving (45b). In that configuration, the quantified subject remains in an A-position and, therefore, the wh-phrase is the only potential binder for *pro*. However, the quantified subject can optionally undergo NP-adjunction to TP, as shown in (45c). This derivation is well-formed according to the MBR. Assignment of the subject's index to the object variable inside VP would lead to a violation of principle C. Both variables are then bound by the closest potential binder. If NP adjunction takes place, the subject will occupy an A'-position at LF and will qualify as the closer potential binder for the embedded *pro*. In both (45b and c), the wh-phrase c-commands the quantified subject and thus has wide scope.

2.1.1. Dialectal differences

A problem for the theory developed here is that, although most speakers I have consulted allow only the readings (44a, b) for sentence (02), some speakers seem to allow the quantified subject to take scope over the wh-phrase. Similarly, in footnote 8, I have noted that a few speakers consulted seem to allow the QP in (42a), repeated below, to take scope over the wh-operator:

- (42) a. O que todo mundo comprou (pro Max)?
 what every body bought (to Max)

Recall now that A&L's explanation for the ambiguity of a sentence like (42a) in English and Chinese was related to the fact that the wh-phrase adjoins to VP on its way to CP in these languages. I have followed Chomsky (1996a) in arguing that VP adjunction is obligatory in English and Chinese to overpass the VP barrier. In BP, on the other hand, since the verb moves out of VP, the VP is L-marked and does not constitute a barrier. It could be argued that the dialectal difference seen in BP is caused by the fact that some speakers allow adjunction to VP. But this is very unlikely. Assuming, as we do, that VP adjunction is forced in English to escape the VP barrier, and barred in BP because the VP is L-marked, this makes adjunction to VP an unexpected locus of variation. I would like to

claim that the reason for dialectal variation lies elsewhere. Once again, this variation is only expected in BP because of its phrase structure and the A'-character of [Spec AgrP].

Because of its, by now familiar, characteristics, BP moves the wh-phrases to [Spec AgrP] and from there to [Spec CP], in the examples in question. Since both are operator positions, I would like to speculate that some speakers allow wh-operators to be interpreted at LF, occupying [Spec AgrP]. Although movement to CP is forced by feature checking requirements, the wh-phrase can be reconstructed into [Spec AgrP] at LF. Reconstruction here is understood to be merely a question of choice with respect to which copy will survive at LF. While most speakers prefer to interpret wh-phrases in the head position of its chain, some might be able to interpret a lower copy that also occupies an A'-position. If this much is accepted, the fact that some speakers allow (2) and (42a) to be interpreted with the QP taking wide scope follows. Consider the structures below, for the sentence (42a):

- (46) a. [CP *o que*_j [AgrP *x_j* [TP [NP *todo*₁ [NP *x₁* mundo]]]_i *compro* [VP *t_i* *t_v* *x_j*]]]
 b. [CP *o que*_j [AgrP [NP *todo*₁ [NP *x₁* mundo]]]_i [AgrP *x_j* [TP *x_i* *compro* [VP *t_i* *t_v* *x_j*]]]
 c. [AgrP [NP *todo*₁ [NP *x₁* mundo]]]_i [AgrP *o que*_j [TP *x_i* *compro* [VP *t_i* *t_v* *x_j*]]]

In (46a), the wh-operator is moved from VP to [Spec AgrP] and to [Spec CP]. The QP, because it occupies a non-theta position, can remain in [Spec TP], where Q-adjunction applies. Note that this representation is unambiguous (the wh-phrase has wide scope) since there is no A'-trace of the wh-operator adjoined to VP. Alternatively, the QP could be adjoined to TP (irrelevantly) or to AgrP by NP-adjunction, as shown in (46b). However, (46b) violates the MBR: the variable *x_j* is not bound by the closest possible A'-antecedent. Now consider (46c). If it is true that some speakers may interpret the wh-phrase in [Spec AgrP], the QP subject can be adjoined to AgrP without violating the MBR: the variable *x_i* cannot take the wh-operator as its closest possible binder because assignment of the index of *o que* to the variable in [Spec TP] violates principle C (because *x_i* c-commands *x_j* inside the VP). Representation (46c) is, then, well-formed and yields the interpretation where the QP takes wide scope since it c-commands the wh-operator. Reconstruction of the wh-operator, being an optional operation for the speakers who allow it, explains why (42a) is ambiguous in some dialects (and why (2) may be interpreted with the quantified subject taking wide scope by some speakers).

Interestingly, even for the speakers who allow this kind of reconstruction, not all readings for (02), listed in (44), are possible. Take the structure of (02) with reconstruction:

- (47) [_{AgRP} [_{NP} todo_i [_{NP} x_i estudante]]]₂ [_{AgRP} quem₁ [_{TP} x₂ convenceu [_{VP} t₂ t_v x₁ que pro₁...]]]]

It is expected, for the speakers who allow derivation (47), that the only possible binder for *pro* is the *wh*-phrase, since it is the closest potential binder. In fact, those speakers who allowed the *wh*-phrase to take narrow scope in these sentences interpreted sentence (02) to be ambiguous between readings (44a, b and c). Reading (44d) was still unavailable for these speakers, providing strong evidence in favor of the theory proposed here:

- (44) a. what person x, for every student y, y convinced x that x had to go away
 b. what person x, for every student y, y convinced x that y had to go away
 c. for every student y, what person x, y convinced x that x had to go away
 d. for every student y, what person x, y convinced x that y had to go away

2.2. The quantified object problem

A remaining problem for the analysis presented here is the fact that quantified objects, unlike quantified subjects, are not possible binders for *pro*. As noted in the beginning of this chapter, (01) and (02), repeated below, contrast in that the reading where the subject binds an embedded *pro* is much easier to obtain in the latter sentence, which contains a quantified DP in subject position:

- (01) Quem₁ que o Pedro₂ convenceu t₁ que pro_{1/?2} tinha que ir embora?
 who (that) Pedro convinced that (he) had to go away
- (02) Quem₁ que todo aluno₂ convenceu t₁ que pro_{1/2} tinha que ir embora?
 who (that) every student convinced that (he) had to go away

Sentence (03), however, shows that a quantified DP in object position does not change the fact that objects cannot usually bind a null subject, as seen in (22a) from chapter 3, repeated here as (48):

- (03) Um professor₁ convenceu todo aluno₂ que pro_{1/*2} tinha que ir embora.
 some professor convinced every student that (he) had to go away
- (48) O Paulo₁ convenceu o Pedro₂ que pro_{1/*2/*3} tinha que ir embora.
 Paulo convinced Pedro that (he) had to go away

In section 2.1. above, I accounted for the availability of the second reading of (02), which is absent from (01), by assuming Aoun & Li's (1993) theory. In that framework, the quantified subject in (02) undergoes quantifier-adjunction. It can then stay in [Spec TP],

deriving the reading where the *wh*-phrase binds *pro*, or, optionally, it may undergo NP-adjunction to TP, becoming a potential binder for *pro*. If NP-adjunction applies, the quantified subject will be the binder for the embedded null subject.

Now take (03). In all the structures given in this chapter, I have been focusing on the subject NP and assuming that the object NP stays inside VP. However, this cannot be correct. The object position inside VP is a theta position. Therefore, in order for Q-adjunction to apply, the whole NP has to be moved to an adjoined position. But if the object occupied an adjoined (A'-position) at LF, it should be able to bind the embedded subject. It can then be concluded that the object does not reach LF in its theta-position.

Since I have been assuming that BP presents a split INFL, where AgrP and TP are separate projections, and such a clause structure proved to be useful in explaining not only the interpretation of null subjects but also scope interactions in BP, it seems plausible to assume that the language makes use of still another functional projection. This is the projection where object DPs are moved to at LF to check accusative Case. Such a projection may be either AgrOP (from Chomsky 1993) or the small *v* projection of Chomsky 1995. Assume it is AgrOP for clarity. According to the A/A' characterization assumed in chapter 3, [Spec AgrOP] is an A-position, since the verb has moved through AgrO.

Taking objects in BP to reach LF in the [Spec AgrOP] position, the unambiguity of (03) can be explained if adjunction to AgrOP is taken to be illicit. Consider the derivation in detail: the quantified object occupies [Spec AgrOP], its Case-checking position. Since that is not a θ -position, the quantifier may adjoin to the object DP and the whole DP may remain in [Spec AgrOP]. [Spec AgrOP] is an A-position, so the object cannot bind the embedded subject. As suggested by Hagit Borer (p.c.), the fact that NP-adjunction is barred from applying to AgrOP may be related to the fact that such movement would be vacuous with respect to scope interaction. Consider two possible structures for the matrix clause of sentence (03):

- (49) a. [_{AgrSP} um professor_i] [_{TP} x_i convenceu [_{AgrOP} [_{NP} todo₁ [_{NP} x_1 aluno]]] [_{VP} t_i t_v t_j]]
- b. [_{AgrSP} um professor_i] [_{TP} x_i convenceu [_{AgrOP} [_{NP} todo₁ [_{NP} x_1 aluno]]] [_{AgrOP} x_j [_{VP} t_i t_v t_j]]]]

In (49a), Q-adjunction took place for the QP *todo aluno* in [Spec AgrOP]. In (49b), the QP *todo aluno* was NP-adjoined to AgrOP before Q-adjunction applied. In both structures, NP-adjunction could also apply to the subject QP, however irrelevantly because, in both cases, the subject QP c-commands and scopes over the object QP. Following Fox (1995), it may be assumed that LF movement is always non-vacuous, i.e. that QR applies only if it has an effect on the scope relations. In this case, NP-adjunction

would be barred in (49a, b) for both QPs. More importantly, since there is no case in which NP-adjunction to AgrOP would change the relative scope of a structure, adjunction to AgrOP can be banned altogether, deriving the fact that objects will never be able to identify a null subject, since they will never occupy A'-positions at LF (unless the object has overtly moved to an A'-position).

3. Conclusion

In this chapter, I showed that the phrase structure proposed for BP in chapter 3 can account for data unrelated to the interpretation of null subjects. In particular, I showed that, using the theory proposed by Aoun and Li (1993), the fact that [Spec AgrP] is an A'-position explains why scope interactions are different in BP than in English and Chinese. Moreover, the two theories in conjunction were able to explain why a quantified subject is a possible binder for an embedded null subject, even in the context of wh-movement. Although the scope facts in BP may be far more complex than what was shown here, the data presented in this chapter, though maybe incomplete, provides strong evidence in favor of the phrase structure proposed for BP in the preceding chapter.

Chapter 5

More A'-bound *pros*

In the previous chapters, I argued that *pro* must be identified because it lacks a denotational index. Identification is meant to be the process of furnishing *pro* with such an index. Since BP cannot identify null pronouns by some structural relation with agreement (because agreement is poor), it resorts to A'-binding. Null pronominal subjects are identified by being associated with a variable that is itself identified by its binder. Null pronominal objects, on the other hand, are identified by being interpreted as pronominal variables, which are also identified by their binder.

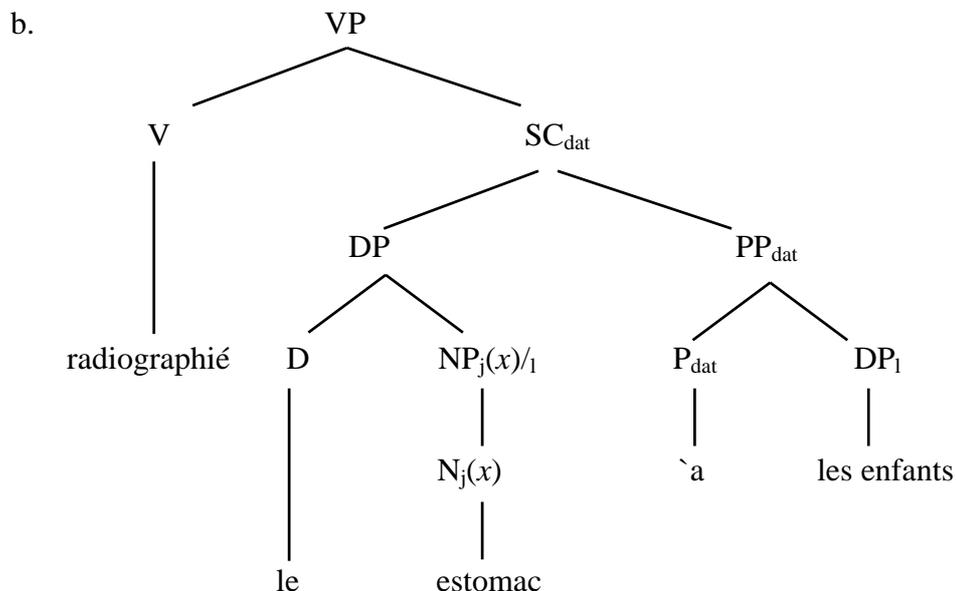
The A'-binding analysis would receive some support if other pronominal categories were identified in a similar manner. In fact, BP presents yet another null pronominal category, a null possessive pronoun, which is amenable to the same identification analysis. Specifically, I will show that null possessives in this language are also associated with a variable that gets A'-bound (and so identified) by a higher subject or other A'-element, inside the DP.

1. Inalienable constructions

Vergnaud and Zubizarreta 1992 (V&Z) present an analysis of inalienable constructions in French based on the hypothesis that definite referential expressions may give rise to a *type* or *token* interpretation. More specifically, they argue that “a token in domain D corresponds to a DP headed by a nonexpletive determiner, whereas a type corresponds either to a bare NP or to a DP headed by an expletive determiner.” According to the authors, an expletive determiner is one that lacks a denotational index. Another crucial assumption of their analysis is that “an inalienable noun, but not an alienable one, takes a possessor argument.” To exemplify, consider sentence (01a), with the partial structure proposed by the authors in (01b):¹²¹

¹²¹ V&Z use subscript letters as denotational indices and a numeric indices to indicate binding. I will keep their notation when reproducing their structures, although it is different than the notation I have been adopting in this work, which does not differentiate between binding and denotational indices.

(01) a. Le médecin a radiographié l' estomac aux enfants.
 the doctor x-rayed SING DEF DET stomach to the children



In (01b), j is the denotational index of the NP *estomac* and it denotes a type. The determiner in that DP is an expletive, in the sense that it lacks a denotational index, so the whole DP denotes a type. (x) is the possessor argument variable of the inalienable noun *estomac*, which is bound by DP₁ (*les enfants*) by Predication. V&Z take Predication to be a binding relation which requires mutual m-command. Predication, then, viewed as a binding relation between the plural possessor and the inalienable phrase, explains why the sentence implies that a plurality of stomachs were x-rayed (which V&Z call a distributivity effect), although the DP *l'estomac* is singular.

Consider now sentence (02):

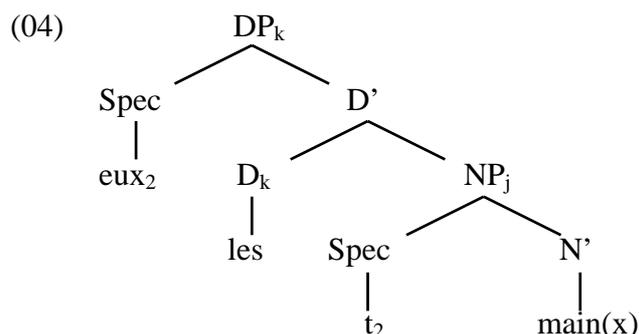
(02) Les enfants ont levé les mains.
 the children raised the hands

In (02), the distributivity effect is manifested in the interpretative relation holding between two plural categories: the subject *les enfants* and the object *les mains*. Sentence (02) means that each of the children raised both of their hands. It cannot mean that each child raised only one hand; nor can the sentence have a vague interpretation where one or two hands were raised by any one child. This fact is also captured by V&Z's analysis since the possessor argument of the DP *les mains* is bound by the subject through predication, so the distributivity in (02) (and (01)) is parallel to structures where a

universal quantifier has scope over a nominal expression. Moreover, the DP in (02) is a plural type, so it denotes a plurality of pairs of hands, rather than a plurality of hands. Consider now (03), where the possessor argument of the inalienable noun is instantiated by a possessive pronoun:

(03) Les enfants ont levé leurs mains.
the children raised their hands

V&Z argue that the inalienable noun in (03) is semantically singular but grammatically plural. In other words, the plural DP instantiates the singular type *main* ‘hand’ with its overt grammatical number derived by an agreement rule to the token-denoting determiner. It is possible to have a nonexpletive determiner in (03) (as opposed to (02)) because the possessive pronoun *eux* in (03) saturates the possessor argument of the inalienable noun. The structure they propose for the inalienable DP in (03) is reproduced below:



About (04), V&Z affirm that “the DP denotes a token – namely, k – that instantiates the inalienable type [main(x) MM], represented as j . The pronoun eux_2 cannot be associated with the argument of [main(x) MM] via Predication. The determiner bears a denotational index and therefore blocks Predication from applying between the pronoun in [Spec, DP] and NP_j. The pronoun eux_2 is construed as the argument of [main(x) MM] by virtue of being linked to the trace in the [Spec, NP_j].” The reason that the inalienable noun surfaces in the plural in (03) is that the NP agrees with the determiner in grammatical number when the determiner is not an expletive. Since the noun *main* is semantically singular, the DP, then, can denote a plurality of individual hands rather than pairs of hands. The fact that sentence (03) has a vague interpretation is then accounted for by V&Z’s proposal.

Note, however, that sentence (02) seems to negate V&Z’s assumption that predication requires mutual m-command, since the subject and the object in (02) do not m-command

each other. The authors point out that such a construction is lexically restricted: only verbs that denote body movements allow it:

- (05) a. Les hommes ont levé le bras.
 the men raised the arm
 b. Les hommes ont claqué les doigts.
 the men snapped the fingers
 c. Les hommes ont ouvert les yeux.
 the men opened the eyes
- (06) a. *Les hommes ont lavé le visage.
 the men washed the face
 b. *Les hommes ont rasé la barbe.
 the men shaved the beard
 c. *Les hommes ont cassé la tête.
 the men broke the head

V&Z then assume that the class of verbs in (05) differs from others classes in that they trigger reanalysis with their object. Since the definite determiner may be an expletive in their theory, reanalysis gives rise to the appropriate structural configuration for Predication to relate the subject to the inalienable noun in object position.

Turning now to BP, consider the sentences below:

- (07) a. Os homens levantaram o braço.
 the men raised the arm
 b. Os homens estalaram os dedos.
 the men snapped the fingers
 c. Os homens abriram os olhos.
 the men opened the eyes
- (08) a. Os homens lavaram a cara.
 the men washed the face
 b. Os homens fizeram a barba.
 the men shaved the beard
 c. Os homens quebraram a cabeça.
 the men broke the head
- (09) a. Os homens confiaram na memória.
 the men trusted the memory
 b. Os homens duvidaram da esposa.

- the men doubted the wife
 c. Os homens olharam pro pé.
 the men looked at the foot

Sentences in (07) and (08) are translations of (05) and (06) respectively. They show that, in BP, this kind of construction does not seem to be lexically restricted. In the sentences in (09), the object is introduced by a preposition, but a distributivity effect is still observed. Even if one assumes that the verbs in (08) also trigger reanalysis in BP, the sentences in (09) do not seem able to be accounted for by that analysis.¹²² In other words, even if one assumes that the class of verbs which allow reanalysis is very large in BP, it is unclear how reanalysis could apply between the verb and the PP complement in order for the object to m-command the subject. The sentences in BP also differ from the French examples in two ways: a) although distributivity effects are observed in (07) - (09) in the sense that a singular noun is interpreted as a plurality, plural inalienable nouns in BP allow for a vague interpretation; b) the kind of construction in (05) can only be modified by restrictive adjectives in French, whereas in BP it can be modified by either restrictive or appositive adjectives:

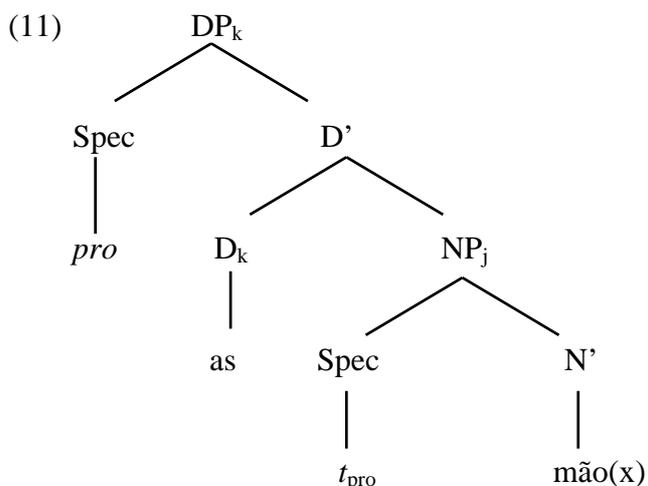
- (10) a. As crianças levantaram as mãos.
 the children raised the hands
 b. Os homens levantaram as mãos calejadas.
 the men raised the callused hands.

Sentence (10a), which is a translation of (02) above, means that each of the children raised one or both of their hands. It does not necessarily mean that every child raised both hands, as does (02). Similarly, sentence (10b) means that the men raised their hands, and the hands were full of calluses; it does not necessarily mean that the men raised only the hands that were callused.

¹²² V&Z note that, in Norwegian, the class of verbs that trigger reanalysis includes some of the verbs which trigger reanalysis in French plus some of the verbs exemplified in (08). However, the verbs exemplified in (09) do not allow reanalysis in Norwegian, even though the verb *to trust*, for instance, is a direct transitive verb in that language:

- (i) a. De vasket ansiktet.
 they washed the face
 b. De barberte skjegget.
 they shaved the beard
 c. De reiste hodet.
 they raised the head
 (ii) *Han stolte på ð hodet.
 he trusted the head

I would like to argue that the BP sentences above appear to be problematic for V&Z's analysis only because one intuitively equates them with sentence (02), where the possessor argument is identified by the subject by Predication. However, these sentences should be equated with the construction exemplified in (03), where the possessor argument is identified by a possessive pronoun. In other words, the structure of the DPs in (07) - (10) should be viewed as (11):



In (11), like in (04) above, the DP denotes a token – namely, k – that instantiates the inalienable type $m\tilde{a}o(x)$, represented as j . The determiner is not an expletive, so it blocks Predication from applying between the pronoun in [Spec DP] and NP _{j} . The pronoun is construed as the argument of $m\tilde{a}o(x)$ because it is related to the [Spec NP _{j}] position by movement. The type $m\tilde{a}o(x)$ agrees with the grammatical number of the determiner, surfacing as plural, although it is semantically singular. The DP, then, denotes a plurality of hands, rather than of pairs of hands. In this case, the set of token hands is construed freely with the set of possessors (one or two hands may be construed with any one individual possessor). The sentence, therefore, has a vague interpretation.

However, sentence (10) still presents a distributivity effect in the sense that the set of token hands must be distributed for each possessor. The same distributivity effect can be attested to in the sentences with a singular inalienable noun whose interpretation implies a plurality. In the absence of Predication, this distributivity effect is unexpected.

Consider that the null possessor in (10) has no denotational index. In order to be interpreted at LF as the argument of the inalienable noun, the possessive pronoun must acquire an index. Suppose possessive pronouns are identified in the same manner that null subjects are identified in BP. In other words, suppose that *pro* moves to an A'-position

inside the DP, thus becoming associated with a variable. *Pro* will be identified by the binder of that variable, which accounts for the distributivity effects and the plurality in sentences containing a singular inalienable noun.

To exemplify, consider sentence (08a), repeated below. As argued above, the structure of the inalienable DP in (08a) is (11). Since the DP containing the inalienable noun is singular and the determiner bears a denotational index, the DP denotes a singular inalienable face (a token). However, the plural subject *os homens* A'-binds the null possessor inside the DP, giving rise to a distributivity effect:

- (08) a. *Os homens*₁ *lavaram* [*pro*₁ *a cara*].
 the men washed (their) face

The idea that a null possessive is A'-bound by a higher subject, then, derives the right properties of such constructions in BP. However, the analysis must be spelled out concretely. Consider a more detailed structure for (8a):

- (12) [_{AgP} *Os homens*₂ [_{TP} *x*₂ *lavaram* [_{VP} *t*₂ *t*_v [_{DP} *pro* *a* [_{NP} *x* *cara*]]]]]
 the men washed (their) face

In (12), the subject *os homens* is A-moved to [Spec TP] and then A'-moved to [Spec AgrP] to satisfy the EPP, as discussed in chapter 3. The possessive pronoun inside the object DP, as seen in (11), is moved from [Spec NP] to [Spec DP], as assumed by V&Z. If determiners are taken to be functional elements rather than lexical items, then [Spec DP] is a non-L-related position and, therefore, an A'-position. It follows that movement of the pronoun into [Spec DP] constitutes A'-movement and a variable is left in [Spec NP]. The variable *x* in (12) must be bound according to the MBR. The closest potential binder is *pro*, however, *pro* does not contain a denotational index and it cannot identify the variable. This variable, then, gets bound by the subject DP *os homens*, which also occupies an A'-position. Since *x* is locally A'-bound by *pro*, it will still qualify as a variable at LF, although assignment of index 2 to that variable will cause it to be A-bound by the variable in [Spec TP] (since this instance of A-binding is not local). After *pro* and its associated variable are identified, they can be interpreted as the argument of the noun *cara(x)*. It is the fact, then, that subjects normally occupy an A'-position that makes sentences like (07) -(09) available in BP, because the null possessor can be A'-bound by the subject. In French, on the other hand, the possessor must be overt because French does not have the option of identifying null pronouns by A'-binding. French will then present inalienable constructions with no overt possessive pronoun only with verbs that trigger

reanalysis, which in turn allows the possessor variable of the inalienable noun to be bound by predication.¹²³

The claim that inalienable constructions in French and BP are derived by different mechanisms (Predication in French, A'-binding in BP) makes a series of predictions, all of which are borne out. On one hand, V&Z note that their analysis predicts that the inalienable construction will obey strict locality constraints (due to the mutual m-command requirement on predication), and that is the case:

- (13) a. *Pierre est tombé et la tête a heurté le trottoir.
 Pierre fell and SING DEF DET head hit the curb
 b. *Pierre pense que le bras est cassé.
 Pierre thinks that SING DEF DET arm broke

On the other hand, the analysis of the constructions presented here predicts inalienable nouns to be subject to the same locality constraints as null subjects. Inalienable nouns in BP will be bound by the closest c-commanding subject. Locality constraints in BP will, therefore, differ from those in French. Compare (13b) with (14a):

- (14) a. O Pedro₁ acha que *pro*₁ o braço está quebrado.
 Pedro thinks that (his) arm is broken
 b. O Pedro₁ acha que *pro*₁ quebrou *pro*₁ o braço.
 Pedro thinks that (he) broke (his) arm
 c. O Pedro₁ acha que a Maria₂ quebrou *pro**_{1/2} o braço.
 Pedro thinks that Maria broke (her) arm

Sentence (14a), which is ungrammatical in French, is grammatical in BP because (the variable associated with) the null possessor can be bound by the matrix subject. In (14b), the null subject is bound by the matrix subject and in turn A'-binds the null possessor, giving the appearance that both the null subject and the null possessive have the same binder. In (14c), since the subject *a Maria* intervenes between the null possessor and the matrix subject, only the former may be interpreted as the possessor.

The locality of the inalienable construction in BP is even looser in certain cases. If the intervening subject does not have a denotational index, the null possessor, like the null subject, will have an even more distant binder:

¹²³ If some verbs in BP also trigger reanalysis, it is possible that BP also presents inalienable constructions without any possessive pronoun, as in French. The important point to note here is that BP can have inalienable constructions with null possessors even with verbs that do not trigger reanalysis, while French cannot.

- (15) O Pedro₁ disse que *pro*_{exp} parecia que [*pro*₁ o pé] estava inchado.
 Pedro said that (it) seemed that (his) foot was swollen

Another prediction is that null possessors will have the same restrictions as null subjects with respect to their potential binders. In particular, null possessors are expected not to refer to DPs in object positions (nor to any antecedent outside its own sentence). This is also borne out:

- (16) O Pedro₁ convenceu a Maria₂ que *pro*_{1/*2/*3} o filho era inocente.¹²⁴
 Pedro convinced Maria that (his) son was innocent

However, if the matrix object is A'-moved, it becomes a possible binder for the null possessor, exactly as seen for null subjects:

- (17) Quem₂ que o Pedro₁ convenceu *t* que *pro*_{?1/2} o filho era inocente?
 who that Pedro convinced that (his) son was innocent

¹²⁴ Milton Azevedo (p.c.) called my attention to the fact that, in sentence (i) below, the object is the most plausible antecedent for the null possessor. This fact resembles one in Chinese, discussed by Huang 1984:539, where a null object has an unexpected interpretation:

- (i) O médico₁ disse pra Maria₂ que o *pro*_{?1/2/*3} pé estava inflamado.
 the doctor told Maria that (her) foot was inflamed
 (ii) xiaotou yiwei meiyou ren kanjian ec, na le dongxi jiu pao.
 thief think no man see take LE thing then run
 'The thief thought no one saw (him), so he took the things and ran.'

Although null objects in Chinese cannot usually refer to a c-commanding subject, according to Huang, "in this sentence the object EC can refer to the matrix subject 'thief', since this is the most natural way to interpret the sentence. The reference of the EC in this sentence is pragmatically inferred, but not grammatically determined. ... A relevant point to consider here is that in situations such as those represented by [(ii)] ... , pragmatics appears to "override" grammar in Chinese... ." Huang then affirms that this property of Chinese is related to a more general parameter distinguishing "discourse-oriented" and "sentence-oriented" languages. That BP has become a discourse-oriented language was claimed by Pontes 1987, and more recently by Negrão and Viotti (2000), which is discussed in chapter 7. In any case, the unexpected interpretation of (i) also seems to be due to pragmatic factors. Based on our knowledge of the world, the first interpretation of sentence (i) is the one in which the doctor tells Maria about her foot, but that is the case only because it would be very unexpected that a doctor would tell a patient about his own problems. Expectedly, if sentence (i) is taken out of the doctor/patient context, it will once again show the reading predicted by the analysis presented in the text. Imagine, for instance, that Maria is dating a doctor, to whom her friends refer sarcastically as "the doctor." In reporting why the guy canceled a dinner date with Maria, one of her friends could use the sentence (i). However, in that case, the sentence is only interpreted as saying that the doctor told Maria that his foot was inflamed, and so he would not be able to get to the restaurant; it could not be interpreted as saying that the doctor told Maria that her foot was inflamed and he would not date anyone with inflamed limbs.

It is also expected that a null possessor and a null subject could have the same binder in certain structures. This is what happens in (18):

- (18) O Pedro₁, *pro*₁ o filho convenceu *t*₁ que *pro*₁ tinha que ir embora.¹²⁵
 Pedro, (his) son convinced that (he) had to go away

Sentences like (18) (and (19a) below), where a null possessive pronoun inside a DP in subject position is bound by a topic, contrast with examples like (19b) where the inalienable DP is found in object position:

- (19) a. O Pedro₁, *pro*₁ o filho ficou rico.
 Pedro, (his) son became rich
 b. *O Pedro₁, a Dani viu *pro*₁ o filho.
 Pedro, Dani saw (his) son

The contrast in (19) is accounted for by the analysis presented. Since extraction of possessives from inside a DP is not allowed (cf. **de quem a Dani viu o amigo* ‘of whom did Dani see the friend’), the topic in (19a, b) is base generated. In (19a), the null pronoun is bound by the topic, which is the closest potential A’-binder, and the sentence is grammatical. In (19b), however, since the topic was base generated, the subject *a Dani* occupies an A’-position and qualifies as the closest potential binder for the null possessive in object position. The null possessive in (19b), then, has to be interpreted as taking the subject *Dani* as its antecedent. The sentence is then ungrammatical because the fact that Dani saw her own son can hardly be interpreted to be a statement about *Pedro*.

The analysis of inalienable constructions in BP presented here is also supported by other similarities between null possessors and null subjects. As seen in chapter 3, null subjects are always interpreted as semantic variables. The same is true of null possessors:

- (20) a. O Pedro gosta da mãe e a Maria também.
 Pedro likes (his) mother and Maria too
 b. Só o Pedro telefonou pra mãe.
 only Pedro called (his) mother

¹²⁵ If the topic in (18) is base generated, it will still bind the null possessor (and a null pronoun in matrix object position). The null embedded subject, however, would be bound by the matrix subject which would have moved to [Spec AgrP], thus being the closest potential binder. As discussed in chapter 3, a *pro* in object position cannot be bound by the matrix subject because the variable associated with the subject would locally A-bind *pro* in that configuration:

- (i) O Pedro₁, [*pro*₁ o filho]₂ *x*₂ convenceu *pro*₁ que *pro*₂ tinha que ir embora.
 Pedro, (his) son convinced (him) that (he) had to go away

Sentence (19a) can only have a sloppy identity interpretation. It says that *Pedro* likes his mother and *Maria* also likes her mother. The interpretation where *Maria* also likes *Pedro's* mother is absent. Likewise, (19b) is only interpreted as saying that *Pedro* is the only person who called his own mother, so the sentence is true even if other people called *Pedro's* mother as well (but not their own mothers).

2. Conclusion

I showed here that inalienable constructions with null possessors in BP and French differ in that French uses predication in order to bind the possessor argument variable inside inalienable nouns, whereas BP uses A'-Binding. The locality constraints on the construction in French are explained by the fact that Predication requires mutual m-command. Locality constraints are less strict in BP because A'-binding only requires (asymmetric) c-command of the binder. The similar behavior of null subjects and null possessors (subject orientation, sloppy interpretation in VP ellipsis contexts, etc.) is explained by the fact that both types of null pronouns are identified in the same manner. Furthermore, identification through A'-binding also explains why distributivity effects are also observed in the BP construction.

Chapter 6

Chinese¹²⁶

In chapters 3 and 5, I showed that null pronouns in BP are identified by A'-binding when in the subject position of finite clauses, when they act as possessive pronouns, and when they occupy object positions. In the former two positions, the pronoun is associated with a variable, created by movement of the pronoun, which gets A'-bound (and so identified) by a higher denotational element, and transfers its newly acquired index to the pronoun. In the latter position, the pronoun itself is interpreted as a (pronominal) variable at LF and also gets its denotational index by being A'-bound. In all three positions, the choice of the antecedent of the null pronoun is restricted by the Minimal Binding Requirement (MBR), providing strong evidence that BP in fact makes use of A'-binding as an identification strategy. In this chapter, I want to provide an argument of a different nature for the analysis presented. Specifically, I will argue that BP is not the only language to employ A'-binding as an identification strategy for null pronouns. The same analysis, I believe, can be applied to Chinese. Although the data in that language is not as clear as in BP, most of the main characteristics of null pronominal categories in Chinese can be accounted for using the analysis presented here.

1. Subjects

Chapter 1 noted that Huang's (1982, 1984) analysis of null subjects in Chinese, based on the Generalized Control Rule (GCR), fails to explain that null subjects are allowed to appear in poor agreement environments in Hebrew and BP. The GCR predicts BP and Hebrew (in the contexts where agreement is poor, i.e. 3rd person past and future) to behave like English, presenting no grammatical null subjects, contrary to fact. That chapter also assumed, with Borer (1989), that null subjects are possible in Hebrew due to the anaphoric character of the Agr head in that language. BP, on the other hand, employs the A'-binding strategy to identify null subjects, as seen in chapter 3. If the GCR is not assumed, due to its lack of explanatory power when languages other than Chinese are considered, (at least) two other choices present themselves: either Chinese is amenable to the same analysis as Hebrew, or Chinese is amenable to the same analysis as BP.

¹²⁶ I would like to thank James Huang, Audrey Li and Zoe Wu for providing me with data and many comments on earlier versions of this chapter. I am, of course, responsible for any errors which remain, despite their comments.

There are reasons to prefer the latter choice. The basic characteristics of null subjects in BP are reproduced in Chinese. Namely, null subjects in Chinese have to take the closest c-commanding subject as their antecedents. Objects are not possible antecedents (in the unmarked case):¹²⁷

- (01) a. Zhangsan₁ yiwei Lisi₂ chengren yiqian *ec**_{1/2} zuo-cuo shi le.
Zhangsan think Lisi admit before (he) do-wrong matter LE.
'Zhangsan thinks Lisi admitted that he did wrong.'
- b. [Zhangsan₁ fangwen de ren]₂ xiwang *ec**_{1/2} neg ying.
Zhangsan visit DE person hope (he) can win
'The person that Zhangsan visited hoped (he) could win.'
- c. Zhangsan₁ gaosu Lisi₂ *ec*_{1/*2} ying le guanjun.
Zhangsan tell Lisi (he) win LE championship
'Zhangsan told Lisi that he won the championship.'

In (01a), we see that only the closest subject may be interpreted as the antecedent of the empty category in the most embedded subject position. The higher subject *Zhangsan* is not a possible antecedent. In (01b), it can be seen that only a c-commanding subject may be interpreted as the antecedent of a null subject. The subject *Zhangsan*, inside the subject relative clause, is not a possible antecedent. Finally, (01c) shows that null subjects take only matrix subjects but not objects as their antecedent. These properties parallel exactly the ones described with respect to null subjects in BP in chapter 3.

Also as in BP, an empty category in subject position in Chinese can be analyzed as being the product of a movement operation, when the context provides a clear discourse topic. The empty category in (02) below, for instance, can be analyzed as being the product of topicalization of a null topic:

¹²⁷ Battistella (1985) also claims that null pronominal subjects in Chinese are subject-oriented, giving sentence (i) as an example. He mentions, however, that, modals may affect the interpretation of the subject null category (as seen in the paradigm in (ii), also taken from Battistella 1985). The same warning was given to me by James Huang (p.c.), who agreed that the null subject in (01c) (and (i) below) is preferably interpreted as taking the matrix subject as its antecedent. Battistella suggests that the contrast in (ii), which is also reproduced in BP, as noted in chapter 3, is explained by pragmatics. I will not risk saying anything about such contrasts in BP and Chinese until a better understanding of the role of the modals in such sentences is achieved:

- (i) Zhangsan₁ gaosu Lisi₂ *ec*_{1/*2} kanjian-le Wu Tongzhi.
Zhangsan told Lisi that (he) saw Comrade Wu
- (ii) a. Zhangsan₁ gaosu Lisi₂ *ec*_{1/*2} bu neng lai.
Zhangsan told Lisi that he (Zhangsan) can't come.
b. Zhangsan₁ gaosu Lisi₂ *ec**_{1/2} bu keyi lai.
Zhangsan told Lisi that he (Lisi) may not come.

(02) Zhangsan₁ shuo *ec*₂ xiawu hui lai.
 ‘Zhangsan said he (Lisi) will come this afternoon.’

It is important to note that the sentence in (02) is only accepted in a context where the reference of the null category is clear from the discourse; it is ungrammatical (with the interpretation given) in out of the blue contexts, where the null subject necessarily refers to the matrix subject (as in BP).

As argued in chapter 3 for BP, the sentences in (01) do not conform to the null topicalization analysis, since those empty categories refer to a matrix subject. They cannot be analyzed as *PRO* either, because infinite clauses in Chinese cannot contain aspectual markers like *hui* or *le*.¹²⁸ I will then assume with Huang (1982, 1984) that the empty categories in all of the sentences in (01) is a null pronoun (*pro*). Consequently, it must be concluded that a subject *pro* in Chinese, like in BP and unlike in most Romance languages, necessarily finds its antecedent in its own sentence (as shown by the ungrammaticality of (02) in out of the blue contexts). Moreover, exactly like BP, the antecedent of a *pro* subject in Chinese must be the closest c-commanding subject.

These similarities between BP and Chinese would be explained if, like BP and unlike other *pro*-drop languages, null pronouns in Chinese are identified by A'-binding. This makes sense since, having no overt agreement, Chinese does not even raise the question of whether agreement is capable of identifying null subjects. All that is needed to account for the sentences in (01) is to assume that subjects in Chinese are usually moved to an A'-position. However, since I have been assuming that nominative Case is checked in [Spec IP] in Chinese (and English), and that IP is an amalgamated projection of tense and agreement features, the A'-position occupied by Chinese subjects cannot be [Spec AgrP], as in BP.

Chinese has been argued to be a “discourse-oriented” language, i.e. a language in which the notion “topic” is more prominent than the notion “subject” (cf. Li and Thompson 1976, Tsao 1977 and Huang 1982). One way of characterizing the difference between discourse and non-discourse-oriented languages is to assume that, in the former type of languages, the subject always occupies a topic position. If subjects in Chinese are always topics, the fact that the notion “topic” is more prominent than that of “subject” in this language is explained. Taking this to be the case, it can be affirmed that the null pronouns in (01) are identified in the same way as in BP. The null subject is moved to a topic position in its own clause, leaving a variable in [Spec IP]. The same happens with the matrix subject. The variable in the embedded clause is then A'-bound by the matrix subject, which is the closest potential A'-binder according to the MBR (since *pro* does not

¹²⁸ Cf. Huang 1982 on the differentiation of finite and infinite clauses in Chinese.

contain a denotational index). The asymmetry between matrix subjects (which can serve as antecedents) and matrix objects (which cannot) is explained (as in BP) by the fact that only subjects occupy A'-positions. The necessity of a c-commanding antecedent is also explained since A'-binding is the only source from where a null pronoun can acquire a denotational index in Chinese.

There are more similarities between BP and Chinese which are accounted for by the A'-binding analysis. For instance, like in BP, expletive subjects do not intervene between a null and a higher subject. Compare (01a) with (03) below:¹²⁹

- (01) a. Zhangsan₁ yiwei Lisi₂ chengren yiqian *pro**_{1/2} zuo-cuo shi le.
 Zhangsan think Lisi admit before (he) do-wrong matter LE.
 'Zhangsan thinks Lisi admitted that he did wrong.'
- (03) Zhangsan₁ shuo *pro*_{exp} haoxiang *pro*₁ hui ying.
 Zhangsan say seem HUI win
 'Zhangsan said it seems he is going to win.'

As seen in chapter 3 regarding BP, expletive subjects (like the one in (03)) do not prevent null subjects from being bound by a higher subject because they lack a denotational index, therefore not qualifying as a potential A'-binder (even if they also occupy an A'-position).

The interpretative possibilities of null subjects in the two languages also seem to be restricted in the same ways. In chapter 3, I discussed the fact (noted by Negrão 1997) that, in VP ellipsis contexts, a null subject in BP gives rise to a sloppy identity reading only. A sentence like (04), for instance, is only interpreted as saying that *Pedro* considers himself to be an intelligent person and *Paulo* also considers himself to be intelligent. The sentence is not interpreted as saying that *Paulo* also considers *Pedro* an intelligent person:

- (04) O Pedro₁ acha que *pro*₁ é inteligente e o Paulo também. (BP - sloppy only)
 Pedro thinks that (he) is intelligent and Paulo does too

The analysis provided in chapter 3 explained such a fact by taking *pro* to be associated with a variable. In both conjuncts, the variable associated with the null embedded subject has to be bound by the closest potential binder, which is the subject *Paulo* in one conjunct but *Pedro* in the other. Since the variable in each conjunct is bound by a different A'-binder, only the sloppy interpretation is available.

¹²⁹ I will not discuss what makes it possible for expletives to be null in languages like Chinese.

The same facts are reproduced in Chinese, and, if the A'-binding analysis is assumed, the same explanation for these facts can be given:¹³⁰

- (05) Zhangsan shuo mei shijian, Lisi ye zheyang shuo. (Chinese - sloppy only)
 Zhangsan say have-no time Lisi also this-way say
 'Zhangsan said (he) has no time, Lisi did too.'

Recall now that one of the most appealing arguments for the A'-binding strategy in BP was the fact that a matrix object would become a possible antecedent for the embedded null subject when A'-moved. When the object was wh-moved, it would become the only possible binder for the null subject, blatantly contrasting with sentences in which wh-movement had not taken place. Unfortunately, wh-movement cannot be used as a test for the analysis in Chinese, since wh-words do not move overtly.

Topicalization and relativization were also used as evidence that null subjects are identified by A'-binding in BP. When the object was either topicalized or relativized, both matrix object and subject were possible antecedents for the null subject, contrasting with sentences where no overt movement had taken place. Once again, the effects of overt movement are elusive in Chinese. For a reason that is unclear to me, the extraction of the object of verbs like *shuifu* 'convince' or *gaosu* 'tell' does not produce good sentences.¹³¹ This fact makes it impossible to test the relation between A'-movement and the possibility of being interpreted as an antecedent for a null subject.

So far, I have based the A'-binding analysis for Chinese on the fact that null subjects behave similarly in this language and in BP. In both, the antecedent of a null subject is restricted in the same way; an expletive subject does not block binding of a null subject by a higher one; and null subjects are only interpreted as semantic variables in VP ellipsis contexts. BP and Chinese differ, however, with respect to the possibility of having a null subject in relative clauses. As seen in chapter 3, although null subjects are allowed in the former language in most island contexts (since no movement is involved in the derivation of null subjects), they are barred from appearing in relative clauses. This is because, I claimed, the variable left by raising of the relativized element is not subject to principle C. In this way, the head of the relative qualifies as the closest potential binder for a null pronominal subject inside the relative clause, producing the ungrammatical structure seen in (06):

¹³⁰ Note that, like in BP, an overt pronoun in the embedded subject position in (05) would make the strict identity interpretation possible.

¹³¹ The only two speakers I found who accepted sentences in which the object of *gaosu* or *shuifu* had been extracted gave me judgments which were either inconsistent (from sentence to sentence) or disparate (from one speaker to the other). Therefore, I decided not to include such data.

(06) * $[\alpha_1 [pro_1 \dots t_1]]$

In Chinese, on the other hand, null subjects are allowed to appear in relative clauses:

(07) Mary xihuan zuotian *pro* tengxie de napian wenzhang.

Mary like yesterday copy DE that article
 'Mary likes the article that she copied yesterday.'

The difference between the two languages is explained if relativization in Chinese is done not by raising the relativized element but by movement of a null operator, which leaves a variable that is subject to principle C. In this case, the head of the relative does not qualify as a potential A'-binder for the null subject according to the MBR and so the pronoun can look for an antecedent in a higher clause. In fact, Li 2000 assumes, with Ning 1993, that relativization in Chinese is, in fact, derived by movement of a null operator.

We still have to account for a paradigm discussed by Huang 1984:561:

(08) a. Zhangsan₁, *e*₁ xie de shu bu shao.

Zhangsan write DE book not few
 'Zhangsan, the books that (he) wrote are not few.'

b. *Zhangsan₁, wo nian-le bu shao *e*₁ xie de shu.

Zhangsan I read-LE not few write DE book
 'Zhangsan, I have read quite a few books that (he) wrote.'

The sentences in (08) seem to indicate that a null subject within an island in Chinese must be somewhat "close" to its antecedent.¹³² Huang's GCR explains this fact by requiring a null pronoun to be controlled by the closest nominal element. In other words, when the island occurs in object position, a null subject inside that island will necessarily be controlled by the subject of its own clause (causing ungrammaticality). Since movement is unavailable in these cases, taking a topic as the antecedent of the null pronoun is impossible. When the island occupies the subject position, however, the topic is the closest nominal element to the pronominal subject (as seen in (08a)) and the sentence is grammatical.

Under the analysis being pursued here, the data mentioned above follows from the fact that subjects in Chinese are always topics and so they qualify as the closest potential A'-binder for a null subject inside an island in object position. The structure of the sentences in (08) would be the following:

¹³² Similar paradigms can be constructed that involve islands other than relative clauses.

- (09) a. $[[_{\text{TopP}} \text{Zhangsan}_1 [_{\text{TopP}} e_1 \text{ xie de shu}]_2] e_2 \text{ bu shao}]$
 b. $*[[_{\text{TopP}} \text{Zhangsan}_1 [_{\text{TopP}} \text{wo}_2]] e_2 \text{ nian-le bu shao } e_1 \text{ xie de shu }]$

In both sentences, the subject is moved to [Spec TopP]. The topic (*Zhangsan*) is then base generated in a higher specifier position. In (09a), the topic qualifies as the closest potential A'-binder for the null subject inside the subject clause. In (09b), however, the null subject inside the island has to take the closest topic (i.e. the subject) as its antecedent, leaving the base generated topic *Zhangsan* without an argument position to which it can be related (causing ungrammaticality).

To conclude, I showed here that the analysis presented in chapter 3 for BP can also account for the presence of null subjects in Chinese. All the similarities between the two languages (with respect to null subjects) are automatically explained. The differences can also be explained if relativization involves movement of a null operator in Chinese but not in BP; and that subjects always contain a topic feature in Chinese.

2. Objects

When looking at null objects, more similarities can be found between BP and Chinese. For instance, like in BP, a null object in Chinese cannot be interpreted as taking any other argument of its own sentence as its antecedent:

- (10) $*\text{Zhangsan}_1 \text{ renwei } [\text{Lisi}_2 \text{ kanjian-le } \text{pro}_{1/2}]$
 Zhangsan thinks Lisi saw (him)

As discussed in chapter 1, according to Huang's GCR, the pronoun in (10) has to take the subject of its own clause as its antecedent. However, coindexing *pro* and *Lisi* in (10) would violate the Binding Theory, since the pronoun would be A-bound in the domain where pronouns are required to be free. Therefore, sentence (10) is ungrammatical. The fact that the string of words depicted in (10) is actually a grammatical sentence is explained by Huang by taking the empty category in object position to be a trace of movement of a null topic. Accidental coreference with either *Lisi* or *Zhangsan* would be a crossover violation, so the only possible representation for that sentence is the one given in (11):

- (11) $\text{Op}_3 [\text{Zhangsan}_1 \text{ renwei } [\text{Lisi}_2 \text{ kanjian-le } \text{ec}_{*1/*2/3}]$
 Zhangsan thinks Lisi saw (it)

The same generalization is true in BP: a null object usually takes an overt or null discourse topic as its antecedent. However, according to the analysis developed in chapter 3, the empty category in object position in BP, besides being created by movement of an operator, as in (11), could also be pronominal. Binding of this pronoun by any c-commanding argument, however, would create a configuration in which the pronoun could not be analyzed as a variable and, therefore, could not be identified. The representation of a sentence similar to (10) in BP could then be (12), where *ec* could be either a trace of topicalization or a base generated null pronoun:

- (12) Op₃ [O Feco₁ t₁ acha [que a Dani₂ t₂ viu *ec**_{1/*2/3}]
 Feco thinks that Dani saw (it)

The two analyses, i.e. Huang 1984, 1989, based on the GCR, and the one presented in chapter 3, are very similar. In both, null objects must be A'-bound at LF. The GCR, combined with principle B of the Binding Theory, requires null objects to be variables left by movement of a null operator. Null pronominal objects would be restricted to languages with rich verb-object agreement. My analysis, on the other hand, requires null pronouns in poor agreement languages to be interpreted as variables at LF, since that is the only way in which these pronouns can be assigned a denotation. Although the two proposals are very similar, i.e. in both, the empty category in object position is a variable, they make slightly different predictions. As noted in chapter 3, the problem with extending the analysis based on the GCR to BP is that this language freely allows null objects to appear in contexts from which movement is not permitted.

The question, then, is whether the analysis argued for here can also account for the facts in Chinese. Since I already assumed, in the preceding section, that subjects also occupy A'-positions in Chinese, the explanation for why the null object can take neither *Lisi* or *Zhangsan* as its antecedent in (10) above could be the same as in BP. If the object takes the index of any of the c-commanding subjects, it will end up being locally A-bound by the trace left by topicalization of the subject and it will, therefore, not be identified, since it can no longer be interpreted as a variable.

Although the hypothesis just presented would be satisfactory in accounting for sentence (10), assuming the Chinese sentence to be parallel to the BP sentence in (12) is problematic because it would imply, all things being equal, that null objects in Chinese should be grammatical when appearing in island contexts (as they are in BP), which is not always true. A sentence like (13), for instance, is ungrammatical in Chinese even if the null object inside the island takes the topic as its antecedent:

- (13) *Zhangsan, wo zhidao xihuan de ren.
 Zhangsan I know like DE man

‘Zhangsan, I know people who like him.’

Note, however, that the ungrammaticality of (13) is only problematic for the A'-binding analysis if Chinese employs the same criterion as BP to choose potential A'-binders when applying the MBR. If the characterization of potential binder is different in the two languages, then the different behavior of null objects in islands can be explained. In chapter 3, I argued that the definition of potential A'-binder used in the MBR by Aoun and Li (1993) had to be augmented by a restriction which would deal with pronominal variables, as opposed to variables created by movement. I then proposed to replace the definition used by those authors (in (14) below) by the one in (15):

- (14) MBR: At LF, variables must be bound by the most local potential A'-binder. (Where A qualifies as a potential A'-binder for B iff A c-commands B, A is in an A'-position, and the assignment of the index of A to B would not violate Principle C of the binding theory.)
- (15) MBR: At LF, variables must be bound by the most local potential A'-binder. A qualifies as a potential A'-binder for B iff A c-commands B, A is in an A'-position, and the assignment of the index of A to B would not either:
- a) cause B to be uninterpretable or
 - b) violate principle C of the Binding Theory.

The definition in (15) differs from that proposed by Aoun and Li only by incorporating a restriction on potential A'-binders for pronominal variables, which are not subject to principle C and so could not have the same restriction as variables created by movement. Suppose now that the restriction on potential binders for pronominal variables in Chinese is slightly different than the one in BP. Specifically, suppose that instead of (15), Chinese employs the following principle:

- (16) MBR: At LF, variables must be bound by the most local potential A'-binder. A qualifies as a potential A'-binder for B iff A c-commands B, A is in an A'-position, and the assignment of the index of A to B would not violate either:
- a) principle B or
 - b) principle C of the Binding Theory.

As in BP, a variable created by movement in Chinese would be able to take a phrase P as its A'-binder if and only if the resulting representation would not violate principle C. Considering pronominal variables, on the other hand, BP and Chinese would be different: the resulting representation in Chinese has to be one in which principle B is not violated. In that case, the ungrammaticality of (13) is explained in the following way: the head of the relative clause is not a potential binder for the pronoun in object position because

assignment of the index of the head of the relative to the pronoun would violate principle B. The matrix subject *Zhangsan*, in turn, is a potential A'-binder (in fact the closest potential binder), since I am assuming that subjects in Chinese occupy topic positions. With the index of *Zhangsan*, however, the pronoun is locally A-bound (by the variable left by topicalization of the matrix subject) and does not qualify as a variable at LF, nor gets identified, and the sentence is ungrammatical.

The definition of potential A'-binder in (16) has the same effect as Huang's GCR: it bans pronominal empty categories from appearing in object position in Chinese. Consider sentence (11) again:

- (11) Op₃ [Zhangsan₁ renwei [Lisi₂ kanjian-le *ec**_{1/*2/3}]
Zhangsan thinks Lisi saw (it)

If the object empty category is a pronoun, the sentence will be ungrammatical because *pro* would have to be bound by *Zhangsan*, its closest potential A'-binder, and, in that case, would be uninterpretable. The only possible analysis for this sentence, then, is to take the empty category as a variable created by movement of a null topic. If a null pronoun occupies a position from which movement is impossible, as in (13), the sentence will be ungrammatical. Note that, in this case, sentences in BP similar to (11) are accounted for in a slightly different way:

- (12) Op₃ [O Feco₁ t₁ acha [que a Dani₂ t₂ viu *ec**_{1/*2/3}]
Feco thinks that Dani saw (it)

The empty category in (12) can be a trace of movement as well as a pronoun, contrasting with (11). In case it is a pronoun, neither *Dani* nor *Feco* qualify as potential A'-binders because assignment of either index 1 or 2 to *pro* in (12) would cause the pronoun to be uninterpretable. The different definition of potential A'-binder in BP also has the effect of allowing sentences in which the null object appears inside islands:

- (17) O presidente₁, eu não conheço ninguém que tenha entrevistado *pro*₁.
the president I not know nobody who has interviewed
'The president, I don't know anybody who has interviewed him.'

The grammaticality of (17) contrasts with the ungrammaticality of (13) in Chinese. In BP, as opposed to Chinese, the matrix subject is not a potential A'-binder for the null pronoun inside the relative clause. The closest potential binder for *pro* in (17) is the topic, which binds it, producing a grammatical sentence.

Note that Chinese also has null objects inside islands, as long as the null object is in a position “close enough” to its binder:

- (18) Zhangsan, [[*ec* xihuan *ec* de] ren] hen duo.
 Zhangsan like DE man very many
 ‘Zhangsan, people who likes him are many.’

The English translation shows one of the two possible interpretations for sentence (18) (the other one being “Zhangsan, people who he likes are many”). To account for the grammaticality of (18) with that reading, Huang (1984) assumes that a null pronominal object can be topicalized, deriving the structure below:

- (19) Zhangsan₂, [[*ec*₂ *t*₁ xihuan *t*₂ de] ren₁] hen duo.
 Zhangsan like DE man very many

The phrase *ren* ‘people’ is relativized from the subject position. The empty category in object position can then be taken to be a pronoun, which is topicalized to a position above the subject of the relative. Since Huang also assumes that the head of the relative is not a possible antecedent for *pro* (due to the i-within-i condition), the closest nominal element to the pronoun is the topic *Zhangsan* after the object has been topicalized inside the relative clause. The sentence, therefore, is grammatical.

Under the analysis presented here, there is no necessity to assume either topicalization of the object pronoun or that the head of relative clauses is not a possible antecedent for pronouns:

- (20) Zhangsan₁, [[*t*₂ xihuan *pro*₁ de] ren₂] hen duo.
 Zhangsan like DE man very many

The head of the relative does not qualify as a potential A’-binder for *pro* because assignment of the index 2 to *pro* in (20) would violate principle B. Therefore, the closest potential A’-binder is the topic *Zhangsan*, which binds the pronoun.

Once again, we see that the A’-binding analysis of null pronouns can account for the data in Chinese in a straightforward manner. The similarities between BP and Chinese follow naturally, the differences due to the slightly different definitions of potential A’-binder used in the two languages.

3. Null possessives

Looking now at null possessive gaps, the theory presented here also makes the correct predictions. Consider the paradigm in (21), from Huang 1984:563:

- (21) a. Zhangsan₁, [e₁ baba] hen youqian.
 Zhangsan father very rich
 ‘Zhangsan, his father is very rich.’
 b. *Zhangsan₁, wo kanjian [e₁ baba] le.
 Zhangsan I see father LE
 ‘Zhangsan, I saw his father.’

Assuming that, like in BP (cf. chapter 5), the possessor argument of the inalienable noun *baba* moves to an A'-position (and that subjects occupy a topic position), the data in (21) follows from the fact that the possessor argument is a null pronoun that needs to be bound by the closest potential A'-binder (in order to be identified). In (21a), the null possessive pronoun is bound by the topic *Zhangsan*, the closest potential A'-binder, and the sentence is grammatical. In (21b), however, the closest potential A'-binder for the null pronoun is the matrix subject. The topic, therefore, cannot bind the null pronoun and ends up not being related to any argument position in the sentence, causing its ungrammaticality.

The A'-binding analysis of null possessives in Chinese is corroborated by the fact that, once again, empty pronouns seem to be subject oriented:¹³³

- (22) Zhangsan₁ gaosu Lisi₂ [e_{1/??2} baba] very sick.
 Zhangsan tell Lisi father very sick
 ‘Zhangsan told Lisi that his father is very sick.’

Also telling is the fact that inalienable constructions with null possessors in Chinese behave much like in BP, as opposed to French. As seen in chapter 5, such a construction is restricted in French by locality requirements and by lexical properties of a small group of verbs. In Chinese and BP, on the other hand, the construction is less restricted with respect to locality (as shown by (22), the equivalent of which is ungrammatical in French) and may appear with (possibly) any verb. Moreover, null possessives in Chinese, like in BP, are always interpreted as semantic variables, as predicted by the A'-analysis. In (23), for instance, only the sloppy identity interpretation is available (i.e. *Zhangsan* likes his own mother and *Lisi* likes his own mother):

¹³³ If *Lisi* and *Zhangsan* are taken to be brothers, (22) may be interpreted as saying that *Zhangsan* told *Lisi* that their father is sick, which does not contradict the claim in the text that the matrix object cannot be the antecedent of the null possessor. The important fact to note about (22) is that the reading in which *Zhangsan* tells *Lisi* that *Lisi's* father is sick is much harder to obtain than the one in which the empty category is bound by the matrix subject.

- (23) Zhangsan xihuan mama, Lisi ye xihuan.
 Zhangsan like mother Lisi also like
 ‘Zhangsan likes his mother and Lisi does too.’

Once again, both in BP and in Chinese, the fact that null possessives are necessarily interpreted as semantic variables is explained by the A'-analysis, since null possessive pronouns have to be bound by their closest potential A'-binder.

There is, however, one fact that is unexpected, according to the analysis presented here. According to my informants, the null possessive in (24) may take either the immediately higher subject (*Lisi*) or the highest subject (*Zhangsan*) as its antecedent. This is unexpected, according to the A'-binding analysis, because *Lisi*, the intermediate subject, is closer to the null pronoun (and so it qualifies as the closest potential A'-binder). Provided that this is a sound judgment, the reading where *Zhangsan* binds the null pronoun presents a problem for the analysis proposed here and may prove that, ultimately, Chinese and BP do not employ the same identification strategy. It is important to note, nevertheless, that this same reading of (24) is predicted not to exist according to the theory of Huang 1984, 1989. Like the A'-analysis, the GCR predicts that only the closest subject (*Lisi*) could be interpreted as the antecedent of the null possessive:

- (24) Zhangsan shuo Lisi renwei baba hen youqian.
 Zhangsan say Lisi think father very rich
 ‘Zhangsan said Lisi thinks his father is very rich.’

4. Conclusion

I showed, in this chapter, that the analysis presented in chapter 3 for null pronouns in BP based on A'-binding is also capable of accounting for the same kind of data in Chinese. Although the data in Chinese may not be as clear as in BP, it seems to go in the same direction. Null pronouns seem to be subject-oriented, which is explained by the fact that subjects, as opposed to objects, occupy A'-positions. Also, null pronouns always seem to take the closest possible antecedent and to be interpreted as semantic variables in ellipsis contexts, which is accounted for by the MBR. The similarities between these two languages provide strong evidence in favor of the theory advocated for in this work. The comparison between Chinese and BP also teaches us that languages may vary in how they choose a potential A'-binder for a null pronoun, deriving slightly different consequences. The use of principle B in the definition of a potential A'-binder in Chinese, for instance, contrasting with the requirement that index assignment must produce interpretable

derivations in BP, reduces the possibility of a null pronoun appearing in object position in the former language.

It is also important to note that all the data handled by Huang's GCR is accounted for by the A'-analysis. Data which is problematic for the A'-analysis is also problematic for the GCR. Moreover, the A'-analysis can explain the facts in BP and Chinese, while the GCR fails to explain how poor agreement languages may allow null pronominal arguments (BP being the most clear example). Therefore, the A'-binding analysis should be preferred.

Chapter 7

Concluding Remarks

Based on BP data, I showed, in the preceding chapters, that the relationship between null arguments and verbal agreement, which is usually assumed to hold, must be relativized. Although it seems clear that it is a property of agreement inflection that licenses (or, simply, identifies) null subjects in most Romance languages, BP presents a different mechanism. The evidence that the grammaticality of null subjects in BP is not related to agreement is ample, as discussed in chapter 2.

The idea I defended in this dissertation was that null arguments can be identified by A'-binding. I showed that there is a position in BP which is necessarily occupied by some argument. Subjects are the usual occupants of such a position, however, when another argument, an object for instance, is wh-moved, topicalized or relativized, this argument will be moved through that position. This fact indicated that the position in question has the properties associated with A'-movement. It is also a fact that whatever argument moves to or through that position is interpreted as being the antecedent (i.e. binder) of a null pronominal subject in the immediately lower clause. If that position is taken to be an A'-position, the fact that only the argument which has moved to it can be interpreted as the antecedent of an embedded null subject, as opposed to other arguments, is then explained if identification of null subjects is achieved through A'-binding. Arguments, which usually occupy A-positions, cannot A'-bind a c-commanded *pro*; only the argument which has moved to or through that position will be able to do so (since it has been A'-moved). Although this is an *interpretation* of the BP data, I believe no other interpretation would be able to capture all the facts described in this work.

As for the formalism I chose to represent this state of affairs, I argued that the position occupied by the binder of a null subject is the specifier of an Agr projection, which is absent in languages like English and Chinese. The [Spec AgrP] in BP is different from the same position in other Romance languages due to the fact that the verb does not reach that projection in the former but only in the latter languages. The [Spec AgrP] position in BP is, for that reason, obligatorily filled and it has the properties usually associated with A'-positions, but usually or never projected in EP or Spanish, since requirements related to the EPP may be satisfied by the verbal morphology which is generated under the Agr head. Of course, this particular formalism is not dictated by the data itself and may be modified in future analyses. However, as pointed out in chapter 4, taking [Spec AgrP] to be an existing A'-position in BP helps to explain many facts related to scope interaction phenomena in that language.

I also want to stress that it is very unlikely that the A'-binding strategy of identifying null arguments is a capricious and fortuitous "accident" in the evolution of BP. In chapter 6, I showed that the same identification process is likely to take place in Chinese as well. The difference between the two languages is that there is no [Spec AgrP] in Chinese. Subjects are moved to a topic position in this language. In this way, the A'-binding strategy can be taken as a general mechanism made available by Universal Grammar (UG) to identify null pronouns. What may have been capricious about the development of BP is that a confluence of events made it possible for arguments which are not topics to be interpreted as A'-binders.

However, if A'-binding is a general way in which null pronominal categories can be identified and, therefore, licensed to appear in a given syntactic structure, a question arises concerning why, of all the languages discussed in this dissertation, only BP and Chinese make use of it. In chapter 5, for instance, I argued that the differences between BP and French inalienable constructions with null possessors is that only the former language may identify null possessive pronouns by A'-binding. In addition, chapter 3 showed that Cinque's (1990) analysis of object gaps in English using the A'-binding licensing strategy is problematic, which seems to indicate that English also does not make use of this licensing mechanism. But why?

Naturally, the first hypothesis is that, due to a series of historical changes which are by and large random, only BP and Chinese present the right structural configuration to allow identification by A'-binding. This may explain why null possessive pronouns may not be identified by A'-binding (but only by Predication) in French. If subjects occupy an A-position in French, as seems to be the case, then identification by A'-binding fails in French because there is no possible A'-binder for null possessive pronouns. This explanation would predict that identification by A'-binding would also be possible in French when a potential binder for the null pronoun is provided. For instance, it would be predicted that a topic would be able to identify a null possessive pronoun in French, with the same locality requirements as in BP. This is, however, not true. The exact same kind of situation is discussed in chapter 3 concerning Cinque's analysis of parasitic gaps in English. If parasitic gaps and other object gaps in English are identified by A'-binding (from an operator), as proposed by that author, it would be expected that object gaps could be identified by A'-binding from any A'-position (by a topic, for instance). In chapter 3, however, it was noted that a topic cannot identify a null pronoun inside an island in English.

Another evidence that identification by A'-binding is not in fact used by any language, even if the right syntactic configuration is provided, comes from EP. As also discussed in chapter 3, the European and Brazilian varieties of Portuguese differ in that null objects

may be identified by A'-binding only in the latter. As seen from the data in Raposo 1986, null objects in EP are grammatical only when the object has moved to a topic position (which may become null by being identical to a discourse topic). A base generated topic, however, may not identify a null (pronominal) object inside an island. The opposite state of affairs takes place in BP. Object gaps may be either the product of topicalization, or may be occupied by null pronominal categories which are identified by base generated topics. The inescapable conclusion, then, is that identification of empty categories by A'-binding is available in Chinese and BP but not in English, French and EP; however the reason is not because the latter languages could not produce the appropriate syntactic configuration to A'-bind a null pronoun. In all these languages, a topicalized phrase could serve as the binder, yet, null pronouns are not allowed in contexts without (rich) agreement, even when a c-commanding topic is present.

It seems, then, that, just as the presence of verbal agreement is not enough to identify null subjects (agreement has to be "rich" in order to do so), the presence of a potential A'-binder is not enough to identify null pronouns. Languages seem to require some kind of property in order to allow identification by A'-binding and I would like to speculate on what this property may be.

Based on the parameter system discussed in Huang (1982, 1984), according to which natural languages can be either discourse-oriented or sentence-oriented, Negrão and Viotti (2000) propose that BP should be considered a language of the first type. This same idea was proposed, in different forms, by Pontes (1987) and Galves (1993). Discourse-oriented languages are described by Negrão and Viotti in the following way:

A discourse-oriented language makes visible in overt syntax some relations that other languages only express in Logical Form. Among such relations are the informational function of certain constituents (such as discourse topic and focus), and the scope of quantifier phrases. Hungarian, which has been considered a discourse-oriented language, is described by Szabolcsi (1997:111) as "(...) a language that wears its LF on its sleeve (...)."

In discourse-oriented languages, the basic predicative relation is not one that is established between the subject and the predicate within IP, but one that is established between the whole IP and a constituent that is outside. According to Huang (1984), one of the basic differences between discourse-oriented languages and sentence-oriented languages is that, in the latter, the most prominent element in the sentence is the subject, whereas in discourse-oriented languages, the most prominent element in the sentence is the topic. (Negrão and Viotti 2000:106-107)

The first paragraph of the above quote seems to indicate that, indeed, BP is a discourse-oriented language: as seen in chapter 4, the scope of quantifiers in BP can be taken to be a reflex of the c-command relations of the structures which are spelled out. The idea in the second paragraph also goes along well with what is proposed in this dissertation. Assuming that [Spec AgrP] is an A'-position, the primary predicative relation in the language can be thought to be the one established by the argument that occupies [Spec AgrP]—which is not always the subject—and the rest of the structure (IP, in Negrão and Viotti's terms).

Since Chinese has also been proposed (by Huang 1984) to be a discourse-oriented language, it seems plausible to assume that discourse-orientation is the property which makes the language able to use A'-binding as an identification strategy. The idea, then, is that languages like EP, Spanish, French and English, being sentence-oriented languages, can only resort to identification via agreement. Since agreement is "rich" only in the first two languages, only these will present grammatical null subjects. Since none of the four languages present (rich) object agreement, null (pronominal) objects are ungrammatical in all of them. Languages like BP and Chinese, on the other hand, by virtue of being discourse-oriented, can identify null pronouns by A'-binding and so are potentially able to present either subjects or objects which are null, in spite of having no or poor verbal inflection around them.

Huang 1984 argues that discourse-oriented languages are characterized by having a rule of Topic NP Deletion, which deletes the topic of a sentence under identity with a topic in a preceding sentence, and by allowing their anaphors to be bound in the discourse. As seen in the preceding chapters, the first property is true of BP but the second one is not, as far as I know. Considering that EP has a Topic NP Deletion rule (as seen from the analysis of Raposo 1986, assumed in chapter 3), the presence or absence of one of these properties is not enough to classify a language as discourse or sentence-oriented.

Based on Negrão and Viotti's observation that the primary predicative relation in discourse-oriented languages is not established within IP, I would like to put forth the following proposal: discourse-oriented languages are the ones in which an A'-position is obligatorily filled in every sentence and the primary predicative relation is established between that position and the rest of the sentence. Such a position is [Spec AgrP] in BP but [Spec TopP] in Chinese.

The guaranteed presence of an A'-specifier in discourse-oriented languages opens up the possibility to identify null pronouns through A'-binding in these languages (since there will always be an A'-binder for them). Moreover, since null pronouns are (pronominal) variables in these languages, it is common that overt and null pronouns

acquire specialized functions: null pronouns are usually used in contexts requiring a variable interpretation, overt pronouns are used otherwise:¹³⁴

- (1) a. O Pedro₁ acha que a Maria gosta dele₁. (BP)
 P. thinks that M. likes him
 b. *Ninguém₁ acha que a Maria gosta dele₁.
 Nobody thinks that M. likes him

- (2) a. Zhangsan₁ shuo ta₁ dele jiang. (Chinese)
 Z. said he got prize
 b. *Meigeren₁ dou shuo ta₁ dele jiang.¹³⁵
 everyone all said he got prize

The obligatory presence of an A'-position could also be used to explain why scope interaction is restricted. Using the theory described in chapter 4, an argument moved to an A'-position in overt syntax will always have scope over the rest of the sentence, since no other argument could be moved to a higher position at LF (due to the Minimal Binding Requirement).¹³⁶

The assumption that BP is a discourse-oriented language and that discourse-oriented languages are characterized by having an A'-position which is obligatorily filled seems to be a promising assumption in that it may help to explain other similarities between BP and Chinese, besides the ones reviewed in chapter 6 with respect to null arguments. As for the differences between the two languages, I am hopeful that they can be worked out based on the fact that that A'-position differs in the two languages: it is [Spec AgrP] in BP but a topic position in Chinese.

¹³⁴ See Negrão 1997 on the constraints on the use of bound overt pronouns in BP; and Aoun and Li 1990 on the same topic in Chinese.

¹³⁵ I am simplifying matters a little. As seen in footnote 23 of Chapter 3, it is not clear that BP does not accept sentences which are equivalent to (2b) because the pronominal subject is bound by a quantifier. A pronominal subject, according to the theory defended here, also occupies an A'-position. Secondly, sentences equivalent to (1b) are, in fact, grammatical in Chinese which seems to allow overt pronouns to receive a bound interpretation more freely than BP. My mentioning of the facts in (1) and (2) is only meant to show that in both languages which have been argued to be discourse-oriented, there are restrictions against having an overt pronoun bound by a quantifier. Many problems related to these facts, of course, remain unsolved.

¹³⁶ If this is true, the analysis presented in chapter 4 would have to be revised to explain why Chinese allows inverse scope readings in passive clauses, whereas BP does not.

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