Pronouns as Elsewhere Elements: Implications for Language Acquisition

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To Henrique, Marcelo, Sueli and Vilson (*in memoriam)*.

O futuro é esperança
O presente é realidade
O passado é lembrança
Que muitas vezes é saudade

Para que existe passado?
Devia haver só presente
Passado só serve mesmo
Pra dar saudade na gente

Quando o futuro tiver chegado
Comigo ao seu lado
Estes versos neste livro amarelado
Serão no futuro
O presente do passado.

Vilson A. Grolla

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CHAPTER ONE

INTRODUCTION

1 Introduction

This study is couched within the generative theory of Universal Grammar (Chomsky (1975, 1981, 1986b)). According to this theory, human beings are born with a system of richly structured linguistic knowledge wired in the mind/brain. This hypothesis about an innately endowed linguistic knowledge is based on the observation that speakers know fairly abstract properties of their languages, which could not be brought about only from the evidence available to children acquiring language.

The evidence on which children rely when acquiring language is comprised of sentences uttered around them. Adults' corrections, informing the child of what is *not* possible in the language s/he is acquiring, are generally assumed not to play a role in language acquisition. This is so due to the fact that this kind of evidence (the so-called *negative evidence*) is not available to all children on all occasions. Also, it has been observed that this kind of evidence is generally noisy and not sufficient (see Bowerman (1988); Brown and Hanlon (1970); Marcus (1993); and Morgan and Travis (1989)). Therefore, if children do not make use of negative evidence when acquiring a language, the most straightforward way to explain how the process of language acquisition takes place is to assume that there is some kind of knowledge already in place informing the child of what is not possible in the language s/he is acquiring.

Universal Grammar (UG) corresponds to this innate linguistic knowledge claimed to be present in human beings' mind/brain. UG consists of a set of constraints that hold universally and that cannot be violated. In this theory, there are two types of constraints: the principles, which are invariant properties of languages, and the parameters, which encode properties varying from language to language. Parameters can be thought of as switches that are turned on or off during the process of language acquisition. Children's task in this process is to set the parameters based on their experience. Therefore, in the hypothesis being

assumed here, UG defines the range of possible variations among languages, and guides language acquisition.

Making use of this theoretical framework, the present study is concerned with the acquisition of pronominal elements appearing in two distinct environments, namely, pronouns with local subjects as their antecedents, as in (1), and pronouns appearing in the relativized position of relative clauses, as in (2):

(1) * *Donald* likes *him*.

(2) * This is the boy that *he* likes ice cream.

These sentences are not possible in adult English. In (1), the pronoun is A-bound, as its antecedent (the local subject) is in an A-position. In (2), the pronoun is A'-bound, as its antecedent (the relative operator) is in an A'-position. While A-bound pronouns are generally analyzed as being regulated by a UG principle known as Binding Principle B, A'-bound pronouns appearing inside relative clauses are usually assumed to be constrained by language-specific rules. In what follows, I discuss the adult distribution of A-bound pronouns in section 2 and of A'-bound pronouns in section 3.

2 A-Bound Pronouns in Adult Languages

In this section, I discuss how UG handles the distribution of A-bound pronouns in natural languages. The principle responsible for this distribution is called Binding Principle B, and it is part of a more general module called "Binding Theory." There are three principles altogether: Binding Principles A, B and C. Binding Principle A handles the distribution of anaphors and Principle C deals with R-expressions. In what follows, I will discuss only Principles A and B, as there is a close relation between the distribution of anaphors and pronouns. I will not comment on the distribution of R-expressions. Below, I provide a version of Principle A as stated in Chomsky and Lasnik (1993):

(3) An anaphor must be bound in a local domain.

This principle requires anaphors to have an antecedent that is "close" to it. "Local domain" is approximately the minimal clause containing the anaphor. In order to be bound by an antecedent, the anaphor must be c-commanded by and coindexed with it. Finally, although this is not

mentioned in this version of the principle, the antecedent for the anaphor must be in an A-position. In order to observe how this principle works, consider the sentences below:

(4) a. Minnie Mouse$_i$ is scratching herself$_i$.
b. * Minnie Mouse$_i$ is scratching herself$_k$.
c. * Minnie Mouse$_i$ saw that Goldilocks$_k$ scratched herself$_i$.

Sentence (4)a is fine. It has the anaphor c-commanded by and coindexed with a local antecedent, as required by Principle A. However, in (4)b the anaphor is not coindexed with an antecedent, which results in ungrammaticality. In (4)c ungrammaticality also arises, as the anaphor and its antecedent are not in the same clause.

Turning now to Principle B, below I provide Chomsky and Lasnik's (1993) formulation of it:

(5) A pronoun must be free in a local domain.

"Free" means "not bound." So, the requirement for a pronoun is that it must not be c-commanded by and coindexed with an element in its clause. Some versions of this principle state that pronouns must be A-free in a local domain, that is, a pronoun must not have a local antecedent in an A-position. Consider the sentences below:

(6) a. * Wonder Woman$_i$ likes her$_i$.
b. Wonder Woman$_i$ likes her$_k$.
c. Wonder Woman$_i$ thinks that Lois Lane$_k$ likes her$_i$.

In (6)a, as coindexation indicates, Wonder Woman is the antecedent for the pronoun. Given that they are in the same clause, the sentence is ruled out. Sentence (6)b is fine because the pronoun does not have an intra-sentential antecedent. Although Wonder Woman is in the same clause as the pronoun, it is not the antecedent for it, as their indexes are distinct. Finally, in (6)c the pronoun and its antecedent are in different clauses and the sentence is good.

Comparing the sentences in (4) and (6), we can see that when the anaphor is possible, the pronoun is not. Conversely, when the pronoun is possible, the anaphor is not. This complementarity between pronouns and anaphors is captured in Binding Theory by positing opposite requirements for pronouns and anaphors. Given that both Principles A and B make use of the same notion of local domain, the complementarity is guaranteed.[1]

3 A'-Bound Pronouns in Adult Languages

The class of A'-bound pronouns that will be of concern here relates to pronouns appearing in the relativized positions of relative clauses. These elements are called "resumptive pronouns" (RPs).[2] A RP is bound by the relative operator, which is sitting in an A'-position. When these pronouns are sitting in extractable positions, we can say that they are locally A'-bound by their antecedents.

The distribution of these elements in English is very restricted. For example, RPs are not possible in extractable positions, such as subject, direct object, and oblique, as shown below respectively:

(7) a. * The smurf that **he** likes ice cream is dancing.
b. * The troll that Mary kissed **him** is happy.
c. * The troll that Mary talked about **him** is ugly.

These sentences become acceptable if the RPs are replaced with gaps:

(8) a. The smurf that __ likes ice cream is dancing.
b. The troll that Mary kissed __ is happy.
c. The troll that Mary talked about __ is ugly.

RPs seems to be more acceptable in sentences where the relativized position is inside islands, that is, in unextractable positions:[3]

(9) a. This is the pirate that Mama Bear laughed [when **he** arrived].
b. This is the pirate that Goldilocks knows [the girl who likes **him**].

In these cases, a gap is not possible:

(10) a. * This is the pirate that Mama Bear laughed [when __ arrived].
b. * This is the pirate that Goldilocks knows [the girl who likes __].

The data above shows us that there is complementarity in the distribution of RPs. When gaps are possible, RPs aren't. Conversely, when RPs are allowed, gaps aren't.

The distribution of RPs varies from language to language. While in English the use of these elements is very restricted, in languages like Palestinian Arabic they are very productive. For example, in this language RPs *must* be present not only inside islands but also in direct object and

oblique positions, as shown below (data from Shlonsky (1992), page 445):[4]

(11) a. l-bint ʔilli šufti-*(ha)
the-girl that (you.F) saw-(her)
'the girl that you saw'

b. l-bint ʔilli fakkarti fii-*(ha)
the-girl that (you.F) thought on-(her)
'the girl that you thought about'

Given this cross-linguistic variation, it is usually assumed that the distribution of RPs is regulated by language-specific restrictions. In subsection 5, an analysis for the distribution of RPs in English will be presented. But first, I discuss what has been already discovered about children's acquisition of pronouns in A and A' environments.

4 The Acquisition of Pronouns

4.1 The Acquisition of A-Bound Pronouns

As discussed above, Binding Principle B rules out sentences with pronouns locally A-bound. Therefore, in the sentence below, the pronoun cannot be interpreted as bound by Goofy:

(12) Goofy is washing him.

Interestingly, children apparently allow an interpretation for this sentence in which "him" is referentially dependent upon Goofy (that is, the pronoun can take Goofy as its antecedent), giving rise to an interpretation where Goofy is washing himself. This is not possible in adult English, where the pronoun can only have as its antecedent some other individual salient in the context. Children allow both the adult interpretation for the pronoun as well as the non-adult coreferential interpretation. Thus, children display an over-acceptance problem in the case of locally A-bound pronouns.

It is interesting to note that, although children allow a non-adult interpretation for the pronoun in the sentence above, they do not allow non-adult interpretations for anaphors. Consider the sentences below:

(13) a. Pluto is scratching himself.
b. Pluto thinks that Mickey is scratching himself.

In (13)a, "himself" must take Pluto as its antecedent. The anaphor cannot take some other relevant individual from the context as its antecedent. Children show such knowledge from an early age. Children also show knowledge that in (13)b, the anaphor has to take "Mickey," and not "Pluto," as its antecedent. So, children's problem of over-acceptance is confined to the case of locally A-bound pronouns only. This indicates that children's problem is related to the acquisition of Principle B. Given that children do not have over-acceptance problems with anaphors, their difficulty is not associated with Principle A of the Binding Theory.

Children's acquisition of pronouns has been widely investigated in the last 20 years. The vast literature on this topic has consistently found that children acquiring languages such as Dutch, English, Icelandic and Russian sometimes accept sentences in which a pronoun has a local antecedent. Interestingly enough however, children acquiring Romance languages such as Catalan, French, Italian and Spanish are adult-like with respect to Principle B. The main difference between the group of languages where children are adult-like with respect to Principle B and where they are not is the presence or absence of clitics. In languages such as Italian and Spanish, the sentences used in experiments on Principle B contained a clitic instead of a strong pronoun and children correctly rejected the sentences involving locally A-bound clitics. So, children's problems with Principle B are confined to the cases with strong pronouns.

One of the main studies on the acquisition of Principle B is Chien and Wexler (1990). These authors interviewed 177 children acquiring English in the age range of 2 years; 6 months to 7 years. The experiment consisted of showing the children pictures of cartoon characters and then asking them yes/no questions about those pictures. In one of the trials, the picture depicted Mama Bear touching herself, and Goldilocks watching the scene. The experimenter showed children the picture and then asked:

(14) This is Mama Bear, this is Goldilocks. Is Mama Bear touching her?

Children responded "yes" around 50% of the time, in contrast to adults, who answered "no" close to 100% of the time. When children answered "yes," they were presumably taking "Mama Bear" as the antecedent for the pronoun. This type of response indicates that in half of the trials children allowed the pronoun to have a local antecedent, in violation of Principle B of the Binding Theory. This 50% rate of acceptance is due to the fact that individual children sometimes answered the question affirmatively and sometimes negatively. Given that children

appeared to be guessing randomly with a 50% probability of responding "yes," children were said to be behaving at chance level.

Since Chien and Wexler's experiment, other researchers have replicated these results generally using the same methodology (see Avrutin (1999); Avrutin and Thornton (1994); Avrutin and Wexler (1992); Grimshaw and Rosen (1990); Jakubowicz (1984); McDaniel, Cairns and Hsu (1990); McDaniel and Maxfield (1992); Philip and Coopmans (1996); Sigurjónsdóttir and Hyams (1992); Thornton (1991); Thornton and Wexler (1999); Wexler and Chien (1985); among others).

Although researchers have found that children allow local coreference when the antecedent for the pronoun is a referential DP like "Mama Bear," the same over-acceptance problem does not emerge when the pronoun's antecedent is a quantified expression, as in "Every bear is touching her." Chien and Wexler (1990) tested this kind of sentence using the same methodology described above and reported that children displayed adult behavior in these cases. That is, children rejected this kind of sentence at a high rate (84% of correct responses for 5 year-olds).

The fact that children correctly reject cases of pronouns locally A-bound by QPs has been taken as an indication that children are constrained by Principle B. The over-acceptance detected in cases of referential DPs is analyzed as being due to children's lack of some extra-linguistic knowledge. The particular proposals vary and some of them will be discussed in detail in chapter 2. I turn now to the acquisition of A'-bound pronouns.

4.2The Acquisition of A'-Bound Pronouns

As was the case with A-bound pronouns, in tests investigating the acquisition of RPs, children also show an over-acceptance behavior. They accept RPs in extractable positions at a much higher rate than adults do. In order to illustrate children's behavior, I will mention the study conducted by McKee and McDaniel (2001). Using a grammaticality judgment task, these authors interviewed 38 English-speaking children between the ages of 3;5 to 5;11 and 34 adults. In their experiment, the experimenter acted out short stories in front of the child in order to provide a context for the target sentences. Following the story, the experimenter uttered the target sentence and asked the child if the sentence was "the right way" or the "wrong way" to say what happened in the story. In this test, all the sentences are true in the context. So, children do not answer "yes" or "no" based on the truth-value of the sentence, but on its acceptability.

McKee and McDaniel tested a large number of sentence types. Below I will mention just two of them, as a detailed discussion of their study is left to chapter 2. In (15)a, the RP is in the highest subject position and in (15)b it is inside an island:

(15) a.* This is the man that **he**'s swimming.
b. This is the troll that Ariel doesn't know what **he**'s eating.

Children accepted sentence (15)a 47% of the time, in contrast to adult speakers, who accepted this sentence only 2% of the time. Similarly to what happened in Chien and Wexler's study, children's rate of acceptance in this case can be considered chance performance, as they revolve around 50%. In unextractable contexts, as in (15)b, children's answers were similar to adults'. Children and adults accepted these sentences at a high rate, 78% for children and 80% for adults.

Comparing children's rates of acceptance in (15)a-b (47% versus 78%), we see that they make a distinction between RPs in extractable versus unextractable positions. However, the over-acceptance in extractable position indicates that they have not yet acquired the full distribution of these elements in English.

5 Proposal

Putting together the observations made in sections 4.1 and 4.2 (and leaving aside for a while the case of pronouns with quantified antecedents), we arrive at the following description of children's non-adult behavior. Children behaved at chance level performance (that is, around 50% correct responses) in tests with sentences containing pronouns locally A-bound and in sentences with RPs in extractable positions.

The aim of this study is to provide a unifying explanation for this chance level performance. The proposal put forth here will explore the fact that the constructions that children over-accept (as in (16)a and (17)a below) have fully acceptable counterparts that do not contain pronouns. Observe the contrasts below:

(16) a.* Mama Bear$_i$ is touching her$_i$.
b. Mama Bear$_i$ is touching herself$_i$.

(17) a.* This is the duck that he loves Minnie Mouse.
b. This is the duck that __ loves Minnie Mouse.

That is, the sentences containing pronouns in (16)a and (17)a are not acceptable, but if we replace the pronoun by an anaphor or a gap, as in (16)b and (17)b respectively, the sentences become acceptable. Interestingly, in the case where children display adult behavior, the structure with the pronoun is acceptable and its counterpart without it isn't:

(18) a. This is the troll that Ariel doesn't know what he's eating.
b. * This is the troll that Ariel doesn't know what __'s eating.

This contrast shows that the sentence with the RP is possible only when its counterpart with the gap is not. Intuitively, it seems that there is some kind of competition between the structures in (16)-(18): the structures containing pronouns are possible only when alternatives (such as the gap or the anaphor) are impossible.

The discussion so far has shown that the two cases where children have over-acceptance problems have various points in common. First, both structures involve bound pronouns (in one case, it is an A-bound pronoun and in the other it is an A'-bound pronoun). Second, both constructions involve some type of competition, as described above. Third, the same 50% chance behavior is found in both cases. Finally, the age when these problems appear is the same in both cases, that is, around 4 and 5 years.

With all these points in common, the straightforward question that comes to mind is this, is there a commonality in the problems children face in the case of RPs and in the case of locally A-bound pronouns? This study has this inquiry as its research question. Given the various similarities enumerated above, the experimental hypothesis is that the reason for the over-acceptance behavior in both cases has one underlying cause. If so, we expect children to exhibit chance level performance in tests with pronouns locally A- and A'-bound. The null hypothesis is that there will be no such association.

Turning now to the facts observed above relating to the "competition" between structures with and without pronouns, these data have a natural explanation in adult language if we analyze pronouns as "elsewhere" elements. That is, they are used only when alternatives are not possible. This proposal has recently been put forth by Hornstein (2001). In his theory, (A- and A'-) bound pronouns are analyzed as elsewhere elements that can only be used to save derivations that would be bad otherwise. This theory tries to eliminate Principle B from the theory of grammar by allowing movement to occur more freely and by analyzing pronouns as elsewhere elements.

As observed above, the cases where children have over-acceptance problems involve comparison between two derivations. That is, when one hears a sentence with an A-bound pronoun, one must compare it to its counterpart with an anaphor. If the latter is well formed, the former is not. In the case of A'-bound pronouns, they are allowed only when a gap is not. Here again one compares two structures, the one with the pronoun and the one with a gap. If the latter is fine, the former is discarded.

The proposal to be developed in chapter 3 is that children know this elsewhere character of pronouns, but that they cannot perform the required comparison between derivations with and without the pronouns. This hypothesis is motivated by the ideas developed in Grodzinsky and Reinhart (1993). These authors claim that children's working memory capacity is more limited than adults' and that children are not able to perform computations similar to the ones discussed above. I assume that children's more limited working memory makes it impossible for them to hold two syntactic representations simultaneously and compare them, a necessary step in assessing sentences with bound pronouns. Being unable to perform the task, children guess randomly, giving rise to the chance level performance reported above.

This proposal differs in some important respects from Grodzinsky and Reinhart's analysis. These authors claim that the comparison with which children have problems is related to the coreferential readings of pronouns. As an illustration, consider the sentence below:

(19) John likes him.

This sentence has three potential interpretations. The first interpretation, which is not relevant here, has the pronoun referring to an individual other than John who is salient in the context. In the second interpretation, the pronoun is bound by John, giving rise to a reading like the following: John λx (x likes x). This reading is banned by Principle B, and Grodzinsky and Reinhart claim that children do not have problems with it. However, in the third interpretation for that sentence, the pronoun is coreferent to John, giving rise to the reading: John likes him (where *him* = *John*). Grodzinsky and Reinhart claim that this interpretation is not ruled out by Principle B, but by a coreference rule called Rule I. Rule I allows coreference only when the bound interpretation and the coreferential interpretation of the sentence are distinct. That is, Rule I requires comparison between interpretations and Grodzinsky and Reinhart claim that children cannot handle the computations necessary in these cases. (Their analysis will be discussed in more detail in chapter 2).

Like Grodzinsky and Reinhart, I claim that children's problem is related to their more limited working memory, but the difficulty is not in comparing the possible interpretations for the sentence, but in comparing syntactic derivations with and without pronouns. The two analyses make different predictions for RPs, as in this case the pronoun and its antecedent (a relative operator) cannot be coreferent. In this case, the interpretations for a derivation with a gap and with a pronoun are the same and children still have problems.

An interesting consequence of my proposal is that, if for some independent reason, the competing representation cannot be derived, no comparison will take place and children should not have problems in performing the task. A relevant example is found in the case of RPs. When RPs are placed in unextractable positions, the gap is not possible, due to the impossibility of movement out of islands. So, the derivation involving movement crashes without converging (to use the terminology in Chomsky (1995)). Therefore, no structure with a gap is derivable and the derivation with the pronoun wins without comparison between derivations. With no comparison necessary, children are predicted to behave like adults. As the results of McKee and McDaniel's study with sentences like (15)b above indicate, this prediction seems to be borne out.

Summing up, the hypothesis being considered here takes pronouns to be elsewhere elements used only when necessary. In some cases, in order to decide whether a pronoun is allowed in a structure or not, hearers have to perform some computations that I claim children cannot handle, due to their limited working memory. When this happens, children are predicted to guess randomly, with a 50% probability of responding "yes." In other words, children are predicted to behave at chance level. When such computations are not required, as in the case of pronouns inside islands, children are predicted not to have processing problems and to behave like adults.

In order to test the experimental hypothesis, I conducted two experiments with forty Brazilian Portuguese-speaking children between the ages of 3;4 and 6;6 and twenty-three English-speaking children, between the ages of 3;7 and 5;11. Note that Brazilian Portuguese is a Romance language. As mentioned in section 4.1, children acquiring Romance languages do not over-accept sentences with locally A-bound clitics. Brazilian Portuguese has a mixed pronominal system with clitic anaphors and strong pronouns in object position. The test sentences presented to children in this case contained strong pronouns, and not clitics. Therefore, the expectation was that Brazilian Portuguese-speaking children should

behave in a similar way to English-speaking children rather than French or Italian-speaking children.

In the experiments carried out in my study, A and A'-bound pronouns were tested, which yielded results for the same children in both domains. The methodology used was a grammaticality judgment task. The results of my experiments, to be fully described and discussed in the fourth chapter, show that the majority of the children indeed behaved at chance level on the two tests.

These results are accounted for by claiming that children's problem in both cases has one underlying cause, and is related to children's difficulty in performing the computations mentioned above. It is important to note that, despite the similarities mentioned above, previous studies on the acquisition of RPs and on the acquisition of Principle B have never explored the possibility that children's over-acceptance problems are correlated and thus never investigated both constructions with the same children. The chance level performance encountered in both domains in those studies was found for different children. Therefore, the results of the present study are enlightening, as they suggest that, no matter what type of analysis we propose, the range of data to be accounted for is broader than what was thought before.

We are left with one important issue to discuss, which relates to pronouns locally A-bound by quantified antecedents. In Chien and Wexler's experiment, although children had chance level performance when the antecedent for the pronoun was a referential DP like "Mama Bear," children were more adult-like when the potential antecedent for the pronoun was a QP like "every bear." These results go against the predictions of the present study. Given that there is competition between "every bear is touching herself" and "every bear is touching her," we expect children to behave at chance in these cases too. In the grammaticality judgment task I conducted with Brazilian Portuguese-speaking children and English-speaking children, they indeed behaved at chance in these cases, supporting the present research hypothesis. We need then an explanation for such different results in these experiments.

I claim that the discrepancy between the results of my study and Chien and Wexler's study is due to a difference in the methodologies employed. As will be fully discussed in chapter 4, I detected a confounding factor in Chien and Wexler's experiments and I claim that this factor is likely to be the reason for children's behavior.

Consider how Chien and Wexler's experiment was carried out. Children were shown a picture depicting, say, Goldilocks and three female bears. The bears were touching themselves and Goldilocks was watching

them. The experimenter then said to the child: “these are the bears and this is Goldilocks. Is every bear touching her?” Chien and Wexler’s hypothesis was that, if children knew Principle B, then they would not pick “every bear” as the antecedent for the pronoun, given that this would violate Principle B. If they knew Principle B, they should pick Goldilocks as the pronoun antecedent. Given that the bears were not touching Goldilocks in the picture, they should answer “no” to the question. Children acted as predicted and answered “no” at a high rate, suggesting that they know Principle B.

I argue that there is another possible alternative to explain why children picked Goldilocks as the antecedent for the pronoun. Children might have picked her not because of Principle B, but because Goldilocks was highly salient in the context provided. In the picture shown in Chien and Wexler’s paper, Goldilocks was much bigger than each bear. In addition, the three bears were identical looking and Goldilocks was physically different from them. These facts made her highly salient. This saliency drew children’s attention to her, making her the most natural antecedent for the pronoun.

This claim is corroborated by experimental results. Besides the experiments using the grammaticality judgment task cited above, I carried out a second experiment with the English-speaking children. I used the same methodology used by Chien and Wexler. The experiment involved not only sentences where the pronouns were locally A-bound by QPs, but also sentences where the pronouns were not locally A-bound by QPs, as in: “these are the dogs and this is Mama Bear. Is every dog touching her hat?” The picture accompanying this question depicted three small female dogs and Mama Bear, which was much bigger than the dogs, as in Chien and Wexler’s experiment pictures. The dogs were wearing hats and touching them. Mama Bear was also wearing a hat, but she was not touching it. Given that Principle B does not block the QP to be the antecedent for the pronoun in this case and that the dogs were indeed touching their hats, “yes” was a possible answer. However, if the saliency of Mama Bear drew children’s attention in the same way I claim they did in Chien and Wexler’s study, then children should answer “no” most of the time. As predicted, children in my study answered “no” to this question at a high rate.

These facts and observations suggest that children’s answers in Chien and Wexler’s study might have been due to the saliency of the DP antecedent and not due to Principle B. In chapter 4, these issues will be discussed in great detail. In that chapter I will discuss how Thornton and Wexler’s (1999) methodology, although different from Chien and Wexler’s,

also exhibits the same confounding factors. There will also be a discussion of how this confounding factor does not arise when the antecedent for the pronoun is a referring DP or when a different methodology (such as the grammaticality judgment task) is used.

To conclude, let me describe how the book is divided. In chapter 2, I review and discuss previous proposals for the acquisition of RPs and Principle B. The number of theories that have been proposed in the literature in order to account for children's problems in these two domains is enormous. I will discuss only some of them, as it is impossible to do justice to all of the studies that were conducted in these two fields. The central objective of this chapter is to show how none of the proposals available in the literature can account for the full range of facts that are being considered in this study.

In chapter 3, I present an analysis of bound pronouns, considering them to be "elsewhere" elements. This is Hornstein's (2001) theory of pronouns, which tries to eliminate Principle B from the theory of grammar by allowing movement to occur more freely and by analyzing (A- and A'-) bound pronouns as parasitic on movement. That is, bound pronouns are possible only if movement isn't. In this chapter I also discuss Grodzinsky and Reinhart's (1993) proposal concerning young children's limited working memory. A brief review of some psychology studies on working memory capacity is presented, and it is discussed how some of them have investigated children's working memory capacity and found it to be more limited than adults'.

Next, I claim that children's problems in both A and A' domains are due to processing reasons. Taking Hornstein's theory of pronouns and Grodzinsky and Reinhart's proposal on children's limited working memory, we are led to the hypothesis that children should behave at chance level in sentences involving locally A-bound pronouns and RPs in extractable positions.

In chapter 4, I describe the experiments that were conducted in order to test this hypothesis. The children that participated in the study were acquiring Brazilian Portuguese and English as their native languages. The results obtained for both languages are reported and discussed, showing that the hypothesis entertained here is on the right track.

Finally, chapter 5 is the conclusion, where a summary of the study is provided. In this chapter I also discuss Safir's (2004b) theory, which, similarly to Hornstein's theory, tries to eliminate Principle B from the theory of grammar. A comparison of these two theories is offered, where I evaluate which theory fares better in its predictions for language acquisition. I conclude that Hornstein's theory is more successful with the