The Development of Null vs. Overt Subject Pronoun Expression in Monolingual Spanish-Speaking Children: The Influence of Continuity of Reference

By

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ABSTRACT

The Development of Null vs. Overt Subject Pronoun Expression in Monolingual Spanish-Speaking Children: The Influence of Continuity of Reference

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Adviser: Professor Helen Smith Cairns

In Spanish, Continuity of Reference is a powerful predictor of the alternation between null and overt subject personal pronouns. Overt pronouns are favored when reference is changed, null pronouns when reference is maintained. To investigate sensitivity to Continuity of Reference, 181 children and 30 adults were tested in Mexico. Participants were told the Spanish equivalent of stories like (1).

(1) a. Maria and José sing songs.
b. Maria sings a ranchera.
c. Later, X sings a children's song.

The subject of the c. sentences was expressed as an overt or null subject pronoun. Two referential contexts were constructed:

Maintain Reference: the referent of the relevant grammatical subject is the same as the referent of the previous grammatical subject, e.g., in (1) X refers to Maria.

Change Reference: the referent of the relevant grammatical subject is different from the referent of the previous grammatical subject, e.g., in (1) X refers to José.

Participants' preferences for overt or null pronouns were elicited in both referential contexts.

Results showed that adults preferred null pronouns in Maintain Reference contexts and overt pronouns in Change Reference contexts. Only the oldest group of

child participants significantly preferred null pronouns in Maintain Reference contexts. This suggests that children tend to include redundant information in discourse, a finding that is corroborated by studies of communication skills (Ford & Olson, 1975; Sonnenschein, 1985; Whitehurst, 1976).

With respect to Change Reference contexts, many of the youngest children preferred null pronouns. At around age 9 the preference for overt pronouns in Change Reference contexts became significant. Around age 14 the preference rates matched those of adults. Since our experimental items were created so that null pronouns in Change Reference contexts were ambiguous, such a preference exposes difficulty with establishing clear referents for pronouns. Narratives elicited from participants in Querétaro suggest that the preference patterns are related to the production of ambiguous pronouns. Sensitivity to Change Reference contexts, as well as the production of pronouns with clear referents, requires both awareness of interlocutors' information needs and dexterity with intersentential anaphoric reference**.**

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CHAPTER 1

INTRODUCTION

1. Summary

The goal of this dissertation is to examine the influence of Continuity of Reference on the alternation of overt and null Spanish subject pronouns in monolingual first language acquisition. We focus on two discourse contexts in particular, Change Reference and Maintain Reference. We investigate sensitivity to these contexts by means of an experiment measuring monolingual Spanish-speaking children's preferences. The results of our study suggest that sensitivity to Change Reference develops earlier than sensitivity to Maintain Reference, although both emerge relatively late in language development. Qualitative analyses of narratives from Spanish-speaking children suggest that the development of sensitivity to Change Reference is related to a general ability to establish clear referents by means of felicitous referring expressions.

In this introductory chapter we define Change and Maintain Reference contexts in order to clarify for the reader how these contexts affect adult Spanish subject pronoun use. We also point out that little is known about this phenomenon in child language. To orient the reader, we include a brief summary of the organization of the dissertation.

2. Overt vs. null Spanish subject pronouns and Continuity of Reference

In Spanish, subject personal pronouns can be expressed or omitted. For example, to express 'she went to the store,' one can include subject pronoun *ella,* 'she,' as in (1), or omit *ella*, as in (2). In (2) 'Ø' represents a null pronoun.

(1) *Ella fue a la tienda.*
She went to the store.
'She went to the store.'

(2) *Ø fue a la tienda.*
Ø went to the store.
'She went to the store.'

Although (1) and (2) are semantically equivalent insofar as the subject pronouns in them have the same referent for the subject (one animate female), there are subtle differences in meaning that arise from expressing or omitting the subject pronoun. For example, omission may signal to an interlocutor that the referent of the null pronoun (2) is the same as the referent of the subject of the previous sentence. Consider, for example, the following excerpt of a sociolinguistic interview selected from the corpus of *The City University of New York (CUNY) Project on the Spanish of New York.*[1] The participant is a Mexican man, who was 26 years old and had been in New York for five months when the interview took place. The number at the end of the example refers to the number given to the participant's transcript. English pronouns in parentheses correspond to

[1]The corpus was developed by Professors Ricardo Otheguy (The Graduate Center of the City University of New York) and Ana Celia Zentella (University of California, San Diego) with support from the National Science Foundation. The author wishes to express her thanks to Professors Otheguy and Zentella, and to NSF, for use of these data.

Spanish null subjects, which are in turn represented by Ø. Pronouns relevant to the discussion are in boldface.

A = Participant, B = Interviewer
1. B*: ¿Y tu papá terminó su licenciatura?*
2. A*: Nada más.* ***Ø*** *Se dedicó a otras cosas, de hecho* ***Ø*** *trabajó muy poco tiempo en* 3. *su carrera y ya después* ***Ø*** *se dedicó a otras actividades.* (308M)

1. B: And your father finished his degree?
2. A: Nothing more. **(He)** dedicated himself to other things, in fact **(he)** worked for a
3. very short while in his career and later **(he)** dedicated himself to other activities.

Notice that the referent of all three null pronouns is the same: the participant's father. We call such contexts 'Maintain Reference.'

In contrast, overt subject pronouns may signal to an interlocutor that reference is not maintained. Consider the following excerpt of discourse from the CUNY Project corpus. This excerpt comes from the same interview referenced above.

A = Participant, B = Interviewer
1. A: *... mi papá siempre se ha desarrollado en un medio más, más*
2. *cerrado, siempre* ***Ø*** *ha trabajado en Guerrero por ejemplo, es muy diferente.*
3. B: *¿Guerrero al D.F. es diferente?*
4. A: *Sí, sí, definitivamente.*
5. B: *Wow, o sea que ¿cómo qué? ¿En qué sentido?*
6. A: *Bueno,* ***él*** *se siente...* ***Ø*** *tenía todas las costumbres de su pueblo por ejemplo,*
7. *bueno, si no todas, la mayoría, entonces eso, pues se nota en todo: como nos* ***Ø***
8. *trata, como* ***Ø*** *habla, qué* ***Ø*** *espera de una mujer, qué* ***Ø*** *espera de sus hijos,*
9. *todo eso es muy diferente.*
10. B: *Y cuáles son sus costumbres o sea..*
11. A: *Pues hay un choque, hay un choque porque obviamente nosotros nos criamos*
12. *en la ciudad de México y* ***él*** *se crió de otra forma y* ***Ø*** *vivía de otra forma,*
13. *entonces cuando Ø empezamos a vivir juntos hubo el choque.* ***Él*** *esperaba*
14. *que...*

1. A: … my father has always developed himself in a more, more closed
2. medium, **(he)** has always worked in Guerrero for example. It's very different.
3. B: Guerrero is different from D.F.[Mexico City]?
4. A: Yes, yes, definitely.

5. B: Wow, so like how? In what way?
6. A: Well, **he** feels… **(he)** had all the customs of his town for example, well, not
7. all, the majority, so, well, it is noticeable in everything: how **(he)** treats us,
8. how **(he)** talks, what **(he)** expects from a woman, what **(he)** expects from his
9. children, everything is very different.
10. B: And what are the customs…
11. A: Well, there's a clash because obviously we were raised in Mexico City and **he**
12. was raised in another way and **(he)** lived in another way, so when (we) started
13. to live together, there was a clash. **He** expected that…

Just as before, English subject pronouns in parentheses represent null subjects in the original Spanish version. Pronouns without parentheses were expressed in their overt form. In line 2, the subject of 'worked' is null and its referent is the same as the subject of the previous finite verb 'developed,' i.e., 'my father.' In line 6, on the other hand, the first subject pronoun appears as overt. The antecedent of this overt pronoun, *él*, is 'my father,' in line 1. Notice that preceding grammatical subject is *Guerrero*. If the speaker had omitted overt pronoun *él* in line 6, the null subject could have been interpreted as a signal of Maintain Reference, potentially misleading the reader to interpret *Guerrero* as the subject of *se siente*, 'feels.' The inclusion of the overt subject pronoun facilitates the correct reading (the reading in which reference is switched from *Guerrero* back to 'my father'), disfavoring the Maintain Reference reading. We call discourse contexts in which reference is not maintained 'Change Reference.' The inclusion of overt *él* in line 13 also constitutes an example of Change Reference, since the referent of the preceding grammatical subject is first person plural.

We refer to the general phenomenon of changing or maintaining reference as Continuity of Reference. Variationist approaches to adult Spanish have consistently demonstrated that Continuity of Reference is one of the most powerful predictors of the alternation between overt and null subject personal pronouns in adult Spanish (Cameron,

1992, 1993, 1995; Erker, 2005; Flores-Ferrán, 2004). According to Cameron (1992:223), "one may conceive of the alternation of pronominal and null subjects as primarily obeying the influence of [Continuity of Reference]."

3. Developing sensitivity to Continuity of Reference

Investigations of the development of overt and null subject pronouns in first language acquisition have been conducted within various theoretical frameworks. Generative accounts have focused on parameter-setting (Hyams, 1986; Valian, 1991).[2] Other researchers have focused on the influence of discourse and pragmatic factors on children's expression and omission of arguments (Allen, 2000; in press; Clancy, 1997; Paradis & Navarro, 2003; Serratrice, 2005; Skarabela & Allen, 2002; 2004). Very few studies of overt and null pronouns in child language have been informed by variationist findings on adult Spanish.[3] Thus, the influence of Continuity of Reference on Spanish child language is not well understood. In this dissertation we aim to characterize the development of sensitivity to Continuity of Reference as a predictor of overt and null subject pronouns in child Spanish, which, in turn, adds to our understanding of the general development of referring expressions in child language.

4. Organization of the dissertation

A full understanding of linguistic phenomena is best accomplished by a combination of both formal and functional analyses. Such an approach may be

[2] The pro-drop parameter (i.e., whether or not a language licenses null subjects) has been an important topic in first language acquisition research.
[3] Two variationist studies of the development of overt and null pronouns in child Spanish (Bayley & Pease-Álvarez, 1996 & 1997) will be discussed in Chapter 3.

particularly useful for the study of phenomena that are heavily influenced by discourse, as is the alternation of overt and null subject pronouns in Spanish, as well as argument expression in child language (see Allen, 2006). Thus, in Chapter 2 we review both generative analyses of the structure of overt and null Spanish subject pronouns and variationist accounts of the distribution of these pronouns in discourse.

A general characterization of overt and null arguments in child language can increase our understanding of the development of Spanish subject pronouns. Therefore, we begin Chapter 3 by reviewing studies of argument omission and subject pronoun development in the early stages of language development. Then we review studies of pronoun development in older children. We also review studies of infelicitous definite NPs in child language because this phenomenon appears to have much in common with pronoun development.

In Chapter 4 we introduce and present the results for the experiment we conducted. In Chapter 5 we interpret the results from Chapter 4 within the context of general cognitive processes that underlie the selection of felicitous referring expressions. Qualitative analyses of narratives from children who participated in our experiment are included in Appendix E.

CHAPTER 2

OVERT AND NULL SUBJECT PERSONAL PRONOUNS IN ADULT SPANISH

1. Introduction

Our goal in this chapter is to discuss the alternation of overt and null subject pronouns in Spanish from the perspective of both syntactic and discourse-pragmatic analyses. We first review two analyses according to which there is an underlying syntactic difference between overt and null pronouns. We then turn to the discourse-pragmatic factors that determine when Spanish speakers use overt and null pronouns in speech. Our discussion focuses primarily on one discourse feature that has consistently emerged as one of the strongest predictors of the overt-null alternation, namely Continuity of Reference.

2. Syntactic analyses

This section reviews syntactic analyses of the alternation of overt/null Spanish subject pronouns. In the first half of this section, we review the proposal that preverbal overt subjects occupy an A'-position and conclude that there is not enough evidence to support such an analysis. Then we discuss the possible application of the strong-weak pronoun division to Spanish subject pronouns. An analysis in which overt pronouns are strong, and null pronouns are weak appears promising.

2.1 The syntactic position of overt preverbal subjects: Three diagnostics

It is generally assumed that subject noun phrases (NPs) move to A-positions. For example, in English passive constructions the grammatical subject moves from its underlying object position in (1) to occupy the subject position in (2).

(1) X ate the apple
(2) The apple was eaten.
A-position

The subject position in (2) is an A-position. A'-positions, on the other hand, are occupied by elements such as *wh*-phrases. For example, when English *wh*- questions are formed, a *wh*-phrase moves from, say, an object position, as in (3), to the front of the sentence, as in (4).

(3) Sarah ate what?
(4) What did Sarah eat?
A'-position

Costa (1998; 2001)[4], Ordóñez and Treviño (1999), and Barbosa (2001) argue that, unlike English subject NPs, all Spanish overt preverbal subjects occupy A'-positions, patterning with elements like *wh*-phrases. This claim applies to both overt full lexical NPs and subject pronouns.

Subject position can be tested using three diagnostics [den Dikken (2002), drawing on Costa (1998) and Alexiadou and Anagnostopoulou (1998)]. First, subjects in

[4] With respect to subject position Costa (1998, 2001) posits that there are two dialects of Spanish. In one dialect overt and null preverbal subjects are both located in an A-position. In the other preverbal subjects are in an A'-position. This analysis is flawed by the fact that Costa bases his dialect distinction on work represented by Hernanz & Brucart (1987) for one dialect and Ordóñez & Treviño (1999) and Zubizarreta (1995) for the other, even though Hernanz and Ordóñez are from both from Barcelona and speak the same dialect. These authors agree that the difference between them is not dialectal, but theoretical (Hernanz, p.c.; Ordóñez, p.c.). Thus, Costa's division of Spanish dialects, if it is tenable, would have to demonstrate a difference between, say, Caribbean and Iberian Spanish, or some other division that is recognized in the Spanish dialectology literature.

A-positions can be bound by quantifiers. Second, object quantifiers should be able to take scope over subjects in A-positions. Third, if the subject is in an A-position, *wh*-phrases should be able to move across the subject to land in an A'-position.

2.1.1 Quantifier-binding of Spanish subject pronouns

NPs that are bound by quantifiers are located in A-positions. Quantifiers raise[5] and leave a trace, as in (5).

(5) Some people$_i$ t_i think that they$_{i/j}$ are going to win the lottery.

If an NP is within the scope of the trace left by the quantifier, the trace can bind the NP. Such is the case of 'they' in (5) if 'some people' binds 'they.' According to Montalbetti (1984:49) a pronoun is bound if and only if

(i) P is in the scope of (= c-commanded by) a formal variable v; and
(ii) P is linked to v[6]

Montalbetti (1984) argues that Spanish null subjects can be bound by traces left by quantifiers, but overt subject pronouns cannot. Consider Montalbetti's example, presented here as (6).

(6) *Muchos estudiantes*$_i$ *piensan que* $Ø_{i/j}$ *van a aprobar.*
Many students$_i$ think that pro$_{i/j}$ are going to pass.

[5] Following generative linguistic theory, we assume that quantifiers raise at Logical Form (LF), i.e., the level of representation that encodes semantic properties.
[6] Montalbetti (pp. 45-47) argues that linking is a more useful concept than coindexation for reasons that go beyond the scope of this paper.

In (6), the null subject of *van a aprobar* can refer to *muchos estudiantes*, demonstrating that the null subject can be bound. NPs bound by quantifier traces are located in A-positions. Montalbetti argues that the Spanish overt subject pronoun cannot be bound, and, thus, coreference of *ellos* and *muchos estudiantes* is blocked in (7).

(7) *Muchos estudiantes*$_i$ *piensan que ellos*$_{*i/j}$ *van a aprobar.*
Many students$_i$ think that they$_{*i/j}$ are going to pass.

Montalbetti explains this blocking effect by postulating that the overt subject pronoun is not located in an A-position. If the preverbal subject is located in an A'- position, it is out of the scope of the operator and therefore cannot be bound. Therefore, it follows that overt Spanish subject pronouns might be located in A'-positions, like *wh*- phrases.

Montalbetti (p. 83) provides another example to demonstrate that Spanish overt subject pronouns cannot be bound by quantifiers. Consider (8).

(8) Nobody$_i$ thinks that he$_{i/j}$ is intelligent.

In (8), 'he' can either be bound to quantifier 'nobody' or can refer to an extralinguistic third person singular male entity. According to Montalbetti, binding is necessary for 'he' to refer to 'nobody' because coreference without binding is not possible since 'nobody' is non-referential. Montalbetti argues that the overt pronoun cannot refer to 'nobody' in the Spanish equivalent of (8), presented here as (9).

(9) *Nadie*$_i$ *cree que él*$_{*i/j}$ *es inteligente.*
Nobody thinks that he is intelligent.

If *él* cannot refer to *nadie*, it follows that *él* cannot be bound by this quantifier, indicating that preverbal Spanish subject pronouns might not be located in A-positions.

Montalbetti's argument, however, is contradicted by examples in which overt pronouns can be bound variables. For example, Suñer (2003:347) consulted with around 15 native speakers and found that all but one judged (10) as grammatical with the interpretation *ellos* = *todos los jugadores*.

(10) *Todos los jugadores$_i$ piensan que ellos $_{i/j}$ ganarán la copa.*
All the players$_i$ think that they $_{i/j}$ will win the cup.

(10) shows that subject pronoun *ellos* can be bound by the universally quantified NP *todos los jugadores.* Luján (1999:1302) also argues that overt Spanish subjects can be bound. In her example, presented here as (11), *él* can refer to *nadie*. Since *nadie* is nonreferential and therefore cannot be linked to an extralinguistic entity, it follows that reference in (11) is established through binding.

(11) *Cada uno piensa que hay gente que es completamente feliz, pero nadie$_i$ cree que él$_i$ es completamente feliz.*

Everyone thinks that there are people who are completely happy, but nobody$_i$ believes that he$_i$ is completely happy.

An example from an online Spanish magazine, presented here in (12), also shows that *él* can be bound by *nadie*.[7]

(12) *A esta alturas no creo que exista un solo fumador en el mundo que no haya escuchado, al menos una vez, que el tabaco produce cáncer. Sin embargo, se sigue tirando del canuto justificando el acto en la dependencia, en la falta de voluntad o*

[7] The article can be found at the following URL: http://www.revistafusion.com/1999/octubre/espa73.htm

> *en que no es para tanto... "que yo conozco a uno que fumó toda la vida y se murió de viejo"... Supongo, como sucede con los accidentes de tráfico, que nadie piensa que él puede ser el siguiente.*
>
> At this point I don't believe that there is a single smoker in the world who hasn't heard at least once, that tobacco causes cancer. However, they keep puffing away, blaming their actions on addiction, on a lack of will-power, or saying it's no big deal… "I know someone who smoked all their life and died at an old age." …I suppose, like with car accidents, that nobody thinks that he can be the next one. [Translation mine]

The interpretation in (12) is clear: *él* refers to *nadie*. These examples show that overt Spanish subject pronouns can be bound variables.

2.1.2 Subject pronouns in the scope of object quantifiers

The second diagnostic for determining subject position has to do with scope properties of object quantifiers. According to Alexiadou and Anagnostopoulou (1998:504), if a preverbal subject is in an A'-position, it is not possible to get a wide scope reading for object quantifiers. Compare (13) and (14).

(13) *Un hombre guapo se casó con cada una de mis colegas el año pasado.*
A man handsome refl. married with each one of my colleagues the last year.
"A handsome man married each of my colleagues last year."

(14) *Se casó un hombre guapo con cada una de mis colegas el año pasado.*
Refl. married a man handsome with each one of my colleagues the last year.
"A handsome man married each of my colleagues last year."

The argument is that in (13), *cada una de mis colegas*, 'each of my colleagues,' cannot get wide scope, in which case the only available reading is the one in which only the non-distributive reading is possible, i.e., one handsome man married all of the colleagues. In (14), on the other hand, either *un hombre guapo* or *cada una de mis colegas* can take wide scope, in which case both the non-distributive and the distributive readings are

possible. In the distributive reading, each colleague married a different handsome man. The blocking of the reading in which there is more than one man is an indication that the subject in (13), *un hombre guapo*, cannot be in the scope of *cada una de mis colegas.* The object quantifier is in an A-position. If the subject is in an A-position too, we expect that the object quantifier can take scope over the subject. If the object quantifier cannot take scope over the subject, this may be an indication that the subject is in an A'-position, not an A-position. In other words, a possible explanation for the blocking of the distributive reading is that the subject is in an A'-position.

To test whether the object quantifier can take scope over the subject, we add the adjective 'different.' This makes the distributive reading much more accessible. Consider (15)

(15)*Un hombre distinto se casó con cada una de mis colegas el año pasado.*
A man different refl. married with each one of my colleagues the last year.
"A different man married each of my colleagues last year."

In (15), the preferred reading is distributive. Suñer (2003:344-5) also provides examples in which the object quantifier can get wide scope.

(16) *En la biblioteca departamental, algún estudiante sacó prestado cada libro.*
In the library departmental, some student borrowed each book.
"In the departmental library, some student borrowed each book."

(17) *Un vigilante montaba guardia en cada esquina.*
A policeman stood guard on each corner.

In (16), the reading in which there are different students for each book is the preferred reading. The interpretation that only one policeman stood on all corners at the same time is impossible for (17). Therefore, in both (16) and (17), the object quantifiers take wide

scope over the overt preverbal subject NPs, i.e., *cada libro* takes scope over *algún estudiante*, and *cada esquina* takes scope over *un vigilante*. Given Suñer's examples, it is unlikely that Spanish subjects can only appear in A'-positions.

2.1.3 Wh-movement across the pre-verbal subject

The third diagnostic has to do with *wh*-movement across the pre-verbal subject. *Wh*- phrases land in A'-positions. Consider (18).

(18) **¿Qué él compró en el mercado?*
What he bought in the market?
"What did he buy in the market?"

For many speakers of Spanish, (18) is ungrammatical (Ordóñez & Treviño, 1999; Hernanz & Brucart, 1987; Pérez-Leroux, 1999; but see Ordóñez & Olarrea, 2000, for varieties of Spanish in which *wh*- movement is not blocked by preverbal subject pronouns). Ordóñez and Treviño (1999:47) argue that *wh*- movement is blocked in (16) because the overt subject pronoun occupies the A' landing site for the *wh*- phrase.

Since overt subject pronouns can be bound in Spanish, as discussed earlier, it is doubtful that the ungrammaticality of (18) is the result of a blocking effect caused by the subject pronoun in an A'-position. Thus there must be another explanation for the ungrammaticality of questions like (18). A satisfactory account of (18), however, is beyond the scope of the current discussion.

The three diagnostic tests reviewed above do not support the conclusion that overt preverbal Spanish subjects occupy an A'-position. This conclusion applies to subject pronouns, as well as full lexical NP subjects. However, even if overt subject pronouns

are located in A-positions, they may still differ from null subjects with regard to syntactic location. Such an analysis is pursued in a proposal in which most overt pronouns are strong pronouns and null pronouns are weak pronouns.

2.2 Strong and weak pronouns

Following Cardinaletti and Starke (1999), Suñer (2003) proposes that strong and weak subject pronouns occupy different syntactic positions. Several criteria distinguish strong from weak pronouns. For example, strong pronouns can be dislocated, whereas weak pronouns cannot. According to Suñer, the null subject *pro* and the overt subject pronoun *ello* are both weak pronouns in Spanish. *Ello* is a neuter pronoun similar to English 'it.'[8] Suñer (2003:351) compares the distribution of *ello*, as in (19), with other subject pronouns, as in (20).

(19) *Ello, (*a mi parecer), no sería malo estudiar.*
It, according to me, wouldn't hurt to study.

(20) *Él, a mi parecer, es muy simpático.*
He, according to me, is very nice.

Whereas *él* can be dislocated in (20), *ello* in (19) cannot. Since weak pronouns cannot be dislocated, it follows that *ello* is an overt weak pronoun. Suñer argues that *pro* patterns with *ello*, and that both of these weak pronouns differ from strong overt subject pronouns, such as *él, ella, yo, tú,* etc. in their syntactic location. Since *pro* has no phonetic content, however, it is obviously impossible to determine whether it occurs to the left or right of parentheticals, such as 'according to me,' as in (19) and (20) above.

[8] In most varieties of Spanish, *ello* differs from 'it' in that it is not used as a nonreferential pronoun, although in Dominican Spanish such usage is well-documented (see, for example, Toribio, 2002).

On the other hand, other criteria for distinguishing strong and weak pronouns suggest that in Spanish, overt third person singulars *él* and *ella* are strong pronouns, whereas *pro* is a weak pronoun. For example, according to Cardinaletti and Starke (1999:146), strong pronouns can occur in coordination and can only refer to animate entities; weak pronouns cannot occur in coordination and can refer to both animate and inanimate entities. In Spanish, overt third person singular pronouns *él* and *ella* can occur in coordination (21), whereas *pro*, represented by Ø, cannot (22).

(21) *Ella y yo fuimos al cine.*
She and I went to the movies.

(22) * *Ø y yo fuimos al cine.*
*(She) and I went to the movies.

Also, *pro* commonly refers to inanimate entities, whereas this is very rare for *él* and *ella*. Thus, an analysis of overt Spanish subject pronouns as strong pronouns and *pro* as a weak pronoun seems worth pursuing, not only for Dominican Spanish, but for all varieties.

If there is a distinction between strong and weak pronouns in Spanish, it is possible that these types of pronouns occupy different syntactic locations. We may envision, for example, two separate functional categories, each of which has a specifier position. The spec of the upper functional category would be occupied by most overt subject pronouns, whereas the spec of the lower functional category would be occupied by null pronouns and *ello*. Under such an analysis, parentheticals would occur in between the upper and lower functional categories.

2.3 Conclusions regarding syntactic analyses of overt and null subjects

There is no strong evidence for the claim that overt preverbal subjects appear in A'-positions. It is, however, possible to pursue an analysis in which most overt subject pronouns are strong pronouns and null subjects are weak pronouns. Underlying syntactic differences between overt and null subject pronouns may potentially help explain different patterns of the development of overt subject pronouns in early child language production, which will be discussed in Section 4 below.

Irrespective of overt and null subject pronouns' syntactic positions, the choice to encode a referent with an overt or null pronoun depends almost entirely[9] on discourse-pragmatic and sociolinguistic factors.[10] The next section will focus on a few of the discourse factors that influence whether an overt or null pronoun will be used in speech.

3. Discourse-pragmatic influences

3.1 Introduction

The alternation of overt and null Spanish subject pronouns is predicted by a multitude of grammatical and sociolinguistic factors. Several of the grammatical factors are related to referent accessibility. Accessibility Theory (Ariel, 1990) provides a framework for analyzing the relationship between choice of form (overt or null) and referent accessibility. One accessibility factor that is particularly influential in the overt/null alternation of Spanish subject pronouns is Continuity of Reference.

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[9] As mentioned before, there are some syntactic constructions in which null subjects are prohibited, such as in coordination.

[10] For example, it is well known that overt pronouns occur at higher rates in Caribbean varieties than in non-Caribbean varieties (see, for example, Otheguy & Zentella, to appear).

3.2 Referent Accessibility

According to Accessibility Theory, the less accessible a referent is, the more information a speaker will provide. Forms such as names, definite NPs, and definite NPs with adjectives are *Low Accessibility Markers*. Forms such as deictics and demonstrative expressions are *Intermediate Accessibility Markers*. Pronouns and zero anaphora are *High Accessibility Markers*. These are used when antecedents are very easy to retrieve (1990:17). In other words, the theory envisions a scale in which there is a relationship between form and function. An abbreviated version of Ariel's accessibility scale (1990:73) is presented below.

Lower accessibility: antecedent is more difficult to retrieve

Names, definite NPs (+ adjectives)
Deictics/demonstrative expressions
Stressed pronoun
Unstressed pronoun
Gaps (including *pro*)

Higher accessibility: antecedent is easier to retrieve

It follows from Ariel's theory that, for Spanish subject pronouns, null subjects should refer to very accessible referents, and overt pronouns should refer to somewhat less accessible referents. To consider whether this is the case for Spanish, we must first consider some of the factors that make referents more or less accessible.

3.2.1 Morphological ambiguity

In Spanish, some verbal morphology distinctively encodes person and number information. For example, *bailaste* can only mean 'you (sing.) danced.' Other verb endings, however, are ambiguous. For example, first and third person singular, as well as

second person formal, imperfect verbs end in *–aba*. *Bailaba*, 'danced,' therefore, could mean 'I danced,' 'he danced,' 'she danced,' 'it danced,' or 'you (formal) danced.' Since morphologically distinct verb endings include more information than morphologically ambiguous verb endings, the referent of a null subject occurring with a morphologically distinct verb is more accessible than the referent of a subject occurring with a morphologically ambiguous verb. Ariel's theory, then, predicts that overt pronouns should occur more often with morphologically ambiguous verbs. Bentivoglio (1980:40) found that overt first person subject pronouns were more likely to be used with morphologically ambiguous verbs than unambiguous ones. Similarly, Erker (2005:12) found that verbal ambiguity promoted the use of overt subject pronouns in his analysis of 142 transcripts from *The CUNY Project on the Spanish of New York* corpus. Overt subject pronouns occurred at a rate of 45% with verbs with morphologically ambiguous endings. Verbs with morphologically distinct endings occurred with overt subject pronouns at a rate of 31%.

Hochberg (1986) found that higher rates of overt subject pronouns occurred in dialects in which final /s/ is omitted. If final /s/ is omitted, second and third person singular regular verbs are homophonous. For example, *comes*, 'you eat,' is pronounced [kome]. Third person singular 'he/she/it eats' is also [kome]. Hochberg (1986) suggests that the morphological ambiguity caused by final /s/ omission triggers the inclusion of the pronoun so that the person and number information is retained. In sum, morphological ambiguity increases referent inaccessibility, thereby triggering the use of a relatively lower accessibility marker (the overt pronoun) instead of the relatively higher accessibility marker (the null pronoun).

3.2.2 Number of potential referents in the discourse

The more potential referents there are in the discourse or situational context, the less accessible the referent (Ariel, 1990:28-9). With respect to singular grammatical persons, this factor only applies to third person verbs since first and second person have, by definition, only one potential referent. A third person entity should be more accessible if there are no other third person entities available as referents in the discourse.

3.2.3 Gender and number

Pronouns in Spanish are marked for gender and number. Singular 'she' is *ella*, and 'he' is *él*. Feminine 'they' is *ellas*; masculine 'they' is *ellos*.[11] Gender and number markings on the overt pronoun may make a referent more accessible to the interlocutor. Spanish verbs occur with number, but not gender markers. Therefore, at the phonetic level, the gender of the subject NP is indicated by a verb that appears with an overt pronoun, but not a null pronoun.

Spanish adjectives appear with number and gender agreement morphemes, which can increase the accessibility of the referent of a Spanish NP. Consider, for example, (23).

(23) *María y José fueron a la tienda. Luego Ø estaba cansad**a**.*
Maria and José went to the store. Later (she) was tired.

The final *–a* in *cansada* is a gender marker which reveals that the subject of *estaba* is feminine.

[11] When the referent of 'they' includes females and males, masculine *ellos* is used.

3.2.4 Stress

Stress can alter how we interpret the reference of a pronoun. Consider the following English examples from Givón (1983:58). 'He' is unstressed in (24a) and stressed in (24b). Here, capital letters represent stress.

24a. John hates Bill, and he hates Mary.
24b. John hates Bill, and HE hates Mary.

In (24a) 'John' is the more likely referent for 'he,' indicating reference maintenance. In (24b), on the other hand, 'Bill' is the more likely referent for the stressed pronoun 'hé,' indicating a change in reference.

According to Givón (1983:59), unstressed overt pronouns in Spanish correspond to stressed pronouns in English. Consider the Spanish translation of (24) presented below in (25).

25a. *Juan odia a Carlos y* ***Ø*** *la odia a María.*
Juan hates Carlos and **Ø** clitic hates Mary
'Juan hates Carlos, and (he) hates Mary.'

25b. *Juan odia a Carlos y* ***él*** *la odia a María.*
Juan hates Carlos and he clitic hates Mary.
'Juan hates Carlos and he hates Mary.'

Both the null subject of *odia* in (25a) and the overt subject pronoun of *odia* in (25b) could potentially refer to Juan, Carlos, or a masculine third party outside the linguistic context. The preference for the null subject in (25a) to refer to Juan is so strong that any other reading seems awkward at best. The expression of the overt pronoun in (25b) makes

Carlos a much more plausible referent of the subject of *odia*.[12] Givón (1983) argues that the presence of the unstressed overt pronoun in (25b) triggers the change in reference, thereby demonstrating that the unstressed Spanish overt pronoun is very similar to the stressed English pronoun. The use of unstressed overt pronouns in Change Reference contexts will be discussed in more depth below (see Section 3.3 of this chapter).

Although perhaps the presence of the unstressed Spanish overt subject pronoun is sufficient to trigger a change in reference interpretation, stress may reinforce such an interpretation. Baauw, Ruigendijk, and Cuetos (2004) tested 32 children and 8 adults' interpretations of sentences with stressed and unstressed pronouns. Their test items, one of which is repeated below in (26), compared the difference between the unstressed null pronoun and the stressed overt pronoun. As before, capital letters represent stress.

26a. *Primero la mujer besó a la niña, y luego Ø besó al niño.*
First the woman kissed the girl and later (she) kissed the boy.

26b. *Primero la mujer besó a la niña, y luego ELLA besó al niño.*
First the woman kissed the girl and later SHE kissed the boy.

Results showed that adults selected 'the woman' as the referent of the null subject of the second conjunct of (26a) at a rate of 98%. Adults selected 'the girl' as the referent of the stressed subject pronoun of the second conjunct of (26b) at a rate of 91%.[13] This demonstrates that the tendency to interpret the null pronoun as a signal of reference

[12] It is important to point out that it is not necessary to stress the overt pronoun in (24) to facilitate a Change Reference reading, i.e., a reading in which *él* refers to Carlos. In the English counterpart to (24), the unstressed pronoun would preferentially refer to Juan. Adding stress to the subject pronoun 'he,' however, would facilitate a reading in which 'he' refers to Carlos. Givón interprets this as an indication that overt unstressed subject pronouns in Spanish correspond to stressed subject pronouns in English.

[13] The child participants in Baauw et al.'s (2004) study selected 'the woman' as the referent for the null subject in (26a) at a rate of 72% and 'the girl' as the referent for the stressed subject pronoun in (26b) at a rate of 43%. It is not clear if this demonstrates that the children, whose mean age was 5;8, were not sensitive to the function of stress since Baauw et al. (2004) did not include items with unstressed overt pronouns.

maintenance is very strong in adults, and the tendency to interpret the stressed overt pronoun as a signal of a change in reference is strong as well. Unfortunately, Baauw et al. (2004) did not include unstressed overt pronouns in their study. In this dissertation we are interested in the comparison of unstressed overt and null pronouns. Thus, we will leave aside the issue of stress, although we recognize that it may reinforce readings in which there is a change in reference.

3.3 Continuity of reference

3.3.1 Defining Continuity of Reference

We now focus on an accessibility factor that is one of the most powerful predictors of the alternation between overt and null Spanish subject pronouns, namely Continuity of Reference.[14] Repeated mentions increase a referent's saliency, and therefore its accessibility. The prediction that follows is that high accessibility markers will be used for reference maintenance, a prediction that is often borne out in Spanish. As discussed in Chapter 1, null subjects may signal to an interlocutor that the referent of the null subject is the same as the referent of the subject of the previous sentence. Recall that we use the term Maintain Reference to describe such contexts. In contrast, overt subject pronouns may signal that the referent of the overt pronoun is not the same as the referent of the subject of the previous sentence. Recall that we use the term Change Reference to describe contexts in which reference is discontinued.

[14] Continuity of Reference is related to what Ariel calls this 'Saliency' and what Givón (1983) calls 'Topic Continuity.'

Change Reference and Maintain Reference contexts are analyzed as a relationship between two grammatical subjects. Consider, again, the example in (25) above, repeated here as (27).

27a. *Juan odia a Carlos y* ***Ø*** *la odia a María.*
Juan hates Carlos and **Ø** clitic hates Mary
'Juan hates Carlos, and (he) hates Mary.'

27b. *Juan odia a Carlos y* ***él*** *la odia a María.*
Juan hates Carlos and he clitic hates Mary.
'Juan hates Carlos and he hates Mary.'

Notice that the null pronoun in (27a) triggers a reading in which the referent of the subject of the second conjunct is also the referent of the subject of the first conjunct. The overt pronoun in (27b) triggers reading in which the referent of the subject of the second conjunct is different from the referent of the subject of the first conjunct. This demonstrates that it is continued or discontinued reference to the grammatical subject and not, say, the direct object, that determines the type of accessibility marker that will be used, i.e., a null pronoun, overt pronoun, or full NP.

3.3.2 Quantitative analyses of Continuity of Reference

Variationist approaches to the study of Spanish subject pronouns have commonly found that Continuity of Reference is one of the most important predictors of the overt/null alternation. Cameron (1992, 1993, 1995) analyzed data from interviews with ten Spanish speakers in San Juan and ten Spanish speakers in Madrid. He found that overt subject pronouns were expressed at a higher rate in Change Reference contexts than in Maintain Reference contexts for both groups of speakers. Flores-Ferrán's (2004:63) study of 41sociolinguistic interviews with Puerto Rican Spanish speakers in New York

City and Erker's (2005:31) study of 142 interviews with Spanish speakers in New York City supported Cameron's findings: Change Reference contexts promoted overt subject pronouns, while Maintain Reference contexts promoted null subjects.

Silva-Corvalán (1994:160) also found that Continuity of Reference had a strong effect on subject pronoun expression in her study of sociolinguistic interviews with 50 Spanish speakers of Mexican origin in Los Angeles. Collapsing over all her participant groups, overt subject pronouns occurred in Change Reference contexts at a rate of 31%. In Maintain Reference contexts the rate dropped to 15%.

Rates of overt singular subject pronoun expression in Madrid and San Juan (Cameron, 1995:8-9), New York City (A = Flores-Ferrán, 2004; B = Erker, 2005), and Los Angeles (Silva-Corvalán, 1994) are presented in Table 2-1.

Table 2-1 Percents of overt singular subject pronoun expression in Change and Maintain Reference contexts in San Juan, Madrid, and New York City

Context	Madrid	San Juan	New York A	New York B	L.A.
Change Reference	30	57	54	40	31
Maintain Reference	11	31	38	26[15]	15
Difference	19	26	16	14	16

Although rates of null subjects remain high in both contexts, overt subject pronoun expression increased significantly in Change Reference environments for all four groups of Spanish speakers.

None of the studies discussed above separated third person from first and second person to investigate the effect of Continuity of Reference.[16] Rates of overt third person

[15] Erker (2005:32) reports that the rate of subject pronoun expression in Maintain Reference contexts increased to 35% when verbs with distinctive morphology were removed from the study. Erker did not, however, perform the same analysis on verbs with morphologically ambiguous endings in Change Reference contexts.

singular pronouns vary depending on the variety of Spanish spoken. In Caribbean varieties, for example, the most common overt subject pronoun is second person singular, followed by first person singular. In other varieties, including the Mexican variety, third person singular is expressed in its overt form more often than the other grammatical persons (Otheguy, Erker, & Livert, 2005). It is possible that rates of overt subject pronoun expression cited in Table 2-1 would be different if third person singular pronouns were analyzed in isolation. In the discussion of grammatical person below, we propose that Continuity of Reference might be a more powerful predictor of subject pronoun expression with third person than with first or second person.

3.3.3 Grammatical person and Continuity of Reference

The functions of first and second person overt subject pronouns may be very different from the functions of third person overt subject pronouns. In a study of 1,052 first and second person verbs in transcripts of conversational data collected in Madrid, Davidson (1996:553) found that overt first person pronouns were often used to "fight for the floor" and to contrast the speaker's view with the view of others, as in "*I* think X, whereas others may think Y." Second person singular pronouns were generally used for reasons of emphasis or contrast. Enríquez (1984) found that for first person verbs, overt pronouns were used more frequently with estimative verbs, such as 'believe,' 'agree,' etc.

Benveniste (1971:218) argues that the feature 'person' only really belongs to first and second person, and that the referent of these pronouns is "solely a reality of discourse." The referents of 'I' and 'you' are fixed at the moment they are uttered,

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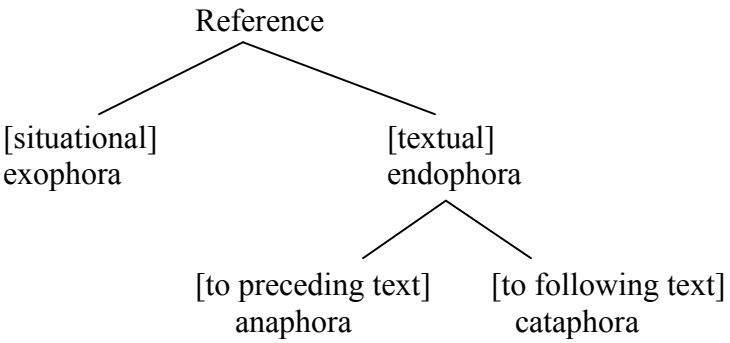
[16] Cameron (1992:178) investigated the difference in the effect of Continuity of Reference for singulars and plural subjects, but did not isolate singular or plural third person subjects in his analyses.

except in cases of quoted speech. The third person, on the other hand, can refer to a referent outside or inside the discourse. The fundamental difference between first/second and third person is illustrated by their formal representation of grammatical persons in many languages. For example, there are possessive pronominal prefixes in Yuma for the first and second, but not the third person (Benveniste, 1971:221). Harley and Ritter (2002), in their proposal for a feature-geometric analysis of pronouns, draw from 110 languages that formally distinguish between first and second persons on the one hand, and third person on the other. Their examples include Maltese and Lyélé (a Niger Congo language of Burkina Faso). In Maltese, gender, animacy, humanness, size, and the count/mass distinction, are manifested on the third person only. In Lyélé, a formality morpheme is manifested on first and second persons only (Harley & Ritter, 2002:12). There are languages in which third person pronouns are obligatorily overt, but first and second person pronouns can be omitted. For example, in Hebrew, pro-drop is restricted to first and second person in the past and future tenses, in which the verb forms are marked for person and gender.

Halliday and Hasan's (1976:33) categorization of reference neatly depicts the split between first/second and third person pronouns with respect to their functions, as demonstrated by Figure 2-1.

Figure 2-1: Different types of reference



First and second person will generally have exophoric reference, that is, the referents of 'I' and 'you' will not usually be located in the linguistic context.[17] Third person pronouns, on the other hand, can be exophoric (27) or endophoric (28).

(27) Look out! He's about to hit you! (Where 'he' refers to a person in the situational context who appears to be charging at the addressee).

(28) I talked to my mom yesterday. She's having fun in Europe. (Where 'she' refers to back to 'my mom.')

Conflation of the grammatical persons may obscure the impact of a pragmatic/discourse predictor of the overt/null alternation of subject pronouns in Spanish since the pragmatic/discourse functions of these pronouns are different. We suggest that third person should be separated from first and second person in order to investigate the power of Continuity of Reference.

[17] In quoted speech, "I" and "you" will refer to a NP in the linguistic context. In the sentence *"Sang said, "I want to move to Montana"* 'I' refers to Sang.

3.3.4 Two distinct phenomena: Change and Maintain Reference

Even though the variationist studies discussed in Section 3.5.2 conflated grammatical person, Continuity of Reference still emerged as one of the most important predictors of pronoun selection. The observed pattern of pronoun selection supports Ariel's Accessibility Theory. Since Change Reference contexts render referents less accessible, a signal that has more phonetic content is preferred. Referents in Maintain Reference contexts, on the other hand, are highly accessible, and therefore a high accessibility marker (the null pronoun), is preferred. In this sense, the preference for overt pronouns in Change Reference contexts and null pronouns in Maintain Reference are part of the same phenomenon: the adherence to Ariel's accessibility scale (see above, Section 3.2).

On the other hand, the preference for overt pronouns in Change Reference and the preference for null pronouns in Maintain Reference are far from being two sides of one coin. These preferences fulfill different functions in communication. Infelicitous null pronouns in Change Reference contexts can result in ambiguity, impeding communication. Thus the preference for overt pronouns in these contexts represents an ability to use referring expressions that are sufficiently informative at the phonetic level, such that the interlocutor can easily locate the referent. The preference for null pronouns in Maintain Reference contexts, on the other hand, represents a developed ability to avoid redundancy.[18] The cognitive skills underlying the ability to avoid ambiguity may be

[18] Examples from the CUNY Project on the Spanish of New York demonstrate that the preference for null pronouns when reference is maintained is a strong *tendency* in Spanish, not a categorical rule. In (i) the referent of *él* is the same in all three instances.

(i) C*uando él$_i$ supo que él$_j$ lo tenía, él$_j$ no se lo dijo a nadie.* (408)
When he knew that he it had, he not cl. it said to nobody.
"When he knew he had it, he didn't tell anyone."

very different from those that underlie the ability to avoid redundancy. Thus while we refer to both preference types as part of Continuity of Reference, it is important that we recognize the differences between them, especially as we investigate the development of these preferences in language acquisition.

4. Summary: overt and null subject pronouns in adult Spanish

The analysis we adopt here is the following. Overt and null subject pronouns may differ in their syntactic representation since the former appear to be strong pronouns and the latter weak pronouns. The distribution of overt and null Spanish subject pronouns in speech is primarily determined by discourse-pragmatic factors, and Continuity of Reference is one of the most powerful of those factors. We suspect that Continuity of Reference has more influence over the distribution of overt and null third person singular than over the distribution of first and second singular subject pronouns.

The experiment reported in Chapter 4 examines the development of sensitivity to Continuity of Reference as a predictor of overt and null third person singular Spanish subject pronouns. In the next chapter we review studies related to the development of overt and null subject pronouns in first language acquisition in order to understand how such sensitivity develops in monolingual Spanish first language acquisition.

CHAPTER 3

OVERT AND NULL SUBJECT PRONOUNS IN ACQUISITION RESEARCH

1. Introduction

In the earliest stages of Spanish language acquisition, null subjects predominate (Austin, Blume, Parkinson, Núñez del Prado, & Lust, 1997; Grinstead, 2004; but also see Bel, 2001; 2003). This observation applies to other null subject languages as well, such as Italian (Serratrice, 2005; Valian, 1991), and Portuguese (Valian & Eisenberg, 1996). When rates of overt subject expression increase, an increase in overt subject pronouns is observed. In most null subject languages, overt subject personal pronouns produced before the age of three are first and second person singular; overt third person singular personal pronouns are rare (Bel, 2003:16; Serratrice, 2005:454).

As children begin to produce more overt subject pronouns, their sensitivity to the discourse-pragmatic predictors of the alternation between overt and null pronouns must also develop. Recent research on young children's overt and null arguments indicates early sensitivity to some relevant discourse-pragmatic factors (Allen, 2000; in press; Clancy, 1997; Paradis & Navarro, 2003; Serratrice, 2005; Skarabela & Allen, 2002; 2004). The scarcity of overt third person singular subject pronouns in early Spanish language production makes it difficult to assess how much these pronouns are affected by early sensitivity to discourse-pragmatics. On the other hand, it is well-established cross-linguistically that older children produce third person singular ambiguous pronouns that violate discourse requirements for establishing reference (Barriga Villanueva, 2002; Beliavsky, 1994; Halliday & Hasan, 1976; Hickmann, 1995; Kail & Sánchez y López,

1997; Karmiloff-Smith, 1979, 1980, 1986; Piaget, 1959; Peterson, 1993; Peterson & Dodsworth, 1991:18). Thus, sensitivity to discourse-pragmatics in general may well begin in the early stages of language acquisition, but adult-like sensitivity to some discourse predictors of third person singular personal pronoun use takes a long time to develop.

To understand what cognitive processes are involved in the mature use of third person pronouns in general, we review research on the production of ambiguous third person pronouns, as well as infelicitous definite NP production. Two explanations for the non-adult-like usage of these referring expressions are discussed. First, children's egocentricity is manifested in the use of some linguistic forms. Such usage reflects children's own ability to locate referents, rather than their interlocutors' access to those referents (Brown, 1973:353; Halliday & Hasan, 1976:34; Maratsos, 1976:96; Piaget, 1959; Schaeffer & Matthewson, 2005). Second, young children often rely on deictic reference in cases where adults would rely on intersentential anaphoric reference (Karmiloff-Smith, 1979, 1980, 1986).

Mature usage of Spanish third person singular personal pronouns requires both awareness of interlocutors' information needs and dexterity with intersentential anaphoric reference. In addition, children must develop sensitivity to the language-particular manifestations of the interaction between referent accessibility and argument form. As discussed in Chapter 2, one of the most important predictors of the alternation between overt and null subject pronouns is Continuity of Reference. Thus, we will end this chapter with a discussion of Spanish-speaking children's sensitivity to this powerful discourse factor.

2. The early stages of pronoun development

2.1 Early Spanish

When children begin producing their first utterances in Spanish, most of their subject arguments are null.[19] As the production of overt subjects increases, some of the early null subjects are replaced by overt pronouns. Very few of these early pronouns, however, are the third person singular subject pronouns *él* or *ella*.

Austin, Blume, Parkinson, Núñez del Prado, and Lust (1997) studied naturalistic production data from eight Spanish-speaking children whose ages ranged from 1;02 to 2;06. Potential pro-drop contexts (N=136) were categorized according to whether they contained a full NP, an overt pronoun, or a null subject. Rates of null subjects and children's mean length of utterance (MLU)[20] were calculated. An increase in overt subjects correlated with an increase in MLU. When the children's MLU was lower than 2.00, no overt subjects were observed.[21] At MLU 2.00, the rate of overt subjects increased to 40%.

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[19] The abundance of null subject arguments in both child pro-drop and non-pro-drop languages has sparked much debate. Hyams (1986), for example, argued that all child languages initially license null subjects, i.e., all child languages are +pro-drop. Under this analysis, children acquiring non-pro-drop languages, like English, have to reset this parameter to –pro-drop. Valian (1991), however, calculated rates of overt and null subjects in spoken language corpora of child Italian and English. She found that Italian-speaking children produced higher rates of null subjects than the English-speaking children. She concluded that the pro-drop parameter is set very early, and that early missing subjects in both Italian and English child language are not the result of an incomplete syntactic knowledge of language.

[20] Though the authors did not specify, we assume that Austin et al. (1997) calculated MLU by counting morphemes.

[21] The absence of overt subjects in early stages of null-subject language development is a topic of debate. Grinstead (2000, 2004) argues that children acquiring pro-drop languages go through a 'no subject phase.' In his data from four Catalan-speaking and three Spanish-speaking children, ages 1;6 to 2;6, Grinstead found that there were no overt subjects in child Spanish and Catalan before age two, and that overt subjects emerged with left-dislocated topics. Adopting an analysis in which Spanish overt subjects are analyzed as left peripheral constituents, located in an A'-position, Grinstead argues that the left periphery is not initially active in Spanish and Catalan child language. He calls this a "grammar-discourse interface delay" (Grinstead, 2004:69). As discussed in Chapter 2, there is not enough evidence to support the analysis in

The observed increase in overt subjects correlated with an increase in overt subject pronouns. In fact, comparing overt subject pronouns and null subjects showed that the proportion of overt pronouns increased from an average of 6.96% for the six subjects under MLU 3.00 to 23.15% for the five subjects over MLU 3.00 (p. 50).

Austin, Blume, Parkinson, Núñez del Prado, and Lust (1998) added two participants to the data from their 1997 study to analyze the occurrence of overt and null pronouns. In total, they analyzed speech samples from 10 Spanish-speaking children, ranging in age from 1;2 to 3;4. Overt pronouns began to emerge at MLU 2.00 and increased after MLU 2.97. Most of the pronouns, however, were first and second person. Out of all singular personal pronouns, *él/ella* occurred the least (2.03%). The ages at which the few instances of *él/ella* occurred were not reported.

Bel (2003) studied longitudinal naturalistic production data from three Spanish-speaking and three Catalan speaking children between the ages of 1;7 and 2;8. The earliest subject pronouns appeared in Spanish at the age of 1;9 for one child. In Catalan, there was one instance of an overt subject pronoun at 1;10. All subject pronouns in the Spanish data, however, were first and second person singular: there were 180 instances of first person singular *yo* and 40 instances of second person singular *tú*. *Él* and *ella* were not attested. In the Catalan data, 60 instances of first person singular and 23 instances of second person singular were found. Only one overt third person singular pronoun occurred (at age 2;5). (Bel, 2003:17).

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which overt subjects are located in A'-positions. Furthermore, other researchers have objected to Grinstead's claim that Spanish- and Catalan-speaking children go through a 'no subject' phase. For example, Aguado-Orea & Pine (2002) and Bel (2001,2003) present evidence from another Spanish-speaking child's data, demonstrating early usage of overt subjects. Between 1;7 and 1;9 there were more overt than null subjects in this child's data (Bel, 2001:546).

2.2 Early Portuguese and Italian

Similar observations about the emergence of subject pronouns have been made for other child null subject languages. Valian and Eisenberg (1996:114-5) investigated the development of 20 Portuguese-speaking children's overt subjects. Children were grouped according to Mean Length of Utterance, calculated by number of words per utterance (MLUW). An increase in overt subjects correlated with an increase in MLUW. However, overt pronominal subjects increased more than overt lexical NPs, as illustrated by Table 3-1.

Table 3-1 Percent of total subject positions filled by lexical subjects and pronominal subjects in 20 Portuguese-speaking children's data, by three MLUW stages, after Valian & Eisenberg (1996)

MLUW	% overt pronominals	% overt lexical NPs
1.58-1.93	18	9
2.06-2.94	28	10
3.35-4.75	43	14

Pronominals increased by 25 percentage points, while lexical NPs only increased by 5 percentage points. Valian and Eisenberg (1996:126) interpret this finding as an indication that the there is a "trade-off between missing subjects and pronouns."[22] Valian and Eisenberg did not provide information about which types of pronouns the children produced;[23] therefore, no conclusion can be drawn about the development of third person singular pronouns.

[22] Valian & Eisenberg's (1996:126) term 'missing subjects' may or may not imply that children have an incomplete grammar at some very early stage. The term 'null subject' implies an underlying representation of a pronoun (i.e., *pro*). At this point, we do not take a position on the representation of early verbs without overt subjects in child language. In any case, it is assumed that *pro* is the subject of verbs without overt subjects in the Spanish of school-age children, and, therefore, the children that participated in the experiment reported in Chapter 4.

[23] Information about adult Portuguese speakers was provided. Third person singular personal pronouns occurred in their overt form at a rate of 39% (Valian & Eisenberg, 1996:121).

Serratrice (2005:452) studied the production of overt and null subjects in naturalistic production data of six Italian children between the ages of 1;7 and 3;3. The children were categorized by MLUW into four stages of development: Stage I (1.5 – 2.0), Stage II (2.0 – 3.0), Stage III (3.0 – 4.0), and Stage IV (>4.0). Rates of overt subjects increased with MLUW. Serratrice claims that the observed increase in production of overt subjects was mostly due to an increase in the production of overt pronouns, just as Valian and Eisenberg (1996) found for Portuguese. Interestingly, this seems to be true for personal pronouns, but not demonstratives (Serratrice, 2005:453). Table 3-2 presents the percent of overt subjects that were personal pronouns and demonstratives for each MLUW stage.

Table 3-2 Percent of types of pronominal subjects out of total overt subjects in data from six Italian children, by MLUW stage, after Serratrice (2005)

Pronoun type	I	II	III	IV
Personal	19	36	33	49
Demonstrative	50	35	38	29

While the rate of overt personal pronouns increased, the rate of demonstratives decreased.

Serratrice (2005:452-454) isolated overt subject pronouns in the six Italian children's data and calculated of the rates of occurrence of different types of pronouns for the four stages of MLUW described above. Out of all overt subject personal pronouns, 70% were first person singular *io* "I", 14% were second person singular, 12% were third person singular, 3% were third person plural, and finally less than 1% were first person plural. Table 3-3 presents the rates of overt subject personal pronouns by MLUW.

Table 3-3 Percentages of overt subject personal pronouns out of total personal pronouns in six Italian children's naturalistic production data, by four MLUW stages, after Serratrice (2005)

Person/Number	I	II	III	IV
1sg.	79	70	55	83
2sg.	21	13	18	10
3sg.	--	12	23	4
1pl.	--	.01	--	1
3pl.	--	.04	5	1
Total N pronouns	14	195	102	102

The percentage of first person singular overt subject personal pronouns remained high at each MLUW stage. There were no instances of overt third person singular subject pronouns in Stage I. During Stage II, the first overt third person singular subject pronouns appeared. From Stage II to III, the rate of overt third person singulars increased. At Stage IV, rates of overt third person singulars decreased; however, this stage included data from only two out of the six children. Furthermore, there were only 102 overt subject personal pronouns recorded for this stage in total, 4 of which were third person singular. Therefore, more data would be needed to draw a conclusion about a decrease in production of these pronouns at Stage IV.

Even though third person personal pronouns appeared in the Italian children's data, they were infrequent relative to other types of overt subjects. Of all overt third person subjects, 59% were pronouns; however, most of these were demonstratives. Out of all overt third person subjects, only 6.5% were third person personal pronouns (Serratrice, 2005:456).

This pattern of overt subject pronoun occurrence could indicate that overt third person singular personal pronouns emerge earlier in Italian than in Spanish (these pronouns have not been attested before age three in Spanish, in the studies discussed

above). On the other hand, it is also possible that the Spanish naturalistic production data consisted of conversations that did not include many third person animate entities, highlighting the need for experimental work in this area.

2.3 Conclusions regarding subject pronouns in the early stages of child Spanish

Overt subject pronouns occur during the early stages of language production. First person pronouns account for the majority of these pronouns at all stages investigated. The studies reviewed here suggest that first and second person singular overt subject pronouns emerge before third person singular overt personal pronouns in Spanish, Catalan, and Italian, and that third person singular personal pronouns are scarce in naturalistic production data. This could indicate that these pronouns are underdeveloped in the early stages of language production. It is also possible that the rarity of these pronouns may be due to the generally egocentric nature of children's conversations, as opposed to linguistic deficiency. On the other hand, the observed pattern of personal pronoun emergence (i.e., first and second before third) appears to be common cross-linguistically (see Hanson, Harley & Ritter, to appear). Experimental work in this area would help reveal the status of third person personal pronouns in young children's competence.

Given the scarcity of overt third person subject personal pronouns in the young children's naturalistic production data currently available, we cannot explore whether the alternation of these overt and null pronouns reflects discourse-pragmatic constraints. On the other hand, recent research on the alternation between overt and null arguments in child language illustrates early sensitivity to various discourse-pragmatic factors.

3. Evidence for early sensitivity to discourse-pragmatic influences on argument expression

3.1 Introduction

In Chapter 2, we discussed Ariel's Accessibility Theory. Recall that low accessibility markers, such as full lexical NPs tend to be used for inaccessible referents. High accessibility markers, such as null arguments tend to be used for very accessible referents. Recent research shows that very young children's utterances also reflect these tendencies (Allen, 2000; in press; Clancy, 1997; Paradis & Navarro, 2003; Serratrice, 2005; Skarabela & Allen, 2002; 2004).

3.2 Overt and null arguments in Korean

Clancy (1997) analyzed naturalistic production data collected over the course of one year from two Korean girls, who were 1;8 and 1;10 at the beginning of the study. When the referent was absent from the physical context, arguments were expressed as overt lexical NPs at a rate of around 60%. The inverse was true when the referent was present, i.e., arguments were omitted at a rate of 60%. Averaging over the two children, arguments whose antecedent was located in the preceding clause were expressed at a rate of 28%. When the referent was mentioned further back in the discourse, arguments were expressed at a rate of around 30%. For newly introduced referents, arguments were expressed at a rate of around 74%. Since absence from the physical context and first mention render referents less accessible, these results suggest that Korean children under the age of three follow the general pattern that Ariel found for adult discourse, i.e., higher

accessibility markers (e.g., nulls) tend to be used for accessible referents, whereas lower accessibility markers (e.g., full NPs) tend to be used for inaccessible referents.

3.3 Overt and null arguments in Inuktitut

Allen (2000, in press) also found that some discourse factors influenced very young children's referring expressions in her study of Inuktitut-speaking children. Naturalistic production data were collected from four Inuktitut-speaking[24] children, whose ages ranged from 2;0 to 3;6. Allen isolated third person arguments.[25] The data set consisted of 1406 arguments, 922 of which were null and 484 overt. Each verbal argument was coded as null or overt (affixed verbal person and number morphology did not render a missing argument overt). The referent of each argument was coded as either accessible or inaccessible for seven variables:[26]

1. Absence vs. presence (applies to the physical context)
   a. Accessible = present referent
   b. Inaccessible = absent referent
2. Newness (applies to preceding 20 utterances)
   a. Accessible = mentioned
   b. Inaccessible = not mentioned
3. Query
   a. Accessible = answer to a question
   b. Inaccessible = not an answer to a question
4. Contrast
   a. Accessible = referent explicitly contrasted with other potential referents
   b. Inaccessible = referent not explicitly contrasted with other potential referents
5. Differentiation in context (applies to physical, extralinguistic context)

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[24] Inuktitut is an Eskimo-Aleut language spoken in northeastern Canada. First and second person arguments are almost always represented by cross-referencing affixes only. There are no 3rd person pronominals; these arguments may appear as independent lexical NPs or demonstratives (Allen, 2000:492-3).

[25] Allen first analyzed all NPs, including first and second person. An argument was sixteen times more likely to be overt if it was third person. Given that some factors are clearly irrelevant for first and second person entities, such as presence or absence in the physical context, our discussion here focuses on Allen's analysis of third person arguments.

[26] Following Greenfield & Smith (1976), Allen used the term 'informativeness.' We have replaced this term with 'accessible' and 'inaccessible' for the sake of consistency.

   a. Accessible = there is only one possible referent for the NP under observation
   b. Inaccessible = there are two or more one possible referents for the NP under observation
6. Differentiation in discourse (applies to five preceding utterances[27])
   a. Accessible = there is only one possible referent for the NP under observation
   b. Inaccessible = there are two or more possible referents for the NP under observation
7. Animacy
   a. Accessible = animate referents
   b. Inaccessible = inanimate referents

To understand the coding system, consider, for example, the factor 'absence versus presence.' A referent that is present in the physical context is more accessible than a referent that is not in the physical context. Therefore an argument with a present referent was coded as 'accessible' for the factor 'absence,' whereas an argument with an absent referent was coded as 'inaccessible.' Assume also that the same referent that was present in the physical context had not been mentioned in the preceding 20 utterances. That referent was therefore coded as accessible for 'absence,' but inaccessible for 'newness.' Therefore, for each argument (overt and null alike), there were seven different binary accessibility scores.

A logistic regression demonstrated that when all seven variables were considered, the alternation between overt and null arguments was reliably predicted by accessibility factors ($p < .001$). Null arguments were more accurately predicted than overt arguments: 84% of null arguments were predicted, whereas only 47% of overt arguments were

[27] This definition is supported by Clancy's (1980, referenced in Ariel, 1990:28) study of Japanese and English adult narratives. Clancy found that when there were no intervening referents, high accessibility markers predominated. With one intervening referent, full NPs were slightly more popular. With more than one intervening referent, full NPs predominated. After five intervening referents, no high accessibility markers could be found. On the other hand, studies of overt and null subject pronouns in corpora of adult Spanish have shown that change in reference effects are very weak for subjects separated by more than one clause (Cameron, 1992; Flores-Ferrán, 2002). Clark & Sengul (1979:35, referenced in Ariel, 1990:21) found that the last clause processed grants the entitites it mentions a privileged place in working memory. This demonstrates the need for analyses of adult data before deciding on how to code accessibility factors such as differentiation in discourse.

predicted. Three variables were not significant predictors of overt/null third person arguments: differentiation in discourse, animacy, and query.

Allen (in press) reanalyzed the expression of third person arguments in the four Inuktitut children's speech, using only the factors that had previously been significant: newness, contrast, absence, and differentiation in context. Table 3-4 presents the results for overt accessible and inaccessible referents for each factor.

Table 3-4 Percent of overt accessible and inaccessible arguments for four accessibility factors, after Allen (in press)

Factor	% Overt Inaccessible	% Overt Accessible
Absence/presence	38	34
Contrast	71	31
Difference in Context	42	27
Newness	55	26

Inaccessible arguments were expressed overtly more often than accessible arguments for all four accessibility factors. Allen then calculated how many accessibility factors applied to each argument. Arguments for which no factors were coded as inaccessible were expressed at a rate of 18%. Arguments with one factor coded as inaccessible were expressed at a rate of 29%. Arguments with two factors coded as inaccessible were expressed at a rate of 57%. Arguments with three or four factors coded as inaccessible were expressed at a rate of 86%. Clearly, as inaccessibility increased, the rate of argument expression increased too. In other words, arguments with accessible referents were more likely to be omitted, whereas arguments with inaccessible referents were more likely to be expressed overtly.

Although the results from Allen's studies show that accessibility impacts children's argument expression, not all arguments were predicted by the accessibility

factors included in the analyses. The referents of many overt arguments were accessible, while the referents of many null arguments were inaccessible. To investigate the null arguments with inaccessible referents further, Allen (in press) explored the influence of deixis and joint attention to referents. Many null arguments with at least one factor coded as inaccessible were accompanied by explicit pointing or joint attention, which rendered the referents entirely accessible to both the speaker and hearer.

Skarabella and Allen (2002) explored the role of joint attention on 'new' third person singular arguments in Allen's (2000) data. An inverse effect was found: 82% of overt new arguments were produced in the absence of joint attention, while 86% of null new arguments were produced in the presence of joint attention.

If the referent is absent from the physical context, joint attention or deictic pointing will not help the interlocutor find the referent. Some new null arguments whose referent was absent led to communication breakdowns. Allen (in press) provides an example of such a null argument, presented here in (1).

(1) Child: *Uvattinunngi*
uvatti-nut-uq-nngit
our.place-ALL-go-NEG
'(He/she/it) isn't coming to our house.'

Mother: *Suna?*
'What?'

Out of all 419 'new' arguments, only 37 were absent from the situational context. Of these 37 arguments coded as 'absent' and 'new,' 76% were overt. Recall that arguments with two factors coded as inaccessible occurred as overt at a rate of 57%, thus being both 'absent' and 'new' had an even greater influence on argument expression than other

combinations of two accessibility factors. This suggests that intralinguistic discourse factors, such as prior mention of a referent, may have some impact on early argument expression. On the other hand, Allen's (2000) finding that differentiation in discourse was not significant suggests that compared to extralinguistic factors such as presence in the physical context and joint attention, intralinguistic discourse factors may be less powerful predictors of very young children's referring expressions.

3.4 Overt and null subjects in Italian

Following Allen's research, Serratrice (2005) analyzed the impact of discourse on overt and null subjects in the Italian data discussed earlier. Recall that ages of the six Italian children ranged from 1;7 to 3;3. Each subject, overt or null, was coded for referent accessibility according to the following three factors.

1. Person: first and second person were always coded as accessible, and third person was always coded as inaccessible.
2. Activation: only relevant for third person entities, first and second person referents are considered always activated. Joint attention or deictic pointing could render a third person referent 'activated.'
3. Disambiguation. Subjects were coded as inaccessible for 'disambiguation' when there were competing referents.

Overt subjects included both lexical NPs and pronouns. For all three factors, overt subjects occurred more often when their referents were inaccessible.

The increase in sensitivity to 'person' and 'activation' was statistically significant between Stage I (MLUW 1.5 – 2.0) and Stage II (MLUW 2.0 – 3.0). The 'person' variable, however, is misleading. Serratrice assumes that first and second person verbs should occur more often with null subjects since the referents of first and second person

NPs are more accessible. As discussed earlier, however, overt first and second person subject pronouns appear earlier and more frequently than third person pronouns. Furthermore, pronouns and lexical NPs were conflated for this analysis of discourse influence, thus the person variable oddly compares overt pronouns on the one hand (first and second person) to overt lexical NPs and a few overt pronouns on the other (third person). Thus, it is not clear what the increase in sensitivity to 'person' reported by Serratrice (2005) really reveals. Increased sensitivity to activation, on the other hand, may very well indicate that subjects are increasingly omitted when there is joint attention to their referents.

At all MLUW stages disambiguation was a reliable predictor of the alternation between overt and null third person subjects. In other words, overt third person NP subjects occurred more frequently when there were competing referents. Serratrice (2005:448) includes an example of an overt third person pronoun used in a context of competing referents. The example repeated here in (2) occurred while a mother and her child were looking at a picture book in which there were many dogs, but only one was sleeping.

(2) Mother: *Sono tanti tanti*
Child: *Perché lui sta dormendo […]?*

Mother: There are many many.
Child: Why is he sleeping […]?

The overt subject pronoun in (2) occurs in a context of competing referents. Recall, however, that all types of overt subjects were confounded for the analyses of discourse predictors. Also, there were very few overt third person personal pronouns produced in

the entire data set, and there were none during Stage I (see Table 3-3). Therefore, the analysis of disambiguation reflects the alternation of overt and null subjects, but not overt and null subject pronouns. Still, Serratrice's finding for disambiguation, much like Allen's for 'differentiation in context,' indicates that very young children may be sensitive to the potential ambiguity caused by multiple competing referents in the physical context, and form selection is affected by the resulting decrease in referent accessibility.

3.5 Overt and null subjects in Spanish

Paradis and Navarro (2003) analyzed the influence of pragmatic-discourse factors on overt and null subjects in longitudinal naturalistic production data from two monolingual children from Spain. The children were recorded from age 1;8 to 2;7 and age 1;8 to 1;11. Their MLUWs ranged from 1.20 to 2.12 for one child and 1.99 to 2.07 for the other. Out of all subjects in the speech produced by these children, about 80% were null. The authors examined the discourse-pragmatic functions of the children's overt subjects. Lexical NPs and pronouns were conflated for this analysis. The overt subjects were divided into three categories, defined as follows:

1. New Information: overt subject refers to newly introduced referent or one that was not mentioned recently, i.e., within 5-10 exchanges.
2. Given Information, but serves a pragmatic purpose.
   a. Contrast (overt subject serves to disambiguate between two possible referents)
   b. Query
   c. Emphasis
   d. Absent (not in the visual field/space)
3. Given Information with no clear pragmatic purpose

For both children, the highest rate of their overt subjects fulfilled the function of New Information or Contrast. For the child whose age ranged from 1;8 to 2;7, all overt subjects were identified as reflecting clear pragmatic-discourse functions. For the other child, whose age ranged from 1;8 to 1;11, 10% of the overt subjects were categorized as Given Information with no obvious pragmatic-discourse function. Although these two children were similar with respect to MLUW, they differed in age. Thus, it is possible that between 1;11 and 2;7 children's sensitivity to discourse-pragmatics increases. Unfortunately, Paradis and Navarro did not analyze the predictive power of each factor. Also, any effects of the pragmatic-discourse factors are obscured by the conflation of pronouns and lexical NPs, as well as the conflation of first/second and third person.

Other researchers of child Spanish have attempted to analyze the influence of discourse-pragmatics on both overt and null subjects. Recall that Austin et al. (1997) analyzed 136 potential pro-drop contexts from eight Spanish-speaking children. Of these, most occurred with a null subject. Each null subject was analyzed to determine if it was pragmatically felicitous. These authors found that many of the children's null subjects were infelicitous.[28] One of their examples is repeated here as (3).

(3) Adult: *¿Quién vive allí?*
Who lives there?

Child: *¿Ya Ø entraron?*
Did (they) already go in?

In (3) the child omitted the third person plural subject even though the referent was inaccessible for the adult.

[28] The authors claim 68% of the null subjects were infelicitous, but this number is inflated due to the inclusion of utterances that contain errors unrelated to the felicity of the null subject. See Bel (2001:551) for a critique of Austin et al.'s study.

Bel (2003:11) investigated the pragmatic appropriateness of null subjects in the same longitudinal naturalistic production data from three Spanish-speaking and three Catalan-speaking children discussed earlier (See Section 2.1). Bel (2003:12) claims that all null subjects in these data were felicitous because even the antecedent-less null subjects had referents in the immediate physical environment, as in (4).

(4) CHI: *O loto*
Ø has broken (showing a broken pair of glasses). Maria (1;9)

Recall that Skarabella and Allen (2002) found that joint attention resulted in a higher rate of argument omission. Thus, Bel's observation about (4) is not surprising given children's sensitivity to joint attention and the impact of the presence of referents in the physical context. On the other hand, the ages of the children in Bel's study ranged from 1;7 to 2;8. Since it is well known that older children produce infelicitous null subjects (see our discussion in Section 4 of this chapter), it seems unlikely that null subjects are always felicitous in young children's speech. Perhaps there were very few references to third person entities that were not present in the immediate physical context in the data observed in Bel's study. Since children's conversations are mostly about the here-and-now, this would not be surprising. Thus, even if there were no infelicitous null subjects in Bel's study, this does not mean young children obey discourse-pragmatic constraints on null subject use. Such conclusions cannot be drawn from observations of naturalistic production, and this underscores the need for experimental work.

3.6 Conclusion to early sensitivity to discourse-pragmatic factors

The research discussed in this section suggests that discourse-pragmatic factors influence the alternation of overt and null arguments in very young children's naturalistic production data. Extralinguistic factors, such as the presence of a referent in the physical context and joint attention to a referent, seem to be particularly strong predictors of argument expression. On the other hand, most of the child language research discussed does not conclusively demonstrate that discourse-pragmatic factors influence the alternation of overt pronouns and null subjects, as opposed to overt lexical NPs and null subjects. Research on older children's pronouns, reviewed in the next section, suggests that sensitivity to the discourse-pragmatic factors that constrain third person singular pronoun use is developed relatively late in first language acquisition.

4. Older children's pronouns: ambiguity and egocentricity in discourse

4.1 Introduction

Children produce third person singular pronouns in ways that violate discourse-pragmatic conditions (Barriga Villanueva, 2002; Beliavsky, 1994; Halliday & Hasan, 1976; Hickmann, 1995; Kail & Sánchez y López, 1997; Piaget, 1959; Peterson, 1993; Peterson & Dodsworth, 1991:18). Consider the following example from a monolingual Spanish-speaking nine-year-old, a participant in the study reported in this dissertation (5). Overt and null pronouns in bold face are ambiguous. Pronouns in parentheses correspond to null subject pronouns in the original Spanish version.

(5) *Había una vez un… un puerquito que se llamaba José y otro Carlos. Un día* ***Ø le*** *invita a* ***su*** *casa. Después se sentaron en el tapete a platicar. Después* ***Ø lo*** *invitó a su cuarto y dibujaron. También* ***Ø le*** *mostró muchos juguetes que* ***Ø*** *tenía.* (309)

Once upon a time there was a… a little pig that was called José and another Carlos. One day **(he)** invited **him** to **his** house. After (they) sat on the rug to chat. After **(he)** invited **him** to **his** room and (they) drew. **(He)** also showed **him** many toys that **(he)** had.

Notice that it is impossible to identify the referents of any of the pronouns in bold face. Such infelicitous ambiguous pronouns are a well-documented phenomenon in child language.

Studies of definite articles suggest that violations of discourse-pragmatic constraints on pronouns are part of a more general phenomenon in child language. Children use definite articles in contexts where adults tend to use indefinite articles (Brown, 1973:353; Kail & Sánchez y López, 1997; Maratsos, 1976:96; Schaeffer & Matthewson, 2005). An example of this is provided in (6).

(6) Child: *"Put it up"* ***the*** *man says.*
Mother: *Who's the man?* Brown, 1973:354

In Ariel's (1990) terms (see Chapter 2), *the* is a higher accessibility marker than *a.* In other words, adults tend to use the definite article for accessible referents, while NPs whose referents have not been previously established tend to appear with the indefinite article *a*. The mother's response in (6) demonstrates this: she expected 'the man' to have an accessible, previously established referent. If the child had said, "a man says," the mother would not have asked who the man was.

These two phenomena, ambiguous pronouns and overuse of definite NPs, appear to be related: both represent the use of high accessibility markers where adults tend to use low accessibility markers, and both dwindle in usage at around the same time in language development. According to Piaget (1959:102) and others (Brown, 1973:353;

Halliday & Hasan, 1976:34; Maratsos, 1976:96; Schaeffer & Matthewson, 2005), these phenomena are part of a more general stage of cognitive development, during which children are egocentric.[29] Due to their egocentricity, children ignore or misanalyze information status/needs of interlocutors (Piaget, 1959:100-8).

In addition to difficulty assessing the information needs of interlocutors, children struggle with intersentential anaphoric reference. According to Karmiloff-Smith (1979, 1980, 1986), children initially rely on deictic reference in contexts where adults would rely on endophoric reference. Consider example (5) above. The child who produced these ambiguous pronouns was narrating a picture book that the adult interlocutor could not see. For the child, the pronouns' referents were present; therefore each pronoun may have referred deictically to the characters in the picture book. Of course, such overuse of deixis is in itself egocentric, since the interlocutor's inability to see the referent is not taken into account. Thus, children's egocentricity is manifested in language production such that pronouns may be used regardless of whether an interlocutor has access to the referent.

4.2 Ambiguous pronouns in child language

Piaget (1959) studied language production data from children whose ages ranged from six to eight. The children were told a story and were then asked to re-tell the same story to another child who had not heard the story. In order to eliminate the potentially confounding factor that the child storytellers had misunderstood the story to begin with,

[29] Peterson (1993:521) and Peterson & Dodsworth (1991:18) argue that children may know that their knowledge status differs from that of the interlocutor, but it may not occur to them to attend to this difference. Such a distinction is important, but not attending to this difference in knowledge may still be considered egocentric.

they were asked comprehension questions. When the children re-told the story, ambiguous pronouns were frequent. The example in (7) is from an eight-year-old boy retelling a story to another eight-year-old boy. Bold-face represents ambiguity, not stress.

(7) Once upon a time there was a lady who had 12 boys and 12 girls, and then a fairy a boy and a girl. And then Niobe wanted to have more sons. Then **she** was angry. **She** fastened **her** to a stone. **He** turned into a rock, and then **his** tears made a stream which is still running today.

Although we expect the first bold-faced pronoun to refer to Niobe, it in fact refers to the fairy. The child who told the story in (7) answered the comprehension questions accurately, demonstrating that ambiguity in (7) was not a result of the child's misunderstanding. For Piaget, such ambiguous pronouns are indicative of the egocentric nature of child language. Children have difficulty entertaining other people's viewpoints: children "generally speak from their own point of view, without being able to enter into that of their listeners, their interests remain ego-centric" (Piaget, 1959:116). Piaget found that egocentric language declined, but did not disappear, at around age eight.

Beliavsky (1994) found many examples of ambiguous pronouns in her study of 57 English-speaking American children, whose ages ranged from five to ten. An adult control group was also included in the study. Narratives were elicited using a children's picture book. In order to create a situation of no mutual knowledge, Beliavsky did not look at the book as the child narrated. An example from an eight-year-old is provided in (8). As before, boldface represents ambiguity.

(8) Once there was a family of bears living in a tree house. And one morning the young bear woke up, and he had a bunk bed, and his older brother was under it. And he bothered his older brother when **he** woke up. And then the older brother got angry at

him. Then **he** screamed at **him**. But then **he** got up and got ready and got dressed. Then **he** wanted to go out but **his** father didn't allow it because **he** didn't have any breakfast. So then **he** went to mother and she made **him** some breakfast. So then they were allowed to go out and **he** was cleaning the floor. Then **he** went to play with his friends. (Beliavsky, 1994:148)

Even the oldest children in Beliavsky's study, the ten-year-olds, produced ambiguous pronouns. The adult control group, however, did not.

Barriga Villanueva (2002) also found many examples of ambiguous pronouns in Mexican children's narratives. In this study, children were asked to recount episodes from soap operas or fairy tales. Barriga Villanueva (2002:177) found that children

> frequently lose their referents and end up speaking a bit chaotically about a 'he' or a 'she' without any antecedent, resulting in a sensation of incongruence and lack of thematic coherence for the hearer or analyst (translation ours).

Below is an example from a six-year-old girl. As before, all boldface pronouns are ambiguous. English pronouns in parentheses were null in the original Spanish version.

(9) *Había una vez una madrastra, y su papá de la Cenicienta se había casado con su mamá, y su mamá sí era buena, y* ***Ø*** *tenía dos hermanas*

> Once upon a time there was a stepmother, and her father of Cinderella had married her mother, and her mother was good and **(she)** had two sisters.

The use of the boldface null subject before 'had' leads the listener to misinterpret the reference. Since null pronouns tend to encode reference maintenance, we expect the subject of 'had' to be Cinderella's mother. The subject, however, is Cinderella herself.

Barriga Villanueva found that twelve-year–old children's narratives were more coherent than those of six-year-olds, but ambiguous pronouns still abounded. Consider

the following excerpt from a twelve-year-old girl's narrative about a popular soap opera. Right before this excerpt, the child had already explained how the main character, Marisela, was going to get married, but her father wouldn't let her because her fiancé wasn't rich enough. But Marisela was already pregnant.

1. *un día **Ø** fue a hablar con ella, que se la dieran a **su** madre del papá; entonces ella*
2. *no quería pero pues sí… pues ya este… ya dijo que sí, porque Ø se quiso resistir y*
3. *Ø no pudo, y Ø dijo que sí; luego este… ya **Ø** fue este… hija de… de sus papas de*
4. *Marisela, entonces **ella** pues… **ella** era como **su** hermana, entonces.. y la niña pues*
5. *la veía como hermana, hasta que un día **Ø** le dijo que era su mamá, ella y la.. ya*
6. *la niña pues ya… ¿no? **Ø** estaba feliz y un día, ya que **Ø** se iba a casar, que sí **los***
7. *dejó el papá ya casarse, **los** mataron a **los dos**… Que…. Es que pues empezó la*
8. *boda y la hermana de la mala y la hermana de **él**… de Fernando, esto… el*
9. *hermano así, del que se va a casar dijo que si no era de **ella**, no iba a ser de nadie,*
10. *entonces **Ø los** mató a **los dos**, entonces Ø **la** llevaron al manicomio*

1. one day **(she? he?)** went to talk to her, that (they) give her to them, to **her? his?**
2. mother of the father; then she didn't want to but well yes… well um.. (she) already
3. said yes, because (she) wanted to resist but couldn't, and said yes; later um.. **(she)**
4. was um… daughter of… of her parents of Marisela, so **she** well… **she** was like **her**
5. sister, so… and the little girl, well (she) saw her as a sister, until one day **(she? he?)**
6. told her that she was her mother and the.. the little girl well so… no? **(she)** was happy
7. and one day, since **(she)** was already going to get married, the father let **them** marry,
8. (they) killed **them**, both of **them**… It's that the wedding started and the sister of the
9. bad woman and the sister of **him**… of Fernando, this… the brother of the one that was
10. going to marry said that if it wasn't with **her**, it wasn't going to be with anyone, so
11. **(she? he?)** killed **them, both of them**, then (they) brought **her** to the insane asylum.

This story is impossible to follow because the narrator does not clearly identify many of the referents. What is clear is that Marisela gave up her baby. Marisela's own parents then raised the baby. In line 1 of the English translation, the first null is entirely ambiguous. The listener never finds out who went to talk to Marisela. The next boldface pronoun, i.e., the possessive pronoun *su*, which is not marked for gender, either refers to Marisela or her fiancé. Since later in the story, the narrator says that the child was raised

as if she were Marisela's own sister, it is likely that the referent of *su* in line 1 is Marisela herself. It is unclear why the narrator says 'of the father.' In line 3, the ambiguous null subject refers to the baby girl, but this is unclear until the following line. In line 6 either Marisela or Marisela's little girl was happy, and in line 7 one of them was going to get married. The sentence 'the father let them marry' in line 7 is a clue that the girl who was going to get married was Marisela. If this interpretation is accurate, then the referent of the null subject in 6 is probably Marisela too; however, since we cannot determine this for sure, direct objects 'them' in lines 7, 8, and 11 are all ambiguous. In other words, it is not clear who got killed at the wedding. Neither can we tell who the murderer was. These examples show that even children as old as twelve years may produce many ambiguous pronouns. We assume that the child knew the referent of each ambiguous pronoun. Therefore, this phenomenon is an indication that even older children sometimes ignore or are unaware of their interlocutors' information needs.

4.3 The overuse of definite NPs in child language: more evidence for egocentricity

Children's overuse of definite NPs, like their production of ambiguous pronouns, suggests that their selection of referring expressions sometimes does not reflect their interlocutors' information needs. Studies of definite and indefinite NP use have consistently shown that accessibility factors such as presence or absence in the physical context affect article usage. Whether or not the referent is just as accessible to the interlocutor, however, has much less of an impact.

Schaeffer and Matthewson (2005) studied definite NP use in 26 monolingual English-speaking children between the ages of two and four. A control group of 38

adults was also included. Two experimenters played different roles in the study. One staged a scene with puppets or displayed pictures; the other held a puppet of Elmo. In order to create a situation of no mutual knowledge, the children were told that Elmo had a lot of trouble understanding what was going on, especially since he was always looking away while scenes were being staged. At the end of each session, Elmo asked the children what happened.

Scenes were manipulated to create two contexts in which the indefinite article *a* is more felicitous than the definite article *the.* The first context was manipulated so that the referent of the relevant NP was present in the physical context. To create this context, one adult experimenter showed the child a picture of Mickey Mouse who had just finished drawing a house. The second experimenter, who was holding the Elmo doll and had not seen the picture, then asked the child two questions, as in (10).

(10) Elmo: (pointing at Mickey Mouse): *Hey who is this?*
Expected response: *Mickey Mouse!*
Elmo: *And what did Mickey Mouse just do?*
Expected response: *He drew **a** house.*

In (10), the use of *the* instead of *a* in 'He drew a house,' was considered infelicitous, although a separate experiment demonstrated that while adults consider *a* better than *the* in contexts like (10), *the* is considered somewhat acceptable.[30]

[30] To test adults' preferences for *the* and *a*, 28 native speakers of English were presented with 6 test sentences similar to (10) above. Items contained the felicitous article *a* 3 times and the infelicitous article *the* 3 times. The participants and were asked to rate the sentences with the following scores: 1 = fine/good English/the way you would normally say this, 2 = not so good/sounds a bit funny/but not totally bad, and 3 = bad/ungrammatical/wrong in the context. Items containing infelicitous *the* were judged as "2" at a rate of 93%, and "3" at a rate of 7% (Lisa Matthewson, p.c.). The authors conclude that *a* is indeed obligatory in these contexts for adult English speakers (see footnote 22 on page 78). A more appropriate characterization of this phenomenon, however, is that there is a strong tendency for adults to prefer *a* in these contexts, but this is not obligatory.

The second context was manipulated so that the referent of the relevant NP did not exist in the physical context. For example, one experimenter, acting as Big Bird, told the child he was going to draw something. Then the other experimenter, acting as Elmo, asked the child a question, as in (11)

(11) Big Bird: *Oh I'm so bored. I don't know what to do. Oh, you know what? I'm going to the forest, and I'm going to draw something there.*
Elmo: *What do you think Big Bird is gonna do in the forest?*
Child: *He's gonna draw* ***a*** *tree.*

In (11) the use of *the*, as in "he's gonna draw the tree," was considered infelicitous.

The main difference between the two contexts was that the referent of the relevant NP (e.g., the drawing of the house) was present for (10), whereas for (11) the referent was not present (e.g., the drawing of a tree). Notice how, even for the adult speaker, the use of the definite article sounds much better when the referent is present in the situational context (10) than when it is absent (11).

Children overgenerated *the* when the referent was present, whereas adults did not. When the referent was not present, overgeneration of *the* was infrequent for both children and adults. Rates of overgeneration in both contexts are presented in Table 3-5.

Table 3-5 Rates of overgeneration of *the* in two contexts: present versus absent referents, after Schaeffer & Matthewson (2005)

	Present	Absent
Children	25%	5%
Adults	2%	3%

For the contexts in which the referent was present, the difference between child and adult responses was significant. For the other context, the difference between adult and child

responses was not. Thus, the important difference between children's use of indefinite and definite articles was apparent for present referents only.

This study suggests that referent accessibility influences young children's article choice, but only insofar as the referent is accessible to the child. In other words, the interlocutor's access to the referent did not affect the children's use of *the*. Recall that when the referent was present for the children, the children's interlocutor, Elmo, had not seen the referent. Therefore, children overgenerated *the* when the referent was accessible to them, but not their interlocutor. Schaeffer and Matthewson (2005:69) interpret their results as evidence that children under the age of five do not understand that people sometimes do not share assumptions about referents. In order words, children's egocentricity results in a projection of their own assumptions onto their interlocutor.

Other researchers have also explained children's overuse of definite NPs as a manifestation of egocentricity. Maratsos (1976:79-92) investigated children's production of definite and indefinite NPs with two experimental games. In one game, called "Down the Hill," there was a wooden hill, a car, and toy boy and girl dolls. The children were asked to choose a toy doll, one at a time, to be placed in the car, which would then be sent rolling down the hill. In a second game, called "Feeding the Dragon," the child participant wore a puppet of a dragon on his hand. The child was asked if he would help feed the dragon small plastic animals. The child had to ask the experimenter for animals to feed the dragon.

All toys were initially presented and named. Three conditions were included in the experimental design. First, the toys were either presented in a singular condition (e.g., one boy and one girl for "Down the Hill") or a plural condition (three boys and

three girls for "Down the Hill"). Responses with definite NPs (e.g., 'put the boy in the car") were expected for the singular condition. Responses with indefinite NPs (e.g., 'put a boy in the car') were expected for the plural condition. Second, the toy dolls were either visible or hidden from the child during the test period. The third condition was the game played (i.e., "Down the Hill" or "Feeding the Dragon"). Participants included forty children, 20 three-year-olds and 20 four-year-olds. There were ten boys and ten girls for each age group.

Overall, four-year-old children performed well above chance level. The four-year-old girls performed especially well, with a 92% accuracy across all conditions. The four-year-old boys were accurate at a rate of 76%. The difference between four-year-old boys' and girls' responses was significant. Neither the singular/plural variable nor the visibility variable affected the four-year-old girls' responses. The four-year-old boys' responses, however, were very much affected by the visibility condition, as shown in Table 3-6.

Table 3-6 Rates of four-year-old boys' infelicitous responses, by visibility and plurality conditions, expressed in percentages, after Maratsos (1976)

Visibility	Singular condition	Plural Condition
Visible	25	46
Hidden	23	11

When the toys were visible, four-year-old boys produced infelicitous definite NPs in the plural condition at a rate of 46%. Hiding the toys resulted in a significant decrease of incorrect definite expressions for this group of boys.

The three-year-olds responded quite differently. There was no significant difference between boys and girls. The visibility condition had a strong effect on all

three-year-olds: when the toys were in sight, these children incorrectly used definite NPs in the plural condition at a rate of 42% for one game and 26% for the other. When the toys were hidden, inaccuracy decreased to 7% for both games. These results are reminiscent of the findings in Schaeffer and Matthewson's study. The child's own ability to see the referent affected article selection, but the interlocutor's ability to understand which toy was the intended referent was less important. Maratsos (1976:96) concludes that young children show early competence in their use of definite and indefinite NPs, but "what is more dubious is the child's early ability to take into account his listener's ability to place uniquely the reference of the child's definite expressions."

Karmiloff-Smith (1979) conducted several experiments to address the function of definite and indefinite NPs in child French. Two of her experiments will be discussed here. In the first experiment referents were visible to children, whereas in the second referents were hidden. Thus, a comparison of the two experiments reveals the effect of visibility of the use referring expressions. The first production experiment, called "The Playrooms," was designed in the following way. A female doll was placed in one room, a male doll in the other. Children were told that each doll would have some toys. Conditions were manipulated to create felicitous contexts for indefinite article *une/un* and definite article *la/le*. For example, in one condition, the girl doll had two sets of toys: three were identical; two were unique and therefore easily distinguishable from each other and from the set of identical toys. Children were told to ask the dolls for their toys. Instructions were phrased in a way that avoided the use of definite or indefinite articles, such as "ask the boy to lend you that" [pointing to the toy]. If the specified toy was one of three identical toys (like the stars in Figure 3-1), the child was expected to say, "Lend

me an X." If the specified toy was one of the unique toys (like the circle in Figure 3-1), the child was expected to say, "Lend me the X." Forty-seven French-speaking children between the ages of 3;0 and 9;11 participated in this experiment.

In a second experiment, called "Hide and Seek," the objects to be selected were placed in opaque bags. Bag contents varied: in one condition there were four totally unique objects; in another condition there were two unique items and two identical items. The child participant was shown the contents of one bag. In one condition the child was asked to close her eyes as the experimenter removed one item from the bag and hid it. Afterwards, the child was asked to look in the bag (to figure out which item had been hidden). In another condition the child was asked to hide an item herself.[31] Finally, the experimenter asked the child what had been hidden. Notice that when children were asked what had been hidden, the object was not in view. Sixty-five children between ages 3;3 and 11;7 participated in this experiment.

Although the experiments were not identical, we present the results of both in order to compare the effect of visibility on children's infelicitous definite NP production. The results for the production of infelicitous definite NPs for both experiments are presented in Table 3-7.

[31] Differences between these two conditions (i.e., child versus experimenter hiding the object) were not reported for the relevant responses.

Table 3-7 Percents of infelicitous definite NP responses in visible and hidden conditions out of all responses, after Karmiloff-Smith (1979)

Age group (years)	Visible (Experiment 1)	Hidden (Experiment 2)
3	39	50
4	63	15
5	17	39
6	41	12
7	45	9
8	9	14
9	0	11
10/11	--	1

As in Maratsos' experiment, four-year-olds produced more infelicitous definite NPs when objects were visible. Whereas the three-year-olds in Maratsos' study performed better when objects were hidden, in Karmiloff-Smith's study, this same age group performed worse in this condition. The five-year-olds in Karmiloff-Smith's study also performed worse with hidden objects than with visible objects. Unlike Maratsos' study, in which four-year-old girls did not produce infelicitous definite NPs, Karmiloff-Smith's two experiments show that infelicitous definite NPs persist until age seven. There are a few differences between the studies, however. One difference is that Maratsos studied English-speaking children and Karmiloff-Smith studied French-speaking children. Language differences may affect the development of definite and indefinite NPs. In Karmiloff-Smith's study, which involved many more participants than Maratsos' study did, there was a sharp decline in infelicitous definite NP production at age eight. By age nine there were almost none. Age eight or nine appears to be an important milestone in the development of mature use of referring expressions.

Like Karmiloff-Smith, Kail and Sánchez y López (1997) found that age nine marked an important point in the development of correct definite and indefinite article

usage. These researchers elicited narratives using the picture book, *Frog where are you?* (Mayer, 1969). This is a wordless picture book that is commonly used for studies of children's discourse (e.g., Berman & Slobin, 1994). Participants in Kail and Sánchez y López's study were 60 monolingual Spanish children from Madrid, representing three age groups: 20 six-year-olds, 20 nine-year-olds, and 20 eleven-year-olds. A control group of 20 adults was also included. The participants told the story from the picture book to a blindfolded adult to create a context of no mutual knowledge. Six-year-olds used infelicitous definite NPs for 53% of their new referents. Nine- and eleven-year-olds only used these infelicitous NPs in 17% of their new referent introductions. Adults produced even fewer: only 3% of their new referent introductions were definite NPs. The authors interpret these results as an indication that children acquire the function of definite NPs at around age nine.

4.4 Children's over-reliance on deixis

In addition to the difficulty children have with entertaining their interlocutor's information status, young children also have difficulty with intersentential anaphoric reference. According to Karmiloff-Smith (1979, 1980, 1986), initially most pronouns in child discourse are deictic, that is, they refer to entities that are present in the physical context. Such entities can be referred to by pointing or other types of signaling. Deixis is a subtype of exophoric reference. According to Karmiloff-Smith, pronouns are not used as cohesive textual ties until age eight or nine.

Karmiloff-Smith (1980,1986) elicited narratives from 350 children, ages four to nine. A mutual knowledge condition was established since children and adults looked at

the picture book together. Children were asked, "What is happening?" In the initial stages, pronouns referred deictically rather than endophorically. An example is given in (12).

(12) There's a little boy in red. He's walking along and he sees a balloon man and he gives him a green one and he walks off home and it flies away into the sky so he cries.

Karmiloff-Smith (1986:472) interprets each clause in (12) as a unit unto itself. Accordingly, each pronoun refers not to the linguistic antecedents, "a little boy" or "a balloon man," but to the actual drawings of the boy and man in the picture book.

The deictic nature of young children's pronouns is more evident in another study conducted by Karmiloff-Smith (1979:164-166; 1980:237). In this study 341 monolingual French-speaking children, whose ages ranged from 3;2 to 11;11, narrated a picture book. Before narrating, the children were presented with names for things in the pictures. These names were nonce words with predictable gender due to their phonological ending, such as *bicron* (masculine) and *goltoise* (feminine). Potential conflicts were established between word gender and the gender of the external referent in the picture book. For example, *bicron*, a word that is predictably masculine, referred to a female character. The experimenter avoided using explicit gender in her instructions. Children of all ages assigned the same gender to the nonce words, e.g., *bicron* = masculine, *goloise* = feminine). Although *bicron* was assigned masculine gender by all child participants, the referents of *bicron* in the picture book were feminine entities.[32] Children under six years of age produced pronouns that matched the gender of the characters in the pictures, rather than the gender of the original lexical NP. Consider example (13), which was produced

[32] Such usage of masculine NPs to refer to feminine entities is not ungrammatical in French.

by a child who was 5;7. Since articles and pronouns are marked for gender in French, (m) and (f) are used to signal masculine and feminine gender in the English translation.

(13) *Bon, y avait une fois un bicron vert et un bicron brun. Elles étaient très amies… alors le bicron vert est sorti.. et ensuite elle est allée … et puis c´est elle qui a…*

Well, one there was a (m) green bicron and a (m) brown bicron. They (f) were close friends (…) and the (m) green bicron went out (…) and then she went… and afterwards it was she who (…) (pp., 164-164)

The articles preceding green *bicron* and brown *bicron* were masculine, as predicted. All pronominal references to *bicron*, however, were feminine, like the picture of the *bicron*. This demonstrates that the subject pronouns here referred to the picture, rather than the intralinguistic antecedent.

The older children in this same study relied on discourse-internal cohesion for pronoun gender assignment. Consider example (14), which was produced by a nine-year-old.

(14) Child: *C´est le bicron vert qui est parti (...) ensuite il est allé chez (...) c´est lui qui a trouvé*
Experimenter: *Lui, c'est qui?*
Child (pointing to picture): *Ben, c'est lui… non non, elle, je veux dire la bicronne… celle qui est verte*

Child: It is the green *bicron* who left (…) then he went to X's house (…) it was he who found
Experimenter: He, who's he?
Child (pointing to picture): Well, it's he… no, no, she, I mean the *bicronne*…. The one that is green. (P.165)

In this excerpt, the nine-year-old child's subject pronouns were masculine, and thus agreed in gender with the masculine NP antecedent, *le bicron vert*. When the experimenter intervened, the child reflected on the use of masculine gender for the

bicrons. Noticing that these characters were feminine, the child changed the gender of both the pronouns and the lexical NP (now *bicronne*). Thus the nine-year-old's pronouns were endophoric, rather than deictic, since they referred to NPs *bicron* and *bicronne* rather than the picture of the *bicron*. Karmiloff-Smith (1979:166) interprets such examples as evidence that "so-called anaphoric reference may be a rather late achievement. Small children's referential expressions appear to be essentially deictic in nature."

Other research of children's discourse development supports this idea that children's utterances are initially deictic. Berman and Slobin (1994) directed a large crosslingusitic study of children's narratives, which were elicited using *Frog, where are you?* (Mayer, 1969). The child participants ranged in age from three to nine. Four languages, English, German, Hebrew, Spanish, and Turkish, were investigated. Three- and four-year-olds' narratives were characterized by a lack of cohesion and an abundance of deictic referring expressions. Each utterance functioned as a separate string, referring to the pictures, not to previous events or NPs in the discourse. As Berman and Slobin (1994:63) point out: "a favored type of utterance-initial connective in the 3-year-olds is a deictic pointer, such as English *here*." Consider example (15), which was produced by an English-speaking child, age 3;8.

(15) *It's a bee. There's a dog. And there's a frog, and slippers, and another slipper, and there's boots. He's wake up! They put her head in the pot. Going down. The dog barked, and here they calling frog. There's bees. And the hole in the tree. Ack! A owl. And he's running through there and he fell off. Look, oh he's up there! He's awake. He fell off, and he fell off of—in the pool. And there's no head! Then there's a frog. See, he caughted a frog.* (Berman & Slobin, p. 59)

Such use of deixis was common among three and four-year-olds for all languages studied (e.g., for Hebrew, Berman & Neeman, 1994:315; for Turkish, Aksu-Koç, 1994:369).

On the other hand, Karmiloff-Smith's theory that children's pronouns are initially deictic must be modified, since some pronouns refer to intralinguistic referents in child language before age eight. Specifically, children obey Binding Principle A by the age of four, i.e., they do not allow reflexive pronouns to refer to an external referent (Chien & Wexler, 1990; McDaniel, Cairns, & Hsu, 1990). Therefore, we must assume that some anaphoric reference is acquired early. We suggest that children struggle with intersentential anaphoric reference in particular. Karmiloff-Smith argues that children's pronouns begin to refer intralinguistically, rather than deictically, at age eight or nine.

4.5 Inappropriate referring expressions for referent introduction

Researchers have found significant changes in selection of forms for referent introduction at age eight or nine. De Weck (1991) elicited 133 oral narratives from French children, ages 5;7 to 15. She analyzed the children's strategies for new referent introduction. She grouped NPs into two categories according to whether they were more or less appropriate for referent introduction. Six-year-olds used inappropriate forms for more than half of their referent introductions, whereas eight-year-olds used inappropriate forms for about a quarter of their referent introductions (de Weck, 1991:244).

Rossi, Pontecorvo, López-Orós, and Teberosky (2000) studied 60 Catalan-speaking children in Barcelona and 60 Italian children in Rome, each divided into three groups by grade, Grades 1, 3, and 5.[33] Both Catalan and Italian are pro-drop languages.

[33] In Barcelona the average age for first graders is 6, for third graders, 8, for fifth graders, 10 (Canals, p.c.). Given that the authors meant to compare the Catalan children with the Italian children, these must be

Following Berman and Slobin (1994), oral and written narratives were elicited using *Frog, where are you?* To create a situation of no mutual knowledge, children were told that the experimenters were collecting stories told by children to be listened to by other children who did not know the stories. All referring expressions were coded as full NPs, pronouns, or null forms, and for two discourse contexts related to Continuity of Reference: reference maintenance and change reference,[34] defined as follows:

1. Reference maintenance: the referent is mentioned in the previous clause.
2. Change Reference: the referent is not mentioned in the previous clause.

Recall from our discussion in Chapter 2 that Ariel's accessibility scale predicts that null pronouns will refer to highly accessible referents, overt pronouns will refer to less accessible referents, and full lexical NPs will refer to even less accessible referents. Recall also that reference maintenance increases the accessibility of a referent, and thus promotes the use of null pronouns in null subject languages, whereas a change in reference promotes the use of an overt pronoun or lexical NP. The use of a null pronoun, then, in a Change Reference context would potentially be infelicitous.

Results from Rossi et al.'s study show that forms used for Change Reference varied across age groups, as shown in Table 3-8.

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average ages for Italian children in these grades as well. Unfortunately, the authors provide no information about average ages.

[34] The authors call this context 'reintroduction of reference'; however, the term Change Reference captures the importance of the relationship between the NP under observation and the referent of the NP in the previous clause.

Table 3-8 Forms used for Change Reference across age groups, expressed in percents, after Rossi et al. (2000)

Grade	Full Lexical NPs	Pronouns	Nulls
1	55	24	24
3	68	18	18
5	68	21	14

The use of null forms for Change Reference decreased between the first and third grade.

Not all of children's null subjects used for Change Reference resulted in ambiguity, but some did, as in (16).

(16) and so then (they) run away, and the owl is following him, and then **(he)** chased him away. (Rossi et al., 2000:177).

In (16) null subject 'he,' represented in boldface referred to the direct object of the previous sentence, i.e., the boy who the owl was following. Since this subject was null, however, an interlocutor would incorrectly assume reference is maintained, in which case the referent would be the owl. Rossi et al. calculated the percent of infelicitous null subjects out of the total of null subjects in Change Reference contexts. Results are shown for oral narratives in Table 3-9.[35]

Table 3-9 Percents of infelicitous ambiguous null subjects in Change Reference contexts, across age groups and languages, after Rossi et al. (2000)

Language	Grade 1	Grade 3	Grade 5
Italian	92	73	67
Catalan	36	25	16

[35] Rossi et al. (2000:180) calculated the percent of null forms in Change Reference contexts that were predictable from the discourse context, and, therefore, unambiguous. The calculations in Table 3-9 are simply the inverse of Rossi et al.'s calculations.

It is unclear why the Catalan children produced far fewer ambiguous null subjects. Of note, however, is that infelicitous null subjects decreased with age for both Italian and Catalan children, but rates remained high even in the fifth grade.[36]

4.6 Spanish-speaking children's sensitivity to Continuity of Reference

The studies discussed so far suggest that prior to age eight, children's egocentricity manifests itself in the production of referring expressions. In a study of narratives from Spanish-speaking children over age eight, Continuity of Reference influenced the alternation between overt and null subject pronouns. Bayley and Pease-Álvarez (1996) elicited oral Spanish narratives from 76 Spanish-English bilingual children of Mexican descent in California. The children's ages ranged from 8 to 12 years. 26 of these children were born in Mexico; the other 50 were born in the United States. Four types of narratives were collected: children were asked to provide an autobiographical description, to narrate a picture book about a family of bears, to talk about the 1989 earthquake or the scariest thing that had happened to them, and to describe a picture. Results showed that overt pronouns occurred more often in Change Reference contexts than in Maintain Reference contexts, though null pronouns were more common in both contexts.

Bayley and Pease-Álvarez (1997) elicited written narratives from 47 of the child participants from the 1996 study. These children's narratives about the California

[36] Rossi et al. (2000:180) write that "a very limited number of null forms can create ambiguity in the texts of older children." Given their calculations, however, even their fifth graders' texts appear to include quite a few null subjects with ambiguous reference, especially among the Italian fifth graders. Then again, it is difficult to assess the relative frequency of these rates given that we do not know the rates of such ambiguous null subjects in the narratives of Italian and Catalan adults. Without an adult control group, statements such as "a limited number" or "rates remained high" are subjective. Still, it is safe to say that Italian fifth graders commonly produced null subjects with ambiguous reference, since their null subjects were more often ambiguous than not.

earthquake were analyzed along with written narratives about a memorable experience outside school. Table 3-10 presents the rates of overt subject pronouns in Change and Maintain Reference contexts for the children of Mexican descent. Rates of overt pronouns from adult data are repeated here for ease of comparison.

Table 3-10 Rates of overt subject pronoun expression in Change and Maintain Reference contexts in four cities, expressed in percents

Continuity of Reference	Mexican descent children		Adults				
	Oral narratives	Written narratives	L.A.	NYC A	NYC B	Madrid	San Juan
Change Reference	28	30	31	54	40	30	57
Maintain Reference	14	16	15	38	26	11	31

Notice that rates of overt subject pronouns in Change and Maintain Reference contexts were very similar for both the children and adults of Mexican descent (in L.A.), residing in the United States. Many of the adults and all of the children of Mexican descent were bilingual. It is possible that these rates would be different for monolingual Mexican adults and children.

Bayley & Pease-Álvarez performed multiple regression analyses, which showed that Change Reference was a significant predictor of overt pronouns, and Maintain Reference was a significant predictor of null pronouns in both studies. Also significant were person and number of the pronoun and sex. First person singular *yo* was the most frequent overt pronoun, followed by third person singulars *él/ella*. Females produced more overt pronouns than males. Since overt pronouns can serve to ease the interlocutors' referent-finding task, this might be an indication that girls are more sensitive to interlocutors' needs than boys are.

Both Bayley and Pease Álvarez studies indicate that Spanish-speaking children over the age of eight are sensitive to Continuity of Reference as a predictor of the alternation between overt and null subject pronouns. Unfortunately, no analysis was done to test the specific effects of Continuity of Reference on these children's expression of *él* and *ella*. Also, no comparison was made with a monolingual Spanish-speaking group of Mexican children, thus we do not know if the children's knowledge of English may have had an effect on their pronoun expression. Furthermore, the data used for these analyses were non-experimental. For each Change or Maintain Reference context, other accessibility factors may have affected overt and null subject pronoun selection. Thus the experimental work reported in the next chapter complements and adds to research on naturalistic production data by isolating one discourse factor.

5. Conclusion

For Spanish-speaking children to use overt and null third person singular subject pronouns in an adult-like way, their sensitivity to Continuity of Reference must develop. Since the preference for overt pronouns in Change Reference contexts and the preference for null pronouns in Maintain Reference contexts represent different types of communication skills, the pattern of development of sensitivity to each context may also be different. With respect to sensitivity to Change Reference contexts, children must acquire the ability to consider their interlocutor's information needs, since sometimes a null pronoun in these contexts will render a referent inaccessible. Although the research discussed in Section 3 indicates some early sensitivity to discourse, the research discussed in Section 4 suggests that children's egocentricity and difficulty with

intersentential anaphora are evident in the production of infelicitous referring expressions. The studies reviewed here suggest that the production of both ambiguous pronouns and infelicitous definite NPs dissipates around the same time in monolingual first language development, i.e., around age eight or nine. This change takes place at the same time children enter into what Piaget calls the Period of Concrete Operations, which is characterized by a decline in egocentric thinking.

With respect to the preference for null pronouns in Maintain Reference contexts, children must learn to avoid redundancy. The overuse of overt pronouns in these contexts certainly does not impede comprehension, thus the development of this preference should not be related to a decline in egocentricity. Bayley and Pease-Álvarez's studies suggest that Spanish-speaking children demonstrate sensitivity to the influence of both Change and Maintain Reference contexts on subject pronoun expression. However, as mentioned earlier, the effect of these contexts on third person singular subject pronouns is unclear. Furthermore, there is a dearth of experimental work related to Spanish-speaking children's overt and null pronoun preferences, making it difficult to draw conclusions about particular discourse factors or third person singular pronouns.

The goal of the present experimental study is to contribute to our understanding of the alternation between overt and null third person singular subject pronouns in Spanish. In particular, we attempt to isolate the effect of Change and Maintain Reference contexts. In particular, the experiment reported and discussed in the next two chapters aims to answer the following questions:

1. Is the adult preference pattern for null and overt pronouns in Maintain and Change Reference contexts demonstrable in an experimental paradigm?

2. Are monolingual Spanish-speaking children's pronoun preference patterns the same as those demonstrated by adults?

3. What is the course of development of discourse/pragmatic principles that influence the null vs. overt pronoun alternation in Spanish-speaking children?

CHAPTER 4
AN EXPERIMENTAL INVESTIGATION OF SENSITIVITY TO CONTINUITY OF REFERENCE: OVERT VS. NULL SUBJECT PRONOUN PREFERENCE IN MONOLINGUAL SPANISH

1. Introduction to the study

This chapter presents the results of a preference task conducted to test the effects of Continuity of Reference on Spanish-speaking children's overt and null subject pronoun selection.

2. Method

2.1 Participants

Child and teenager participants were recruited from El Colegio Fray Luís de León, a private Catholic school, in Querétaro, Mexico. Children received information fliers, followed by parental consent forms. Adult participants were recruited from the University of Querétaro Psychology Department. Fliers were distributed in introductory psychology classes. The researcher gave a small presentation before consent forms were distributed to describe the task and to request that only monolingual Spanish speakers participate. A total of 211 participants were interviewed. More specific information about participants will be included in Section 2.5 below.

2.2 Procedure and Materials

Prior to testing, items were reviewed by three adult native speakers of Spanish in Querétaro, Mexico. Several vocabulary items were changed based on these speakers'

judgments. The task was piloted with three five-year-old Mexican monolingual children in Querétaro.

Both child and adult participants were tested individually in a quiet room. Following standard human subject protocol, child participants were asked for their assent. The investigator used plastic dolls and toys from Fisher Price 'Little People' to act out short stories which culminated in a sentence presented in two versions. Participants were asked to choose the version they preferred. A digital audio recorder was used to record each session. Participants' responses were also manually recorded.

Participants were told that there were no incorrect responses. They were also told that the experimenter, a near-native speaker of Spanish, was a student and wanted to know more about Spanish. Child participants were informed that children tend to know a lot about their own language and, therefore, their expertise would be particularly helpful. Children were asked to think of themselves as the experimenter's 'teachers,' so as to reduce any anxiety about being asked questions about language and to reinforce the notion that there were no wrong responses. Sessions began with a brief training session which included practice items. Participants were then presented with 24 stories, which included 12 experimental and 12 filler items. The entire task generally lasted about 15 minutes. Upon completion of the task, children were given a small present and adults were paid 100 pesos.

2.2.1 Training session and practice items

Following Graziano-King and Cairns (2005), participants were told that sometimes one way of saying something sounds better to us than another. The notion of

variability was presented by discussing how we can say things in different ways. A few one-sentence preference items were presented, followed by three complete practice stories. If necessary, feedback was given about the nature of the task. Training session items appear in Appendix A.

2.2.2 Experimental Materials

The experimental items consisted of stories made up of three sentences. The first sentence introduced two characters (with full lexical NPs), a male character and a female character,[37] as in (1).

(1) *María y José cantan canciones.*
Maria and José sing songs.

In the second sentence, one of the two characters carried out an activity, as in (2).

(2a) *María canta una ranchera.*
Maria sings a ranchera.

In half the stories, the subject of the second sentence (2) was the same as the first conjunct of the subject in the first sentence (1), as demonstrated by example (2a). In the other half, the subject of the second sentence was the second conjunct of the subject in the first sentence, as demonstrated by example (2b).

(2b) *José canta una ranchera.*
José sings a ranchera.

[37] All experimental items (see Appendix B) included characters of different genders. This was done so that reference to the dolls was always clear. The use of the Fisher Price dolls also helped establish clear referents.

This was varied to prevent the order of the conjuncts in the first sentence from affecting the choice of referent for the third sentence.

The third sentence was manipulated to create a Change Reference or Maintain Reference environment. To create the former, the subject in sentence (3) was different from the subject in sentence (2). To create the latter, the subject in sentence (3) was the same as the subject in sentence (2). An example of a Change Reference environment is presented in (3a), and an example of a Maintain Reference environment is presented in (3b). For both these examples, we will assume that the second sentence in this story is (2a), repeated below for purposes of clarity.

(2a) *María canta una ranchera.*
Maria sings a ranchera.

(3a) *Luego **él** canta la de Pimpón* (él = José)
Later he sings the one about Pimpon.

(3b) *Luego **ella** canta la de Pimpón*[38] (ella = Maria)
Later she sings the one about Pimpon.

The third sentence consists of two options, an overt and a null subject personal pronoun, both of which were presented to the participants verbally. In other words, (3a) was verbally presented as (4a), and (3b) was presented as (4b).

(4a) *Luego él canta la de pimpón o Luego Ø canta la de Pimpón.*
Later he sings the one about pimpon or Later Ø sings the one about Pimpon.

(4b) *Luego ella canta la de pimpón o Luego Ø canta la de Pimpón.*
Later she sings the one about pimpon or Later Ø sings the one about Pimpon.

[38] *Pimpón* is a very popular children's song in Mexico.

In half of the items, the overt pronoun was presented first as in (4a) and (4b). In the other half, the null pronoun was presented first.

Recall that stress can reinforce change reference interpretations (see Chapter 2, Section 3.2.4). Since we wanted to know if the unstressed overt pronoun by itself is preferred for Change Reference contexts, overt pronouns were unstressed.

In these stories Change Reference rendered the overt subject pronoun more felicitous, whereas Maintain Reference rendered the null more felicitous. Only third person singular referents were used in the materials. The experimenter acted out the stories using dolls and toys so that Change and Maintain Reference contexts were clear. A complete list of experimental items appears in Appendix B.

Maintain and Change Reference contexts were counterbalanced across two Participant Groups, to which participants were randomly assigned. A counterbalancing variable was used in the analyses of variance. For the subject-based analyses, this variable was called Participant Groups, and for the item-based analyses, this variable was called Item Set.

2.2.3 Filler Materials

There were 12 filler items. Like the experimental items, the fillers were stories that consisted of three sentences. The filler stories tested participants' preferences for SV or VS word order. In Spanish, VS word order is more likely to occur when the subject NP has not been previously mentioned in the discourse (Bentivoglio & Weber, 1986).[39]

[39] For example, in (i), the speaker is discussing how adjusting to life in the U.S. was not difficult. Notice how, *mis primas*, "my cousins," is postverbal. This subject NP represents the first mention of the subject's cousins in this discourse.

The influential discourse factor here is similar to Continuity of Reference in that neither results in a categorical rule; both reflect a tendency in discourse.

The participants gave their preferences for SV or VS word order for the 12 fillers. The SV-VS manipulation was made between items. Fillers were, therefore, not counterbalanced across the two Participant Groups. For half the items, the subject NP in the third sentence (5c) was introduced in the first (5a) or second (5b) sentence. We will refer to these as 'Previous Mention.' For the other half, the NP was newly introduced in the third sentence (6c). We will refer to these as 'First Mention.'

(5) Previous Mention

a. *Los niños almuerzan.*
The children eat lunch.

b. *María se come una quesadilla.*
Maria eats a quesadilla.

(i) *Pero no se nos hizo difícil y aparte donde Ø vivíamos, como estaban **mis primas** aquí ya*
But not refl. us made difficult and besides where (we) lived, since were **my cousins** here already

antes, no fue tan difícil que Ø nos sentíamos solitas ni nada.
before,not was so difficult that (we) refl. felt alone nor nothing.

"But it wasn't hard for us and besides where we lived since my cousins were already here before, it wasn't so difficult that we felt alone or anything." (Otheguy & Zentella, 348M)

In example (ii), on the other hand, the bold-faced subject NP has been mentioned before (as the object of "with," see underlined NP) and it appears in the preverbal position.

(ii) *Nos la [la navidad] pasamos ahí en la casa con <u>mi mamá</u>, mis papás*
Refl it [Christmas] spent there in the house with <u>my mother</u>, my parents

*Hicieron chiles rellenos, sí,¡estuvo bien rico! Pasta, y **mi mamá** hizo*
(They) made chiles stuffed, yes, (it) was well rich! Pasta, and **my mother** made

unas conchas rellenas con jamón.
some conch filled with ham.

"We spent it [Christmas] there in the house with my mother, my parents. They made stuffed chiles, yeah, it was so good! Pasta, and my mom made some conch stuffed with ham." (348M)

c. *Para el postre, María pide un helado o Para el postre, pide María un helado*.
For dessert, Maria asks for ice-cream or For dessert, asks Maria for ice-cream.

(6) First Mention

a. *Por la tarde, los niños del pueblo salen a jugar.*
In the afternoon, the children from the town go out to play.

b. *Carlos juega fútbol.*
Carlos plays soccer.

c. *A las dos, le llama su mamá o a las dos, su mamá le llama*
At two, calls him his mom or At two, his mom calls him.

For the c. sentences, half the items were presented with the SV word order first, as in (5c); the other half were presented with the VS word order first, as in (6c). A complete list of filler items appears in Appendix C.

2.2.4 Narratives

After participants finished the experiment, they were asked to narrate a picture book, tell a story, or relate an anecdote. These narratives were analyzed to determine whether participants produced pronouns without clearly establishing referents. These analyses are reported in Appendix E.

2.3 Data Treatment

2.3.1 Coding

The following variables were coded for each participant: grade, age, and sex. The responses to experimental items were coded as null or overt, and the responses to filler items were coded as SV or VS. In addition, all items were coded along the following performance variables: clarification, attempt, and alteration.

- Clarification: The number of times the researcher presented the stimuli sentences was recorded.
- Attempt: The number of times participants offered their preferences was recorded. For example, if a participant changed her response, her final response was recorded as her preference, and the response was coded as having been attempted twice.
- Simple Alteration: If a participant changed or omitted any words when she verbally presented the sentence she preferred, this was recorded. Omissions of adverbial clauses were also permissible, and were recorded as alterations. A typical example of an altered sentence is presented in (7), where (7a) was the prompt, and (7b) was the participant's response.

(7a) *Después de comérselo, María regresa a casa.*
After eating it, Maria returns home.

(7b) *María regresa a casa.*
Maria returns home.

2.3.2 Excluded data

Responses to experimental items in which pronouns were left-dislocated, as in (8), were excluded from the analyses reported below.

(8) *Él, más tarde, brinca*
He, later, jumps.

Responses in which a full lexical NP was inserted instead of a null or overt pronoun were excluded. Responses were also excluded if the syntax was altered beyond a simple

shortening of extra material, as in (9), where (9a) was the prompt, and (9b) was a response from a third grader.

(9a) *Después de entrar, Ø se va a su clase o Después de entrar ella se va a su clase.*
After going inside, (she) goes to her class or After going inside she goes to her class.

(9b) *Después Ø entra y Ø se va a su clase. (302)*
After (she) goes inside and (she) goes to her class.

Missing data points due to participant error represented a minimal portion (1.2%) of the entire data set.

2.4 Statistical Methodology

Analyses of variance (ANOVAs) were performed on participant- and item-based summary calculations in a design that included the repeated measures variables Pronoun Type (null, overt) and Discourse Context (Maintain Reference, Change Reference). A between-groups variable, Age Groups, consisted of seven levels: the six different grades for children, plus adults. An additional between-groups variable, Design Groups (Participant Groups in the participant-based analysis, Item Set in the item-based analyses), was also included in the analyses. Design Groups had two levels for both types of analyses. Participant-based analyses were performed on raw data, while item-based analyses were performed on proportions.

2.5 Participants: Criteria for inclusion

A total of 211 participants were interviewed. Children and teenagers were grouped by grade. Table 4-1 presents, for each age group, the number of people interviewed, the mean age, and the number of males and females.

Table 4-1 Distribution of participants interviewed, by age group

Age groups	N	Mean age	% Males	% Females
First grade	45	6;86	49	51
Third grade	37	9;23	51	49
Fifth grade	36	11;04	50	50
Seventh grade	20	12;78	45	55
Eighth grade	11	13;82	73	27
Ninth grade	32	14;7	28	72
Adults	30	21;53	47	53
Total	211	12.85	47	53

2.5.1 Excluded: C1ers and C2ers

Some participants seemed to be employing a recency strategy by selecting the last option presented to them, rather than comparing the two options given and providing their preferences for overt or null pronouns. For example, if presented with (10), such a participant almost always chose option C_2.

(10) A. *María y José cantan canciones.*
Maria and José sing songs.

B. *María canta una ranchera.*
Maria sings a ranchera.

C_1. *Luego* ***ella*** *canta la de Pimpón*
Later she sings the one about pimpon

C_2 *Luego* ***Ø*** *canta la de Pimpón.*
Later (she) sings the one about Pimpon

These participants, if presented with (10), but with the options in C_2 reversed in order, would choose the option with the overt pronoun. We will refer to these participants as 'C2ers' because they always chose option C_2 of the two options presented in sentence C. Some of these children even included the disjunction *o* 'or' in their responses, demonstrating that they were simply mimicking the second option. Participants were considered C2ers if they chose C_2 for at least 80% of their responses to experimental items. Some C2ers also chose option C_2 for 80% of their responses to filler items, but many did not. We focus on responses to experimental items only for our exclusion criteria. There were also two 'C1ers,' who were excluded as well. In all, 30 C2ers/C1ers were excluded (see Table 4-2 below).

2.5.2 Excluded: Bilinguals

Two ninth graders were relatively fluent in English, as determined by their language histories and their ability to converse with the researcher, a native speaker of English. One had spent many years in the United States, and the other had attended an English-Spanish bilingual school in Mexico City. They were, therefore, excluded from the analyses.

2.5.3 Summary of excluded participants

A total of 32 participants were excluded. Table 4-2 presents, for each age group, the number of participants excluded.

Table 4-2 Excluded participants, by age groups

Age groups	C1ers	C2ers	Bilinguals	Total
First grade	1	14	0	15
Third grade	1	8	0	9
Fifth grade	0	4	0	4
Seventh grade	0	0	0	0
Eighth grade	0	1	0	1
Ninth grade	0	1	2	3
Adults	0	0	0	0
Total	2	28	2	32

After all exclusions, a total of 179 participants remained. The total number of participants included in the analyses are presented in Table 4-3, as well as mean ages and the distribution of females and males.

Table 4-3 Included participants, by age groups.

Age groups	N participants	Mean Age	% Males	% Females
First grade	30	6;8	40	60
Third grade	28	9;2	50	50
Fifth grade	32	11;0	50	50
Seventh grade	20	12;8	45	55
Eighth grade	10	13;8	80	20
Ninth grade	29	14;7	28	72
Adults	30	21;5	47	53
Total	179	12;7	45	55

The analyses in this chapter include responses from all 179 participants in Table 4-3.

2.5.5 Included: Overters and Nullers

Some participants preferred overt pronouns or null pronouns, regardless of discourse context. We call the former ‘Overters’ and the latter ‘Nullers.’ Nullers and Overters (henceforth N/Os) were included in the analyses reported in this chapter.

Nullers were identified as participants who preferred null pronouns in at least 80% of their responses. Overters preferred overt pronouns in at least 80% of their responses. Out of 179 participants, 28% were N/Os. The distribution of N/Os in different age groups is presented in Table 4-4.

Table 4-4 N/Os distributed among age groups

Age group	N	%
First grade	9	30
Third grade	12	43
Fifth grade	10	31
Seventh grade	5	25
Eighth grade	4	40
Ninth grade	7	24
Adults	4	13
Total	51	28

N/Os were included in the analyses in this chapter because their responses indicated preferences for pronoun type, unlike the responses from C2ers and C1ers. On the other hand, Overters are very different from Nullers. Overters prefer redundant pronouns that provide extra information, whereas Nullers prefer pronoun omission, even when this results in ambiguity. An examination of N/Os, as well as a separate data analysis for which N/Os are excluded, appear in Appendix D.

3. Results

3.1 Omnibus analysis

When analyzed as a whole group, monolingual Spanish-speaking participants in Querétaro, Mexico (N = 179) responded to the preference task as predicted. Overt pronouns were preferred in Change Reference contexts and null pronouns were preferred

in Maintain Reference contexts. Table 4-5 presents the mean percent of overt and null responses for each Discourse Context.[40]

Table 4-5 Mean percent of responses by Pronoun Type as a function of Discourse Context, N=179

Context	Overt	Null
Change Reference	70	29
Maintain Reference	43	56

The results indicate a greater preference for overt pronouns in Change Reference (70%) than for null pronouns in Maintain Reference contexts (56%).

A 2 (Pronoun Type) by 2 (Discourse Context) by 7 (Age Groups) by 2 (Design Groups) ANOVA was performed. While both main effects of variables and interactions will be reported, the relevant interactions are the two-way interaction of Pronoun Type by Discourse Context and the three-way interaction of Pronoun Type by Discourse Context by Age Groups. The former tells us if the pattern in Table 4-5 is significant, and the latter tells us if this pattern varies significantly by age group.

2 (Pronoun Type) by 2 (Discourse Context) by 7 (Age Groups) by 2 (Design Groups) ANOVA

The interaction of Pronoun Type by Discourse Context was highly significant by participants [$F_1(1,165) = 147.91$, $p < .0001$] and by items [$F_2(1,10) = 81.53$, $p < .0001$]. The three-way interaction of Pronoun Type by Discourse Context by Age Groups was also highly significant by participants [$F_1(6,165) = 11.37$, $p < .0001$] and by items [$F_2(6,60) = 11.64$, $p < .0001$]. Since the three-way interaction was significant, the two-

[40] The percentages reported in the tables in the results section often do not add up to 100 due to excluded data points. See Chapter 4, Section 2.3.2 for more information on excluded data.

way interaction, Pronoun Type by Discourse Context, was analyzed for each age group in isolation; those results are presented below in Section 3.2.

The four-way interaction of Pronoun Type by Discourse Context by Age Groups by Design Groups was significant by participants [$F_1(6,165) = 2.84$, $p = .012$] and by items [$F_2(6,60) = 3.57$, $p = .004$], indicating that Design Groups had slightly different effects at different age levels. Nonetheless, the pattern of results was consistent for both Design Groups. The interaction of the Design Groups variable with the other variables will be discussed briefly at the end of this chapter.

The main effect of Age Groups was significant by participants [$F_1(6,165) = 2.61$, $p = .02$] and by items [$F_2(6,60) = 2.72$, $p = .02$]. This effect is a result of the fact that differential numbers of missing data points resulted in very slight mean differences among the age groups. The patterns for each age group are presented separately in the subsections that follow; direct comparisons between the groups are also reported later on.

The main effect of Design Groups was not significant by participants [$F_1(1,165) = 2.93$, $p = .09$] or by items [$F_2(1,60) = .16$, $p = .67$]. The main effect of Pronoun Type was significant by participants [$F_1(1,165) = 18.85$, $p < .0001$] and by items [$F_2(1,60) = 14.71$, $p = .003$]. This reflects the greater overall preference for overt (57%) over null (42%)[41] pronouns, disregarding Discourse Context or Age Groups. When Nullers and Overters were removed from the analyses, there was no main effect of Pronoun Type (see Appendix D).

There was no main effect of Discourse Context by participants or by items

[41]The final 1% were excluded data points.

[F_1, $F_2 < 1$]. Participants responded to the same number of stories in each of the two discourse contexts; thus, any difference between the means would be due to differential numbers of participant errors. Apparently, neither context significantly triggered more errors than the other. Discourse Context will not be explored for Age Group analyses.

The phenomenon of interest in this study has two ramifications. We anticipated more overt pronouns in the Change Reference context and more null pronouns in the Maintain Reference context. As demonstrated by the means in Table 4-5 above, this prediction was confirmed. However, it should be noted that the effects for the Change Reference context were numerically larger than those for the Maintain Reference context.

To test each of these effects, we performed two-tailed correlated sample *t*-tests comparing overt vs. null pronoun selection in the Discourse Contexts. In the Change Reference context the 41% difference in favor of overt pronouns was highly reliable by participants [$t_1(178) = -9.7$, $p = < .0001$] and by items [$t_2(83) = -9.99$, $p < .001$]. In the Maintain Reference context, the 13% difference in favor of null pronouns was smaller in size but was nonetheless also reliable by participants [$t_1(178) = 2.97$, $p = .003$] and by items [$t_2(83) = 2.56$, $p = .012$].

3.2 Age effects

To explore the significant Age Groups by Pronoun Type by Discourse Context interaction, we analyzed each age group separately. For each age group, a 2 (Pronoun Type) by 2 (Discourse Context) by 2 (Design Groups) ANOVA was performed to explore the interaction between discourse context and pronoun type. Main effects and other interactions will also be reported, but the main interaction of interest is Pronoun

Type by Discourse Context. Correlated sample *t*-tests were also performed comparing overt vs. null pronoun selection for each discourse context.

3.2.1 First Graders

First graders' responses followed the same general pattern presented in Table 4-5 above: they preferred overt pronouns in Change Reference contexts and null pronouns in Maintain Reference contexts. Table 4-6 below presents the mean percent of overt and null preferences for each Discourse Context.

Table 4-6 Mean percent of responses by Pronoun Type as a function of Discourse Context for first graders, N=30

Context	Overt	Null
Change Reference	51	47
Maintain Reference	41	57

The general pattern was much less dramatic for first graders than it was for the collective participant group (Table 4-5). For example, the mean percent of first graders' responses for Change Reference contexts was close to 50% for both overt and null responses, while for the participant group as a whole it was 70% for overt pronouns and 29% for null pronouns. Also, unlike all the other age groups (discussed below), first graders' preference for null pronouns in the Maintain Reference context was greater than their preference for overt pronouns in the Change Reference context. This larger effect for the Maintain Reference context disappears when Nullers and Overters are excluded (see Appendix D).

2 (Pronoun Type) by 2 (Discourse Context) by 2 (Design Groups) ANOVA

For the first graders, the interaction of interest, Pronoun Type by Discourse Context, was significant by participants [$F_1(1,28) = 5.52$, $p = .026$], but only approached significance by items [$F_2(1,10) = 4.09$, $p = .07$]. Thus, even though the interaction was significant by participants, the differences in mean percent of overt and null responses were small.

The main effect of Pronoun Type was not significant by participants or by items [F_1, $F_2 < 1$], nor was the main effect of Design Groups by participants [$F_1(1,28) = 3.57$, $p = .07$] or by items [$F_2 < 1$]. For the participant-based analyses, the interaction of Design Groups by Pronoun Type was not significant [$F_1 < 1$], but the interaction of Design Groups by Pronoun Type by Discourse Context was significant [$F_1(1,28) = 20.34$, $p < .0001$]. For the item-based analyses, the interaction of Design Groups by Pronoun Type was significant [$F_2(1,10) = 5.93$, $p < .05$], but the three–way interaction of Design Groups by Pronoun Type by Discourse Context was not [$F_2(1,10) = 1.58$, $p = .24$].

Correlated Sample t-test

In the Change Reference context, the difference of 4 percentage points was not significant by participants or by items. In the Maintain Reference context, the difference of 16 percentage points was not significant by participants or by items. Thus, despite the significant interaction of Pronoun Type by Discourse Context in the ANOVA, pronoun differences in each context were too small to reach significance by *t*-test.

3.2.2 Third Graders

Third graders preferred overt pronouns in Change Reference contexts. They did not, however, follow the general pattern (Table 4-5) for the Maintain Reference contexts; instead of null pronouns, overt pronouns were preferred in these contexts. Table 4-7 below presents the mean percent of third graders' overt and null preferences for each Discourse Context.

Table 4-7 Mean percent of responses by Pronoun Type as a function of Discourse Context for third graders, N=28

Context	Overt	Null
Change Reference	64	32
Maintain Reference	51	47

Though overt pronouns were preferred for both contexts, the preference was greater in Change Reference contexts.

2 (Pronoun Type) by 2 (Discourse Context) by 2 (Design Groups) ANOVA

For the third graders, the relevant interaction, Pronoun Type by Discourse Context, was significant by subjects [$F_1(1,26) = 7.97$, $p = .009$] and by items [$F_2(1,10) = 5.34$, $p = .04$]. The main effect of Pronoun Type was not significant by participants [$F_1(1,26) = 3.11$, $p = .09$] or by items [$F_2(1,10) = 3.16$, $p = .11$]. The main effect of Design Groups was not significant by participants [$F_1 < 1$] or by items [$F_2(1,10) = 2.89$, $p = .12$]. For the participant-based analyses, the interaction of Design Groups by Pronoun Type was significant [$F_1(1,26) = 8.03$, $p = .009$], as was the three-way interaction, Design Groups by Pronoun Type by Discourse Context

[$F_1(1,26) = 5.54$, $p = .026$]. For the item-based analyses, the Design Groups variable did not participate in any interactions.

Correlated sample t-test

In the Change Reference context, the difference of 32 percentage points was significant by participants [$t_1(27) = -3.41$, $p < .005$] and by items [$t_2(11) = -2.87$, $p = .016$]. In the Maintain Reference context, the difference of 4 percentage points was not significant by participants or items. Thus, pronoun selection was significant for Change Reference, but not Maintain Reference contexts. Third graders, therefore, differed from first graders with respect to Change Reference contexts.

3.2.3 Fifth Graders

Fifth graders preferred overt pronouns in Change Reference Contexts and null pronouns in Maintain Reference Contexts. Table 4-8 below presents the means for each Discourse Context.

Table 4-8 Mean percent of responses by Pronoun Type as a function of Discourse Context for fifth graders, N=32

Context	Overt	Null
Change Reference	65	34
Maintain Reference	46	53

As was the case for the third graders, the difference between overt and null responses in Change Reference contexts was greater than the one in Maintain Reference contexts. The difference in percentage points for Change Reference contexts was almost the same for

fifth and third graders. Unlike the third graders, however, fifth graders followed the expected pattern for Maintain Reference, preferring null pronouns in these contexts.

2 (Pronoun Type) by 2 (Discourse Context) by 2 (Design Groups) ANOVA

For the fifth graders, the relevant interaction, i.e., the Pronoun Type by Discourse Context was significant by subjects [$F_1(1,30) = 11.66$, $p = .002$] and by items [$F_2(1,10) = 14.2$, $p = .004$]. The main effect of Pronoun Type was not significant by participants [$F_1(1,30) = 2.35$, $p = .14$] or by items [$F_2(1,10) = 4.28$, $p = .07$], nor was there a main effect for Design Groups by participants or by items [F_1, $F_2 < 1$]. The interaction of Participant Groups by Pronoun Type was not significant [$F_1(1,30) = 1.28$, $p = .27$], but the three-way interaction of Participant Groups by Pronoun Type by Discourse Context was significant [$F_1(1,30) = 12.41$, $p = .001$]. The interaction of Item Set by Pronoun Type was significant [$F_2(1,10) = 8.22$, $p = .02$]. The three-way interaction of Item Set by Pronoun Type by Discourse Context was not [$F_2(1,10) = 4.26$, $p = .07$].

Correlated sample t-tests

In the Change Reference context the 31 percentage point difference was significant by participants [$t_1(31) = -3.31$, $p < .005$] and by items [$t_2(11) = -3.22$, $p = .008$]. In the Maintain Reference context, the 7 percentage point difference was not significant by participants or items. Thus, just as was observed for the third graders, pronoun selection was significant for Change Reference, but not Maintain Reference contexts.

3.2.4 Seventh Graders

Seventh graders preferred overt pronouns in Change Reference contexts and null pronouns in Maintain Reference contexts. Table 4-9 presents the means of overt and null responses for each Discourse Context.

Table 4-9 Mean percent of responses by Pronoun Type as a function of Discourse Context for seventh graders, N=20

Context	Overt	Null
Change Reference	64	35
Maintain Reference	49	51

The seventh graders followed the general pattern in Table 4-5 above; however, just like the fifth graders, the preference for overt pronouns in Change Reference contexts was greater than the preference for null pronouns in Maintain Reference contexts. The difference in percentage points for Change Reference contexts (29) is similar to this difference in fifth graders' responses (31) and third graders' responses (32).

2 (Pronoun Type) by 2 (Discourse Context) by 2 (Design Groups) ANOVA

For the seventh graders, the relevant interaction, Pronoun Type by Discourse Context was significant by participants [$F_1(1,18) = 9.53$, $p = .006$] and approached significance by items [$F_2(1,10) = 4.66$, $p = .056$].

The main effect of Pronoun Type was not significant by participants [$F_1(1,18) = 1.36$, $p = .26$], but was significant by items [$F_2(1,10) = 5.69$, p = .04]. There was no main effect of Design Groups by participants [$F_1(1,18) = 1.00$, $p = .33$] or by items [$F_2(1,10) = 1.00$, $p = .34$]. This variable did not participate in any interactions in either the participant- or item-based analyses.

Correlated sample t-tests

The 29 percentage point difference in the Change Reference context (see Table 4-9) was significant by participants [$t_1(19) = -2.32$, $p < .05$] and by items [$t_2(11) = -3.02$, $p = .012$]. In the Maintain Reference context, the 2 percentage point difference (see Table 4-9) was not significant by participants or by items. Seventh graders, therefore, patterned with third and fifth graders in that pronoun selection was significant for Change Reference contexts, but not Maintain Reference contexts.

3.2.5 Eighth Graders

Like first, third, fifth, and seventh graders, eighth graders preferred overt pronouns in Change Reference contexts. For Maintain Reference contexts, however, eighth graders were more like third graders in that they preferred overt over null pronouns in these contexts. Table 4-10 presents means of overt and null responses for each Discourse Context.

Table 4-10 Mean percent of responses by Pronoun Type as a function of Discourse Context for eighth graders, N=10

Context	Overt	Null
Change Reference	88	12
Maintain Reference	52	47

Similar to third, fifth, and seventh graders, the difference between the mean percent of Pronoun Type was greater in the Change Reference contexts than the Maintain Reference context. Eighth graders' responses for Change Reference contexts were different from the younger age groups in that the difference in percentage points for overt and null

pronouns (76) was dramatically higher than it was for first (4), third (32), fifth (31), and seventh graders (29).

2 (Pronoun Type) by 2 (Discourse Context) by 2 (Design Groups) ANOVA

The relevant interaction, Pronoun Type by Discourse Context, was significant by participants [$F_1(1,8) = 12$, $p = .009$] and by items [$F_2 (1,10) = 46.93$, $p < .0001$]. The main effect of Pronoun Type was significant by participants [$F_1(1,8) = 12.25$, $p = .008$] and by items [$F_2(1,10) = 30.86$, $p < .0001$]. This was due to the abundance of Overters in this age group. Out of 10 participants, four were Overters. Out of 119 total responses, 84 (71%) were overt pronouns. The main effect of Pronoun Type and the preference for overt pronouns in Maintain Reference contexts disappeared when Overters were excluded (see Appendix D).

There was no main effect of Design Groups by participants [$F_1(1,8) = 1$, $p = .35$] or by items [$F_2(1,10) = 1$, $p = .34$]. For the participant-based analyses, Participant Groups did not participate in any interactions. The interaction Item Set by Pronoun Type was significant [$F_2(1,10) = 6.8$, $p = .03$], as was the interaction Item Set by Pronoun Type by Discourse Context [$F_2(1,10) = 9.16$, $p = .01$].

Correlated sample t-tests

In the Change Reference context, the 76 percentage point difference was significant by participants [$t_1(9) = -6.87$, $p < .0001$] and by items [$t_2(11) = -12.98$, $p < .0001$]. In the Maintain Reference context, the 5 percentage point difference was not significant by participants or by items. Just as was observed for third,

fifth, and seventh graders, pronoun selection was significant for Change Reference, but not Maintain Reference contexts.

3.2.6 Ninth Graders

Ninth graders preferred overt pronouns in Change Reference contexts and null pronouns in Maintain Reference contexts. Once again, the preference was stronger for the former than for the latter. Table 4-11 presents the means of overt and null responses for each discourse context.

Table 4-11 Mean percent of responses by Pronoun Type as a function of Discourse Context for ninth graders, N=29

Context	Overt	Null
Change Reference	84	16
Maintain Reference	41	58

Similar to third, fifth, seventh, and eighth graders, the difference between the mean percent of Pronoun Type was greater in the Change Reference contexts than the Maintain Reference context. Ninth graders' difference in percentage points for overt and null pronouns in the Change Reference context (68) was similar to the finding for eighth graders (76) in that it was dramatically higher than this difference was for younger age groups.

2 (Pronoun Type) by 2 (Discourse Context) by 2 (Design Groups) ANOVA

The relevant interaction, Pronoun Type by Discourse Context, was significant by participants [$F_1(1,27) = 61.36$, $p < .0001$] and by items [$F_2(1,10) = 74.95$, $p < .0001$]. The main effect of Pronoun Type was significant by participants

[$F_1(1,27) = 14.74$, $p = .001$] and by items [$F_2(1,10) = 22.31$, $p < .0001$]. This was due to a large number of Overters in this age group. Out of 29 participants, 7 (24%) were Overters. Out of 347 total responses, 218 (64%) were overt pronouns. When Overters and Nullers were excluded from the analyses, this main effect disappeared (see Appendix D). There was no main effect of Design Groups by participants [$F_1 < 1$] or by items [$F_2(1,10) = 1$, $p = .34$], nor did these variables participate in any interactions.

Correlated sample t-tests

In the Change Reference context, the 68 percentage point difference was significant by participants [$t_1(28) = -9.54$, $p < .0001$] and by items [$t_2(11) = -8.86$, $p < .0001$]. The 17 percentage point difference in Maintain Reference context was not significant by participants [$t_1(28) = 1.73$, ns], but was significant by items [$t_2(11) = 2.49$, $p = .03$]. Ninth graders, then, patterned with third, fifth, seventh, and eighth graders for Change Reference contexts. For Maintain Reference contexts, however, ninth graders were different from the other child participant groups: overt and null pronoun selection was significant by items (though not by participants[42]).

3.2.7 Adults

Adults preferred overt pronouns in Change Reference contexts and null pronouns in Maintain Reference contexts. Table 4-12 presents the means of overt and null responses for each discourse context.

[42] When Overters were removed, the participant-based *t*-test was highly significant for Maintain Reference contexts (see Appendix D).

Table 4-12 Mean percent of responses by Pronoun Type as a function of Discourse Context for adults, N=30

Context	Overt	Null
Change Reference	83	17
Maintain Reference	27	72

As was the case for the other groups, the adults' preference for overt pronouns in Change Reference contexts was stronger than their preference for null pronouns in Maintain Reference context. The difference in percentage points for overt and null pronouns in the Change Reference context for adults (66) was greater than that difference for first, third, fifth, and seventh graders, but a few points lower than it was for eighth graders (76) and ninth graders (68). The preference for null pronouns in Maintain Reference contexts (45 percentage point difference) was much more dramatic for adults than for any other age group.

2 (Pronoun Type) by 2 (Discourse Context) by 2 (Design Groups) ANOVA

For the adults, the relevant interaction, Pronoun Type by Discourse Context, was significant by subjects [$F_1(1,28) = 87.15$, $p < .0001$] and by items [$F_2\ (1,11) = 71.91$, $p < .0001$]. The main effect of Pronoun Type was not significant by participants [$F_1(1,28) = 2.27$, $p = .14$], but was significant by items [$F_2(1,10) = 6.88$, $p = .025$]. There was no main effect of Design Groups by participants [$F_1(1,28) = 1.00$, $p = .33$] or by items [$F_2(1,10) = 1.00$, $p = .34$]. For the participant-based analyses, the interaction of Participant Groups by Pronoun Type was not significant [$F_1 < 1$]. The three-way interaction of Participant Groups by Pronoun Type by Discourse Context, however, was significant [$F_1(1,28) = 6.06$, $p = .02$]. Item Set did not participate in any interactions.

Correlated sample t-tests

In the Change Reference context, the 66 percentage point difference was significant by participants [$t_1(29) = -7.75$, $p < .0001$] and by items [$t_2(11) = -6.92$, $p < .0001$]. In the Maintain Reference context, the 45 percentage point difference was significant by both participants [$t_1(29) = 4.28$, $p < .0001$] and items [$t_2(11) = 5.91$, $p < .0001$]. Unlike the results for the child groups, pronoun selection was highly significant for both discourse contexts.

3.3 Differences among age groups

As demonstrated in the previous section, age groups differed in their preferences for overt and null pronouns. We now focus on the preference for overt pronouns in Change Reference contexts and null pronouns in Maintain Reference contexts, since these preferences follow the expected pattern. For purposes of clarity, means for these preferences reported in Tables 4-6 through 4-12 are repeated in Table 4-13.

Table 4-13 Mean percent of overt pronoun responses in Change Reference contexts and null pronoun responses in Maintain Reference contexts by Age Group

Age Groups	Overt pronouns Change Reference	Null pronouns Maintain Reference
First grade	51	57
Third grade	64	47
Fifth grade	65	53
Seventh grade	64	51
Eighth grade	88	47
Ninth grade	84	58
Adults	83	72

The results reported in Section 3.2 above and repeated here in Table 4-13 demonstrate very clearly that the preference for overt pronouns in Change Reference contexts increases with age. So too the preference for null pronouns in Maintain Reference contexts, but this change occurs later.

To analyze whether age groups differed from each other significantly with respect to the Pronoun Type by Context interaction, a variable was created to measure how close participants came to perfect scores on the preference task. We call this variable "match." Match is the sum of total preference for overt pronouns in Change Reference contexts and null pronouns in Maintain Reference contexts. If, for example, a participant preferred overt pronouns five times in Change Reference contexts and null pronouns three times in Maintain Reference contexts, her score for "match" was eight. The highest possible score for "match" is 12, so a match score of eight is expressed as 67 percent. Table 4-14 presents means of Match scores, expressed in percentages for each age group.

Table 4-14 Means of Match scores

Age Group	Match means
First grade	54
Third grade	55
Fifth grade	59
Seventh grade	58
Eighth grade	68
Ninth grade	71
Adults	78

A one-way ANOVA of the Match score data used Age Group as the independent variable. The Main Effect of Age was significant by participants [$F_1(6,172) = 9.67$, $p < .0001$].

A post-hoc Tukey test was performed to explore the significance of the differences among the age groups. The results from the post-hoc test are presented in Table 4-15 below.

Table 4-15 Significant differences of match scores between age groups from the post hoc Tukey test

Grade	1	3	5	7	8	9	Adults
1	X	NS	NS	NS	NS	***	****
3		X	NS	NS	NS	**	****
5			X	NS	NS	*	****
7				X	NS	NS	****
8					X	NS	NS
9						X	NS
Adults							X

*$p < .05$
**$p < .01$
***$p < .001$
****$p < .0001$

First, third, and fifth graders differed significantly from ninth graders and adults, but not from each other. Seventh graders differed from adults only. Eighth graders did not differ from any age group. Ninth graders and adults differed significantly from the other groups, except the eighth graders. Although the difference between ninth graders and adults was not significant, it is clear that the difference between the adults and the other groups was more robust than the difference between the ninth graders and the other groups. The means in Table 4-14 demonstrate a general progression towards adulthood with respect to sensitivity to discourse context; the most dramatic change occurs in the ninth grade.

3.4 Change Reference contexts in isolation

3.4.1 Sensitivity to Change Reference contexts increases with age

In the analyses presented above, *t*-tests of each age group's responses revealed different patterns for Change Reference and Maintain Reference contexts. This warrants a closer analysis of each context in isolation. Means of preferences for overt and null pronouns are presented in Figure 4-1.

Figure 4-1 Mean percents of Overt and Null Pronouns in Change Reference Environments, by Age Groups

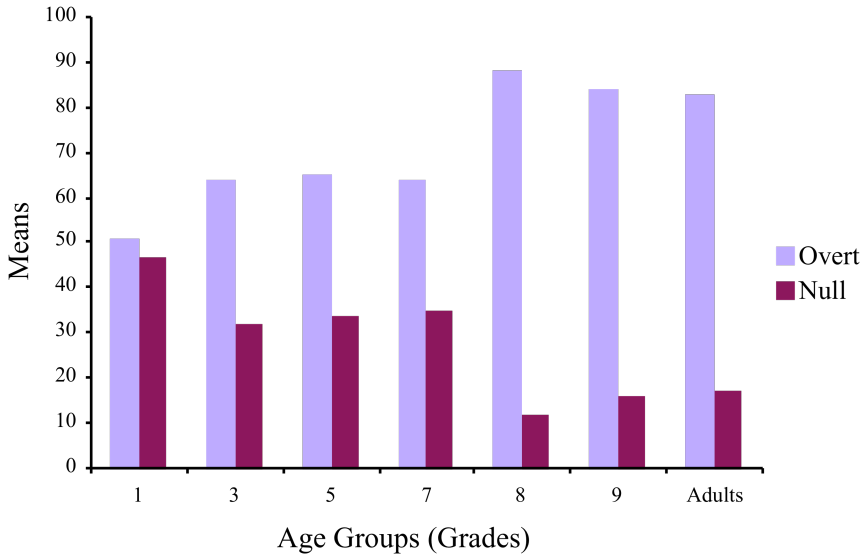

Figure 4-1 indicates a developmental change from first grade to third grade, and then another one from seventh grade to eighth grade.

A one-way ANOVA was performed for the Change Reference context in isolation using preference for overt pronouns as the dependent variable and Age Groups as the

independent variable. The main effect of age was significant by participants [$F_1(6,178) = 6.7$, $p < .0001$] and by items [$F_2(6,1085) = 2.73$, $p = .012$].

3.4.2 Change Reference Environments: age groups compared to each other

In order to determine which differences between the age groups were reliable, a post-hoc Tukey test was performed using the participant-based analysis. The results, presented in Table 4-16, show that the only significant difference was between the first graders on the one hand, and the eighth graders, ninth graders and adults, on the other.

Table 4-16 Differences in preference for overt pronouns in Change Reference contexts between age groups from the post hoc Tukey test

Age Group	1	3	5	7	8	9	Adults
First graders	X	NS	NS	NS	**	****	****
Third graders		X	NS	NS	NS	NS	NS
Fifth graders			X	NS	NS	NS	NS
Seventh graders				X	NS	NS	NS
Eighth graders					X	NS	NS
Ninth graders						X	NS
Adults							X

*$p < .05$
**$p < .01$
***$p < .001$
****$p < .0001$

Table 4-16 demonstrates that first graders significantly differed from eighth and ninth graders and adults. Third, fifth, and seventh graders did not differ significantly from any group. These results support the observation that a developmental change in sensitivity to Change Reference contexts occurs between the first and third grades (see Figure 4-1) since first graders, but not third graders differed significantly from the older children and adults. Similarly, the results support a second developmental change between the seventh

and eighth grades (see Figure 4-1) since eighth graders, but not seventh graders, differed significantly from first graders.

3.5 Maintain Reference contexts in isolation

3.5.1 Sensitivity to Maintain Reference contexts by age groups

Preference for null pronouns in Maintain Reference contexts increased with age, but the observed change was not incremental. Recall that the only significant result for correlated *t*-tests for Maintain Reference contexts was for the adults and the ninth graders (by items only). Figure 4-2 presents means of scores of overt and null pronouns in Maintain Reference contexts.

Figure 4-2 Mean percents of Overt and Null Pronouns in Maintain Reference Contexts, by Age Groups

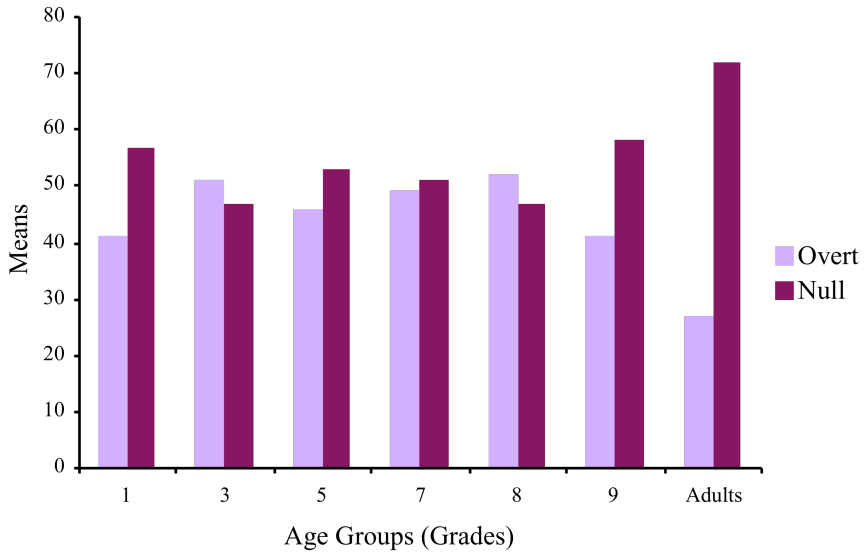

Figure 4-2 demonstrates that all but two groups (third and eighth graders) preferred null pronouns in Maintain Reference contexts. The trend for the other groups does not indicate any developmental change until the ninth grade and, then, once again in adulthood.

A one-way ANOVA was performed for the Maintain Reference context in isolation using preference for null pronouns as the dependent variable and Age Groups as the independent variable. The main effect of age was significant by participants [$F_1(6,178) = 2.3$, $p = .037$] and by items [$F_2(6,1085) = 2.22$, $p = .039$].

3.5.2 Maintain Reference Contexts: age groups compared to each other

To explore the differences among age groups, a post-hoc Tukey test was performed on the participant-based one-way ANOVA from section 3.5.1 above. There were no significant differences between age groups, except for the difference between third graders and adults ($p = .024$). Therefore, although the means in Figure 2 showed a developmental change in the ninth grade, the significant change occurred in adulthood.

3.6 Sex

3.6.1 Change Reference contexts

For every grade, females preferred more overt pronouns in Change Reference contexts than males. Means of these scores are presented Table 4-17.

Table 4-17 Mean percent of overt responses in Change Reference contexts by sex and age group

Age Group	Males	Females
First grade	39	59
Third grade	61	67
Fifth grade	59	71
Seventh grade	59	68
Eighth grade	86	100
Ninth grade	77	87
Adults	77	89
Total	79	84

A 2 (Pronoun Type) x 7 (Grade) x 2 (Sex) ANOVA was performed for participant-based data for Change Reference contexts alone. The main effect of Grade was significant [$F_1(6,165) = 3.6$, $p = .002$], as was the main effect of Pronoun Type [$F_1(1,165) = 91.94$, $p < .0001$]. The main effect of Sex, however, was not significant [$F_1 < 1$].

The two-way interaction of Pronoun type by Sex was significant [$F_1(1,165) = 6.32$, $p = .013$]. The three-way interaction of Pronoun Type by Sex by Grade was not significant [$F_1 < 1$], indicating that even though there was a significant difference between males and females overall, this difference was not mediated by age groups. This finding is not surprising given that the mean preference for overt pronouns in Change Reference contexts was higher for females than males at every age level (see Table 4-17).

3.6.2 Maintain Reference contexts

In every age group except the eighth grade and adults, males preferred more null pronouns in Maintain Reference contexts than females. Means of these scores are presented Table 4-18.

Table 4-18 Mean percent of null responses in Maintain Reference contexts by sex and age group

Age Group	Males	Females
First grade	68	50
Third grade	48	47
Fifth grade	57	48
Seventh grade	56	47
Eighth grade	46	50
Ninth grade	63	56
Adults	63	80
Total	57	55

A 2 (Pronoun Type) x 7 (Grade) x 2 (Sex) ANOVA was performed for participant-based data for Maintain Reference contexts alone. The main effect of Grade was not significant [$F_1(6,165) = 1.23$, $p = .28$], nor was the main effect of Sex [$F_1(1,165) = 2.06$, $p = .15$]. The main effect of Pronoun Type was significant [$F_1(1,165) = 5.79$, $p = .017$].

The two-way interaction of Pronoun type by Sex was not significant [$F_1 < 1$]. The three-way interaction of Pronoun Type by Sex by Grade was not significant [$F_1 < 1$]. Thus the mean differences between males and females in Table 4-18 were not significant.

3.7 Design Groups

Design Groups was a variable that arose from counterbalancing context across the stories. For the sub-variable Participant Groups (used in the participant-based analyses), if a particular item appeared in a Change Reference context for Participant Group A, it appeared in a Maintain Reference context for Participant Group B. Recall that the four-way interaction Pronoun Type by Discourse Context by Age by Participant Groups was significant [$F_1(6,165) = 2.84$, $p = .012$]. To explore this interaction, a 2 (Participant

Groups) x 2 (Pronoun) x 2 (Context) ANOVA was done for each age group. It was significant for first graders [$F_1(1,28) = 20.34$, $p < .0001$], for third graders [$F_1(1,26) = 5.54$, $p = .026$], for fifth graders [$F_1(1,30) = 12.41$, $p = .001$, and for adults [$F_1(1,28) = 6.06$, $p = .02$]. For first graders, third graders, and adults, the same pattern of responses was observed in both Participant Groups, but the magnitude varied. For the fifth graders, overt pronouns were preferred in Maintain Reference contexts for Participant Group A, but null pronouns were preferred for Participant Group B. This is an artifact of the fact that three Overters formed part of Participant Group A and only one formed part of Participant Groups B.

3.8 Other variables

Out of 2148 responses, the interviewer repeated items at least once in 44 cases (2.0%). Participants responded to an item more than once in 38 cases (1.8%). Participants altered the experimental sentence in 98 cases (4.6%).

3.9 Filler Materials

There were 2,065 responses to the filler materials. In most cases, participants preferred SV order. Table 4-19 presents the proportions of SV and VS preferences, regardless of context.

Table 4-19 Proportion of SV and VS preferences for all participants.

SV	VS
69	26

This preference for SV word order was found for both Previous and First Mention

contexts, as shown in Table 4-20.

Table 4-20 Proportion of SV and VS preferences, by Previous and First Mention contexts

Discourse Context	SV	VS
Previous Mention	78	22
First Mention	67	33

A closer look at the number of VS responses for each item shows that two items were responsible for almost half of all VS responses. The frequencies of SV and VS preferences by items are presented in Table 4-21. The two items in question are in boldface.

Table 4-21 Frequency of SV and VS preferences per Item

Item Number	First (F) or Previous (P) Mention	Number SV responses	Number VS responses
1	P	90	88
2	F	33	**148**
3	F	161	8
4	F	149	25
5	P	122	37
6	F	137	44
7	P	132	38
8	F	163	8
9	P	117	32
10	P	161	16
11	F	61	**120**
12	P	169	6

Notice that for 10 out of 12 items, SV was preferred. A reassessment of the materials shows that all but one of the First Mention contexts cannot really be considered First Mentions at all. In 11 stories, the NP in sentence c. was José (4 items) or María (1 item). This turned out to be problematic because José and María were mentioned in the practice

items and in most of the experimental stories. Therefore, no subsequent mention of these characters could really constitute a First Mention environment.

As Table 4-21 clearly indicates, VS was preferred for two items, 2 and 11. These items were also responsible for almost half (47%) of the total 570 VS responses. Item 2 included an unaccusative verb *llegar*, 'arrive.' Such verbs favor postverbal subjects in Spanish (Hinch, 2005). Thus, in item 2, the discourse effect was confounded by what appears to be an effect of unaccusativity.

There were 120 VS responses for item 11, which included a newly introduced character in sentence c. This character (Carlos' mother) had not been mentioned in any of the previous stories. Therefore, the one true First Mention context had the predicted effect: VS was preferred. To test the power of this discourse factor on word order preferences, future investigations should include new characters for each First Mention context and should control for the effect of unaccusativity.

4. Summary of results

Our results indicate that the preference for overt pronouns in Change Reference contexts in adult monolingual Spanish was stronger than the preference for null pronouns in Maintain Reference contexts. Sensitivity to Change Reference environments emerged after the first grade. Third, fifth, and seventh graders' preference for overt pronouns in Change Reference contexts was significant, but it was not until the eighth grade that children performed at the same level as adults. The preference for null pronouns in Maintain Reference contexts followed a different trajectory. Prior to the ninth grade, no age group demonstrated a significant preference for null pronouns in these contexts.

Even in the ninth grade, this preference was significant only by items, not by participants. Thus, even the oldest age group of children did not perform on an adult level with respect to Maintain Reference contexts.

CHAPTER 5

DISCUSSION

1 Introduction

Our study was designed to answer the following three questions. First, we wanted to find out if the preference for overt pronouns in Change Reference contexts and null pronouns in Maintain Reference contexts previously observed in corpora of speech produced by Spanish-speaking adults would be evident in an experimental paradigm. Second, if adults demonstrated the expected preference pattern in an experiment, we wanted to know if this pattern would also be manifested in Spanish-speaking children, and if not, when this pattern would emerge. Finally, our goal was to better understand the course of development of sensitivity to Continuity of Reference as a predictor of the alternation between overt and null Spanish subject pronouns. In this chapter we will interpret the results of our study with respect to these three questions.

2. The influence of Continuity of Reference in adult Spanish

Since we found that adults strongly preferred overt pronouns in Change Reference contexts and null pronouns in Maintain Reference contexts, our experimental research complements variationist findings (Cameron 1992, 1993, 1995; Erker, 2005; Flores-Ferrán, 2004; Silva-Corvalán, 1994). Our results also indicate that these preference types represent related but distinct phenomena, since the preference for overt pronouns in Change Reference contexts was stronger than the preference for null pronouns in Maintain Reference contexts. In fact, some native speakers of Spanish have commented

that null pronouns in Change Reference contexts are actually ungrammatical, and they were surprised our adult group in Querétaro did not prefer overt pronouns in these contexts at a rate of 100%. Overt pronouns in Maintain Reference contexts are not typically found to be ungrammatical;[43] they are simply redundant.

On the other hand, results from our study and variationist studies demonstrate that neither the preference for overt pronouns in Change Reference contexts nor the preference for null pronouns in Maintain Reference contexts represents a categorical rule. There were quite a few responses that deviated from the expected preference pattern. Adults chose null pronouns in Change Reference contexts at a rate of 17% and overt pronouns in Maintain Reference contexts at a rate of 27%. Thus, adult monolingual Spanish speakers are sensitive to both Change and Maintain Reference contexts, and the sensitivity to the former is stronger than the sensitivity to the latter.

3. Change and Maintain Reference contexts

Recall from Chapter 2 that Ariel's Accessibility Theory predicts that null pronouns should refer to very accessible referents, and overt pronouns should refer to somewhat less accessible pronouns. This prediction is clearly supported by adult Spanish speakers' preference patterns. Changing reference decreases referent accessibility, and thus speakers tend to choose forms that will ease the interlocutor's burden in these contexts. If a speaker neglects to include sufficient information at the phonetic level, the

[43] As mentioned in Chapter 2, Montalbetti (1984) judged overt pronouns to be ungrammatical in sentences such as *Muchos estudiantes piensan que ellos van a aprobar*, 'Many students think that they are going to pass,' where 'many students' = 'they.' This observation, however, is not shared by a majority of native speakers of Spanish. On the other hand, there is general agreement that a null pronoun in this context sounds much better than an overt one. Perhaps the strength of the preference for null pronouns in Maintain Reference contexts increases when the context consists of a main and a dependent clause, as opposed to two independent clauses.

resulting utterance might be ambiguous. Maintaining reference, on the other hand, increases referent accessibility, and, therefore, the null pronoun, which has no phonetic content, is preferred in these contexts. The overt pronoun in such contexts is unnecessary since reference is clearly established without any overt subject. Adult Spanish speakers' preference for null pronouns in Maintain Reference contexts demonstrates a developed ability to avoid redundancy.

It is helpful to think of the preference for overt pronouns in Change Reference contexts and the preference for null pronouns in Maintain Reference contexts as related, but distinct phenomena. They both have to do with the relationship between forms of referring expressions and accessibility of referents; however, they differ in terms of their impact on communication. To further our understanding of the developmental pattern of each preference type, we discuss each preference separately.

4. The development of sensitivity to Change Reference contexts

During the development of sensitivity to Change Reference contexts, the most dramatic change occurs between the first and third grade. This is when children begin to significantly prefer overt over null pronouns in Change Reference contexts. Recall that first graders' preference for overt pronouns in Change Reference contexts was not significant. Third graders, on the other hand, significantly preferred overt pronouns in these contexts. Furthermore, there were many children who preferred all null pronouns (Nullers) among the first graders (see Appendix D). There were very few such children among the third graders. In fact, by the third grade, many children preferred all overt pronouns, regardless of context (Overters). Thus, the distribution of Nullers and

Overters, as well as the data from the preference task, support the analysis that an important developmental change takes place between the first and third grade.

Third, fifth, and seventh graders' rates of preferences for overt pronouns in Change Reference environments were almost identical, suggesting that the development of sensitivity to Change Reference levels off until the eighth grade. From the eighth grade on, children performed like adults with respect to Change Reference. To interpret the observed developmental pattern, we first discuss the reason mature speakers prefer overt pronouns in Change Reference contexts.

4.1 Interpreting null pronouns in Change Reference contexts: A case of ambiguity

In our experiment null pronouns in Change Reference contexts were judged infelicitous. Consider the following metalinguistic comments from a ninth grade boy (1) and a ninth grade girl (2), who both strongly preferred overt pronouns in Change Reference contexts.

(1) Child: *Cuando no se da a entender lo que se quiere decir. xx una cosa y no entiendes todo lo que te quieren decir.*
Interviewer: *¿Te acuerdas de algún ejemplo de los cuentitos o no?*
Child: *Pues por ejemplo estás hablando de María*
Interviewer: *Sí*
Child: *xx pues Ø se cayó. Puede ser la otra persona. Se tiene que decir 'él' para saber que se refiere a la otra persona (918)*

Child: Well… when what you want to say isn't clear. xx one thing and you don't understand everything they want to tell you.
Interviewer: Do you remember an example from the short stories or no?
Child: Well for example, you're talking about Maria.
Interviewer: Yes.
Child: xx well (she or he) fell. It can be the other person. One has to say 'he' in order to know that it refers to the other person.

(2) Child: *el hecho de que el sujeto cambia de posición en el enunciado puede… no … el enunciado puede no tener tanta claridad. Luego no se puede comprender bien.*
Interviewer: *¿No se puede qué?*
Child: *Comprender bien.*
Interviewer: *Uh huh*
Child: *Porque por ejemplo si se hablan de muchos sujetos se, este, y no se pone un específico-- el sujeto que está haciendo la acción, no se puede comprender qué qué de todos los sujetos que están en el enunciado lo está haciendo. (920)*

Child: the fact that the subject changes position in the utterance can.. no… the utterance might not have as much clarity. So it is not easily understood.
Interviewer: It is not easily what?
Child: well understood.
Interviewer: Uh huh
Child: Because for example if many subjects are being talked about, um, and one isn't specified – the subject that's doing the action, you can't understand which which of all the subjects that are in the utterance is doing it.

These comments illustrate that mature Spanish speakers are conscious of the potential ambiguity that can arise from using null pronouns in Change Reference contexts. Thus, we interpret the results for Change Reference in our experiment within the larger context of how the ability to refer unambiguously develops in monolingual first language acquisition. To do this we relate our experimental findings to the use of ambiguous pronouns in selected narratives from children in Querétaro, as well as previous findings on the use of ambiguous pronouns and infelicitous definite NPs in child language.

Since null pronouns in Change Reference contexts can result in ambiguous referencing, we predicted that children who overaccepted null pronouns in these contexts would also produce ambiguous pronouns in their narratives. The selected narratives in Appendix E suggest that this is the case, indicating that pronoun selection in Change Reference contexts is indeed related to the production of ambiguous pronouns. We suggest that the general decline in the preference for null pronouns in Change Reference contexts in Spanish and the production of ambiguous pronouns, as well as the production

of infelicitous definite NPs, are manifestations of a general change in cognition. Specifically, there is a decline in child egocentricity.

4.2 Age eight/nine: A milestone in the development of pronouns and definite NPs

One piece of evidence that the preference for infelicitous null pronouns in Change Reference contexts is related to the production of ambiguous pronouns and infelicitous definite NPs is the finding that all three phenomena dissipate at around the same age. As reported in Chapter 4, the child participants in our experiment demonstrated sensitivity to Change Reference contexts from the third grade on. The average age of our third grade participants was 9;2. The use of infelicitous definite NPs and ambiguous pronouns significantly declines at age eight or nine as well (de Weck 1991; Kail & Sánchez y López, 1997; Karmiloff-Smith, 1979, 1980, 1986; Piaget, 1959). According to Piaget (1959), this is the same age at which children enter into a stage of less egocentricity. As children become more aware of other people's information needs, they become more adept at using forms that relay the sufficient amount of information required to make referents accessible.

Children also become better at linking their pronouns to intralinguistic referents at around age 8 or 9. In other words, they begin to rely more on intersentential anaphoric reference rather than deictic reference. This results in more cohesive speech. Recall that referent identification was always unambiguous in our experiment because we used dolls to act out the stories in our preference task. The use of the dolls possibly facilitated reliance on deictic reference, especially since the experimenter held the referent (plastic doll) in her hand as she presented each test sentence. Joint attention to the referent made

the use of a null in these contexts unambiguous. Thus, it is possible that the youngest children in our study relied on deictic reference for the pronouns in the test sentences. This may be one reason they would not see any need to select an overt pronoun in these contexts. In other words, children under eight years old may not have analyzed what we call Change Reference contexts as examples of Change Reference, since the very term Change Reference presupposes that a link is established between two clauses.

4.3 A second milestone: age thirteen

After the third grade, there seemed to be a leveling off of developing sensitivity to Change Reference, since third, fifth, and seventh graders' responses were almost identical. It was not until the eighth grade that children preferred overt pronouns as often as adults. As Piaget (1959:13) wrote: "After the age of 7 or 8, [the] consequences of ego-centrism do not disappear immediately." Although the change that occurred between the seventh and eighth grades was mostly reflected in the means of pronoun selection, the post-hoc Tukey test for Change Reference contexts also showed that eighth graders were different from younger age groups (eighth graders were the youngest group to differ significantly from first graders). Recall that the mean age of our seventh grade group was 12;8, and the mean age of our eighth grade group was 13;8. Thus, another important developmental change in the avoidance of ambiguity occurs at around age thirteen.

5. Development of Sensitivity to Maintain Reference contexts

The development of the preference for null pronouns in Maintain Reference contexts follows a different trajectory than the preference for overt pronouns in Change

Reference. The youngest group to demonstrate a significant preference for null pronouns in Maintain Reference was the ninth grade group, and this preference was only significant for the item-based analysis. Two groups, the third and eighth graders, even preferred redundant overt pronouns in these contexts. Recall that there were many Overters among the third, fifth, seventh, eighth, and ninth graders. This further supports the interpretation that the preference for null pronouns in Maintain Reference contexts develops quite late.

The selection of all overt pronouns, regardless of context, became common at the same time that the preference for overt pronouns in Change Reference contexts became significant (i.e., in the third grade). A question that arises is whether there is a relationship between the onset of sensitivity to Change Reference and the overacceptance of overt pronouns in Maintain Reference. Perhaps when children begin to prefer more third person singular overt pronouns, they enter a stage in which these pronouns are overgenerated. If this were the case, then one could imagine that the awareness of the need to avoid ambiguity triggers a general tendency to err on the side of caution and select forms with even more information about referent accessibility than necessary.

Research on the development of communication skills suggests that as children become more adept at providing sufficient information for referent identification, their referent identifying NPs become increasingly redundant (Ford & Olson, 1975; Sonnenschein, 1985; Whitehurst, 1976). It may be the case that when children learn that they have to give their interlocutor more information, they go through a phase during which they sometimes give too much information. Thus, perhaps the two developmental patterns observed in our study for Change and Maintain Reference contexts are related insofar as sensitivity to the former triggers a decrease in sensitivity to the latter.

6. Early versus late sensitivity to discourse-pragmatics

In Chapter 3 we discussed recent research in which very early sensitivity to discourse pragmatic predictors of overt and null arguments has been detected (Allen, 2000; in press; Clancy, 1997; Paradis & Navarro, 2003; Serratrice, 2005; Skarabela & Allen, 2002; 2004). The children in these studies were under the age of three. Factors such as competing referents in the physical context and whether the intended referent was present in the physical context influenced children's rates of argument expression. It is not clear, however, if the sensitivity to pragmatic-discourse factors in these studies could be attributed to discourse-internal factors. Furthermore, studies of children's narratives (e.g., Berman & Slobin, 1994) show that early discourse is not cohesive. Rather, very young children's clauses appear to be units unto themselves. Thus, even if there is some early sensitivity to discourse-internal factors, it seems unlikely that intersentential contexts would have much of an effect on children's referring expressions. On the other hand, Allen (in press) indicates that absent referents that have not been mentioned in the discourse are more likely to be expressed overtly than absent referents that have been mentioned. Thus, more research is needed to clarify the influence of intralinguistic versus extralinguistic discourse-pragmatic influences on the alternation of overt and null arguments in child language. Perhaps we would find that sensitivity to intralinguistic factors develops later than sensitivity to extralinguistic factors.

Also, we cannot assume that the detection of sensitivity to discourse-pragmatic predictors of overt and null arguments would necessarily extend to the distribution of overt pronouns and their null counterparts, especially since third person personal

pronouns seem to be scarce in young children's naturalistic production data (e.g., Bel, 2003; Serratrice, 2005). Also, as mentioned in Chapter 3, the lack of *él/ella* in naturalistic production data may reflect a true deficit in competence or may simply be an artifact of the nature of children's conversations, i.e., the predilection to talk about themselves and the here-and-now. Investigations of young children's comprehension of overt *él/ella* would help to discover any potential impact of discourse-pragmatics on the alternation of overt and null Spanish subject pronouns in the early stages of language acquisition.

7. The role of input

We have interpreted the observed developmental patterns within the context of cognitive changes. It is most likely the case that linguistic input also plays a role in the development of Spanish subject pronoun use. Studies of dialect contact support the idea that input plays a role in determining the alternation of overt and null Spanish subject pronouns. Consider, for example, the case of Caribbean and mainland Latin American Spanish speakers in the United States. Rates of overt subject pronouns are higher in the Caribbean than on the mainland of Latin America (Otheguy & Zentella, to appear). Analyses of data from the CUNY Project indicate that upon contact with Spanish speakers from the Caribbean, the rate of overt subject pronoun expression increases among speakers from mainland Latin America (Otheguy, Erker, & Livert, 2005). Although some of the observed increase may be due to contact with English, it is noteworthy that the increase in subject pronoun use is especially evident in the use of the

second person singular *tú*, which is particularly frequent among Caribbean speakers (Otheguy et al., 2005).

Since dialect contact influences the alternation between overt and null subject pronouns, it follows that this phenomenon is subject to influence from input in general. We may then ask how input affects the development of overt and null subject pronouns in child language. Since rates of overt subject pronoun use differ among different varieties of Spanish, a possible approach to this question would be to compare rates of overt pronouns for children in the Caribbean and children in mainland Latin America. If very young children in the Caribbean use overt subject pronouns more frequently than young children in, say, Mexico, this would be evidence that input plays an important role in the development of overt vs. null pronouns.

On the other hand, even though rates of overt subject pronoun expression are higher in the Caribbean than in mainland Latin America, this does not necessarily mean that sensitivity to Continuity of Reference is stronger in one variety than another. Recall from our discussion in Chapter 2 that Cameron (1992, 1993, 1995) found this factor to be equally powerful in San Juan and Madrid. Then again, such a finding does not mean that input plays no role in the development of sensitivity to this discourse factor. More investigations on the influence of Continuity of Reference in different dialects may present opportunities for furthering our understanding of the role of input.

8. Sex

Recall that Bayley and Pease-Álvarez (1996, 1997) found that females produced more overt pronouns than males in two studies of Mexican descent Spanish-speaking

children between the ages of 8 and 12 years. We too found that females preferred overt pronouns more often than males. For Change Reference contexts this was the case for every age group (see Table 4-17). For Maintain Reference contexts, females preferred overt pronouns more often than males for five out of the seven age groups (see Table 4-18). Thus, our results converge with those of Bayley and Pease-Álvarez.

Many sociolinguistic studies have found significant differences between females and males with respect to variable phenomena. For example, in many stable varieties of Spanish, females pronounce word-final *–s* more often than males (Alba, 1990; Cameron, 1992:209-302; Cedergreen, 1973; Fontanella de Weinberg, 1974; Poplack, 1979). Retention of final *–s* is associated with a more prestigious register, and variationist studies have commonly found that females use fewer stigmatized forms than males (Labov, 1972:243).[44] Furthermore, *–s* retention, like overt pronoun production, reflects the inclusion of information at the phonetic level, since final *–s* marks plurality on nouns, as well as informal second person singular in some verb tenses. The retention of such phonetic content facilitates referent-tracking since more cues are made available to the interlocutor. It is possible, then, that the differences between males and females with respect to both *–s* retention and pronoun production reflect a greater level of accommodation toward the interlocutor on the part of female speakers. In other words, perhaps females are more aware of interlocutors' information needs and, therefore, make more of an effort to communicate clearly.

Any such conclusion, however, is tentative at this point, since the mean differences between females and males were only significant for the two-way interaction

[44] In situations where the language is changing, as in language contact situations, females seem to use the newer, and, thus, more stigmatized forms.

of Pronoun Type by Sex for Change Reference contexts (see Chapter 4, Section 3.6). Still, given the results from the two studies conducted by Bayley and Pease-Álvarez and the results reported in Chapter 4, differences between males and females with respect to pronoun preference warrant further investigation.

9. Individual variation

Although we have mapped out a general pattern in the development of sensitivity to Change Reference contexts, our results indicate individual variation. For example, one linguistically mature fifth grader offered a metalinguistic explanation (3) for his pronoun selection.

(3) Child: *Cuando usted hablaba de un monito y después decía, hablaba del otro, se tiene que decir él. Por ejemplo, María va al parque y él.. Pepe.. o él… pide un sandwich. Para decirlo así.*
Interviewer: *¿Y si sigo hablando de María?*
Child: *Se diría ella. Más bien. Se-- ya no sería él o ella porque sería María, estás diciendo María va al parque. Después Ø sigue jugando*

Child: When you were talking about one doll and after (you) said, (you) were talking about the other, one has to say he. For example, Maria goes to the park and he… Pepe… or he… asks for a sandwich. To say it like that.
Interviewer: And if I keep talking about Maria?
Child: (You) would say she. Actually—now it wouldn't be he or she because it would be Maria, (you) are saying Maria goes to the park. After (she) keeps playing.

The excerpt in (3) demonstrates not only a grasp of the effect of Change and Maintain Reference contexts on pronoun selection, but also a keen metalinguistic awareness of the two phenomena. Perhaps mature pronoun use is correlated with developing metalinguistic skills.

Not only were there unusually mature younger children, there were also older children and adults who preferred many null pronouns in Change Reference contexts. A clear example is the immature seventh grader who produced two narratives filled with ambiguous pronouns (see Appendix E). There was even one adult who was categorized as a Nuller. Since we did not collect narratives or metalinguistic comments from the adult group, we do not have any information about the immature adults' language skills other than their experimental responses.

While our goal is to extract generalizations from observed developmental patterns, there are exceptions. In fact, some people may never achieve the same level of sensitivity to Continuity of Reference as, say, the boy who explained his method of pronoun selection in (3). Individual deviation from observed patterns reminds us that language development is a multi-faceted process, part of which is biologically determined, but much of which interacts with other areas of cognitive development. Since individual variation pervades other areas of cognitive development, it is not surprising that some areas of language development would reflect such variation as well.

10. Conclusion

Our study tracks the development of sensitivity to Continuity of Reference as a predictor of overt and null subject pronoun expression in Spanish. Particularly revealing were the developmental milestones pinpointed for the preference for overt pronouns in Change Reference contexts. Selected narratives from participants in our study suggest a relationship between the preference for overt pronouns in Change Reference contexts and the production of ambiguous pronouns in discourse. Furthermore, previous studies of

infelicitous definite NPs and ambiguous pronoun production also identified age eight or nine as a developmental milestone. This suggests that the development of pronoun selection in Change Reference contexts is related to the developing ability to provide interlocutors with sufficient referent-tracking information.

On the other hand, more research is needed to clarify the relationship between a preference for overt pronouns in Change Reference contexts and a decline in egocentricity. Although our study seems to show that this preference develops along with the mature use of other referring expressions, such a connection would be clearer if we could systematically show that the same children who prefer null pronouns in Change Reference contexts also produce many ambiguous pronouns and infelicitous definite NPs. More research is also needed to explore our finding that Spanish-speaking children's sensitivity to Change Reference becomes adult-like at around age thirteen. Since this is the same time adolescence begins, perhaps the phenomenon is linked to more general changes that occur with the onset of puberty.

Also, the possible connection between the preference for redundant overt pronouns in Maintain Reference and the inclusion of redundant information in speech needs to be addressed. We cannot, at this point, establish that children who preferred overt pronouns in Maintain Reference contexts in our study actually produce more overt pronouns in naturalistic production data. If our results do reflect older children's general tendency to include redundant information, more research is needed to explore such a tendency.

APPENDIX A

TRAINING SESSION ITEMS

1. Spanish

1. *Carlos se sube a la moto*
   Se sube a la moto Carlos.

2. *Ahora Ø se va a casa*
   Ahora él se va a casa

3. *Maria y José se suben a la moto.*
   Maria baja cerca de la tienda.
   Después él/Ø sigue su camino.

4. *Carlos y José se suben al camión.*
   José baja del camión primero.
   Poco después lo saluda Maria
   Poco después Maria lo saluda

5. *Carlos y Maria dan marometas.*
   Maria brinca en un pie.
   Después ella se pone de cabeza.
   Después Ø se pone de cabeza.

2. English translations

1. Carlos gets on the motorcycle.
   Gets on the motorcycle Carlos.

2. Now (he) goes home.
   Now he goes home.

3. Maria and José get on the motorcycle.
   Maria gets off near the store.
   Afterwards he/Ø continues on his way.

4. Carlos and José get on the bus.
   José gets off the bus first.
   A little while later greets him Maria.
   A little while later Maria greets him.

5. Carlos and Maria do somersaults.
   Maria jumps on one foot.
   Afterwards she/Ø stands on her head.

APPENDIX B

EXPERIMENTAL ITEMS

Recall from our description of the experimental procedure in Chapter 4 (Section 2.2.2) that c. sentences varied to create Change and Maintain References. Also, c. sentences were verbally presented with two options: one variant contained an overt subject pronoun, the other had a null subject. In the following list X represents the various c. sentence subjects, i.e., *él, ella,* or *Ø.*

1. Spanish

1. *a. José y María compiten en una carrera.*
   b. María termina en primer lugar.
   c. Al día siguiente X practica para la próxima carrera.

2. *a. María y José cantan canciones.*
   b. María canta una ranchera.
   c. Luego X canta la de Pimpón.

3. *a. José y María van a una fiesta.*
   b. María baila toda la noche.
   c. A medianoche X se come un pedazo de pastel.

4. *a. María y José van a la escuela.*
   b. José abre la puerta de la escuela.
   c. Después de entrar X se va a su clase.

5. *a. María y José hacen la tarea.*
   b. María practica las matemáticas.
   c. Luego X lee un cuento.

6. *a. María y José limpian la casa.*
   b. María barre.
   c. Por la tarde X lava los platos.

7. *a. María y José entran en una tienda.*
   b. José busca un plátano.
   c. Antes de salir X se compra un chicle.

8. *a. José y María se suben a un carro.*
   b. María maneja.
   c. Más tarde X brinca.

9. *a. María y José van a comprar papas.*
   b. José las pide con sal y limón.
   c. Después X se toma un refresco.

10. *a. José y María y van de paseo por el parque.*
    b. María jala la carretilla.
    c. De repente X se cae en el pasto.

11. *a. José y María van al parque.*
    b. José se tira por la resbaladilla.
    c. Después X se tira de cabeza.

12. *a. José y María están en el parque.*
    b. José se sube a un árbol.
    c. Al cabo de diez minutos X se sube al columpio.

2. English translations

1. a. José and Maria compete in a race.
   b. Maria finishes in first place.
   c. The following day X practices for the next race.

2. a. Maria and José sing songs.
   b. Maria sings a ranchera.
   c. Later X sings the one about Pimpón.

3. a. José and Maria go to a party.
   b. Maria dances all night.
   c. At midnight X eats a piece of cake.

4. a. Maria and José go to school.
   b. José opens the door of the school.
   c. After going inside, X goes to his/her[45] classroom.

5. a. Maria and José do homework.
   b. Maria practices mathematics.
   c. Later X reads a story.

[45] Note that the Spanish singular possessive pronoun *su* is not marked for gender.

6. a. Maria and José clean the house.
   b. Maria sweeps.
   c. In the afternoon X washes the dishes.

7. a. Maria and José go inside a store.
   b. José looks for a banana.
   c. Before leaving X buys gum.

8. a. José and Maria get into a car.
   b. Maria drives.
   c. Later X jumps up and down.

9. a. Maria and José go to buy potato chips.
   b. José asks for them with salt and lemon.
   c. Afterwards X drinks a soda.

10. a. José and Maria go for a walk in the park.
    b. Maria pulls the wagon.
    c. All of a sudden X falls down on the grass.

11. a. José and Maria go to the park.
    b. José goes down the slide.
    c. Later X goes down headfirst.

12. a. José and Maria are in the park.
    b. José climbs a tree.
    c. Ten minutes later X goes on the swing.

APPENDIX C

FILLER ITEMS

1. Spanish

1. Context: Previous Mention

   a. *Algunos niños echan carreras.*
   b. *José gana la primera.*
   c. *En la segunda, José pierde.*
      En la segunda, pierde José.

2. Context: First Mention

   a. *Un conjunto de música va a tocar en el pueblo.*
   b. *Los muchachos van al concierto.*
   c. *A las nueve llega José.*
      A las nueve José llega.

3. Context: First Mention

   a. *Hay una gran fiesta en el pueblo.*
   b. *María llega a las ocho.*
   c. *Al poco tiempo, la invita José a bailar.*
      Al poco tiempo, José la invita a bailar.

4. Context: First Mention

   a. *A las ocho, todos los niños llegan a la escuela.*
   b. *María se cae al entrar.*
   c. *José recoge sus libros.*
      Recoge José sus libros.

5. Context: Previous Mention

   a. *Los niños almuerzan.*
   b. *María se come una quesadilla*
   c. *Para el postre, María pide un helado.*
      Para el postre, pide María un helado.

6. Context: First Mention

a. Todos los niños están sentados en su clase.
b. La maestra les hace una pregunta.
c. Le contesta María.
María le contesta.

7. Context: Previous Mention

a. Marcos vende tacos en la esquina.
b. María le compra uno.
c. Después de comérselo, María regresa a casa.
Después de comérselo, regresa María a casa.

8. Context: First Mention

a. María va a la tienda.
b. Compra fruta para sus amigos.
c. Más tarde se come José la pera.
Más tarde José se come la pera.

9. Previous Mention

a. Los muchachos van de viaje.
b. María maneja el carro.
c. Luego, María se estaciona en la calle.
Luego, se estaciona Maria en la calle.

10. Context: Previous Mention

a. *Durante el recreo los niños de primaria se corretean.*
b. José atrapa a Carlos.
c. Ahora corre Carlos detrás de los otros.
Ahora Carlos corre detrás de los otros.

11. Context: First Mention

a. *Por la tarde, los niños del pueblo salen a jugar.*
b. Carlos juega fútbol.
c. A las dos, su mamá le llama.
A las dos, le llama su mamá.

12. Context: Previous Mention

a. Algunos niños se tiran por la resbaladilla.
b. José va primero.
c. Después se sube José al avioncito
José se sube al avioncito.

2. English translations

1. Context: Previous Mention

a. Some participate in races.
b. José wins the first one.
c. In the second one, José loses.
In the second one, loses José.

2. Context: First Mention

a. A music group is going to play in the town.
b. The kids go to the concert.
c. At nine, arrives José.
At nine, José arrives.

3. Context: First Mention

a. There's a big party in the town.
b. Maria arrives at eight.
c. A little while later, José asks her to dance.
A little while later, asks her José to dance.

4. Context: First Mention

a. At eight, all the children arrive at school.
b. Maria falls down when she goes inside.
c. José picks up her books.
Picks up José her books.

5. Context: Previous Mention

a. The children eat lunch.
b. Maria eats a quesadilla.
c. For dessert Maria asks for an ice-cream.
For dessert asks for Maria an ice-cream.

6. Context: First Mention

a. All the children are sitting in their class.
b. The teacher asks them a question.
c. Answers her Maria.
Maria answers her.

7. Context: Previous Mention

a. Marcos sells tacos on the corner.
b. Maria buys one from him.
c. After eating it Maria goes back home.
After eating it goes back Maria home.

8. Context: First Mention

a. Maria goes to the store.
b. (She) buys fruit for her friends.
c. Later eats José the pear.
Later José eats the pear.

9. Previous Mention

a. The kids go on a trip.
b. Maria drives the car.
c. Later Maria parks in the street.
Later parks Maria in the street.

10. Context: Previous Mention

a. During recess the elementary school kids chase each other.
b. José catches Carlos.
c. Now runs Carlos after the others.
Now Carlos runs after the others.

11. Context: First Mention

a. In the afternoon the kids in the town go out to play.
b. Carlos plays soccer.
c. At two, his mother calls him.
   At two, calls him his mother.

12. Context: Previous Mention

a. Some kids go down the slide.
b. José goes first.
c. After gets José on the little airplane.
   After José gets on the little airplane.

APPENDIX D

AN EXAMINATION OF NULLERS AND OVERTERS

1. Introduction

As mentioned in Chapter 4, Section 2.5.4**,** there were a total of 51 Nullers and Overters. Nullers were participants who preferred null pronouns in at least 80% of their responses. Overters were participants who preferred overt pronouns in 80% of their responses. A closer look at these two mutually exclusive preference patterns adds to our understanding of the development of pronoun use and sensitivity to discourse.

2. Nullers and Overters: Who are they?

There were Nullers and/or Overters in every age group. The preference for overt pronouns is very different from the preference for null pronouns, since null pronouns in Change Reference environments result in ambiguity, whereas overt pronouns in Maintain Reference environments are redundant. Ambiguity and redundancy have different communicative consequences. There were more Nullers among young children and more Overters among older children. Table E-1 presents the distribution of Nullers and Overters for each age group.

Table E-1 Numbers and percents[a] of Nullers and Overters, by age group

Age Group	Nullers		Overters	
	N	(%)	N	(%)
First grade	6	(20)	3	(10)
Third grade	3	(11)	9	(32)
Fifth grade	3	(9)	7	(22)
Seventh grade	0	(0)	5	(25)
Eighth grade	0	(0)	4	(40)
Ninth grade	0	(0)	7	(24)
Adults	1	(3)	3	(10)
Total	13	(7)	38	(21)

[a]Percentages represent number of Nullers or Overters per grade out of total number of participants per grade included in the analyses reported in Chapter 4.

The age group with the highest percent of Nullers was the first grade. The preference for all null pronouns declined with age. Apart from one unusual adult participant, there were no Nullers after the fifth grade. Thus, choosing null pronouns appears to be a characteristic of young children's preference pattern.

The age group with the highest percent of Overters was the eighth grade. However, since there were only 10 eighth grade participants in total, this finding must be interpreted with caution. The age group with the second highest proportion of Overters was the third grade. Overters were common in the third, fifth, seventh, eighth, and ninth grades.

These findings support the observation that an important developmental change appears to occur between the first and third grade: while it was common among first graders to choose all null pronouns, from the third grade on it was common to choose all overt pronouns. Overusing overt pronouns may represent a developmental stage in pronoun usage. It is possible that when children begin to produce overt third person pronouns in speech, they begin to overgenerate them. More research needs to be done to investigate the existence of such a developmental stage.

3. Analyses excluding Nullers/Overters

To examine preference patterns among participants who were not Nullers or Overters, this Appendix reports analyses of data excluding these participants. There were 128 participants who were neither Nullers nor Overters (henceforth –N/Os). Table E-2 presents the distribution of –N/Os, as well as mean ages and number and percent of males and females by age group.

Table E-2 Distribution of –N/O participants by age group, mean ages, and sex

Age Group	N Participants	Mean Age	%Males	%Females
First grade	21	6;85	(38)	(62)
Third grade	16	9;10	(56)	(44)
Fifth grade	22	10;96	(45)	(55)
Seventh grade	15	12;79	(47)	(53)
Eighth grade	6	13;88	(83)	(17)
Ninth grade	22	14;64	(27)	(73)
Adults	26	21;58	(38)	(62)
Total	128	13;19	(43)	(57)

In what follows, all references to –N/Os refer to the participants in Table E-2.

In this section we report participant-based analyses of responses from –N/O participants. We also compare these data patterns (for –N/O responses) to the data patterns reported in Chapter 4 (Section 3) for the participant group with Nullers and Overters included (henceforth Main Group). Only relevant interactions and main effects for data from –N/O participants will be reported here.

3.1 Omnibus analysis

Like the Main Group, -N/Os (N = 128) preferred overt pronouns in Change Reference contexts and null pronouns in Maintain Reference contexts. Table E-3

presents the mean percent of overt and null responses for each Discourse Context for -N/Os. The Main Group's responses from Chapter 4, Section 3 are repeated here for purposes of clarity.

Table E-3 Mean percent of responses by Pronoun Type as a function of Discourse Context for -N/Os and Main Group

Discourse Context	-N/Os		Main Group	
	Overt	Null	Overt	Null
Change Reference	77	23	70	29
Maintain Reference	34	66	43	56

Compared with the Main Group, the -N/Os preferred overt pronouns in Change Reference contexts and null pronouns in Maintain Reference at higher rates. Like the results for the Main Group, for the -N/Os the difference between overt and null pronouns of 54% for Change Reference contexts was greater than the difference of 32% for Maintain Reference contexts.

A 7 (Age Groups)) by 2 (Pronoun Type) by 2 (Discourse Context) by 2 (Design Groups participant-based ANOVA was performed using data from the -N/Os. Only the relevant interactions and main effects will be reported for this participant group. The interaction of Pronoun Type by Discourse Context was highly significant [$F_1(1,114) = 122.81$, $p < .0001$] for the -N/Os, as it had been for the Main Group. The three-way interaction of Pronoun Type by Discourse Context by Age Groups was also highly significant [$F_1(6,114) = 9.34$, $p < .0001$], just as it had been for the Main Group. Since the three-way interaction was significant, the two-way interaction, Pronoun Type by Discourse Context, was analyzed for each age group in isolation; those results are presented below in Section 3.2. Recall that there was a significant main effect of

Pronoun Type for the Main Group. With the removal of Nullers and Overters, this main effect disappeared.

Correlated two-tailed *t*-tests were performed comparing overt vs. null pronoun selection in the Discourse Contexts. In the Change Reference context the 54% difference in favor of overt pronouns was highly reliable by participants [$t_1(127) = -9.2$, $p = < .0001$]. In the Maintain Reference context, the 32% difference in favor of null pronouns was also reliable [$t_1(127) = 7.85$, $p < .0001$].

3.2 Age effects

To explore the significant Age Groups by Pronoun Type by Discourse Context interaction, we analyzed each age group separately. For each age group, a 2 (Pronoun Type) by 2 (Discourse Context) by 2 (Design Groups) ANOVA was performed. Only the interaction between discourse context and pronoun type will be reported here.

3.2.1 First Graders

First graders preferred overt pronouns in Change Reference contexts and null pronouns in Maintain Reference contexts. Table E-4 below presents the mean percent of overt and null responses for each Discourse Context for the -N/Os and the Main Group.

Table E-4 Mean percent of responses by Pronoun Type as a function of Discourse Context for -N/O (N=21) and Main Group (N=30) first graders

Context	-N/Os		Main Group	
	Overt	Null	Overt	Null
Change Reference	59	41	51	47
Maintain Reference	41	59	41	57

Compared with the Main Group first graders, the -N/O first graders' preference for overt pronouns in Change Reference was 8 percentage points greater; their preference for null pronouns in Maintain Reference was only 2 percentage points greater. Unlike the Main Group, whose preference for null pronouns in Maintain Reference was greater than the preference for overt pronouns in Change Reference, the -N/Os' preference pattern was not appreciably greater for each Discourse Context.

2 (Pronoun Type) by 2 (Discourse Context) by 2 (Design Groups) ANOVA

For the -N/O first graders, the interaction of interest, Pronoun Type by Discourse Context was significant [$F_1(1,19) = 19.00$, $p = .014$]. Recall that this interaction was also significant for the Main Group first graders.

Correlated Sample t-Test

In the Change Reference context, the difference of 18 percentage points was not significant by participants [$t_1(20) = 1.48$, $p = .155$]. In the Maintain Reference context, the difference of 16 percentage points was not significant [$t_1(20) = 1.67$, = .11]. These results are similar to the *t*-tests for the Main Group first graders. Although the interaction for Pronoun Type by Discourse Context in the 2 by 2 by 2 ANOVA for both first grade groups was significant, the pronoun differences in each discourse context were too small to reach significance by *t*-test.

3.2.2 Third Graders

The -N/O third grade Group preferred overt pronouns in Change Reference contexts and null pronouns in Maintain Reference contexts. Table E-5 below presents the mean percent of overt and null responses for each Discourse Context for the -N/Os and the Main Group.

Table E-5 Mean percent of responses by Pronoun Type as a function of Discourse Context for –N/O (N=16) and Main Group (N=28) third graders

Context	-N/Os		Main Group	
	Overt	Null	Overt	Null
Change Reference	63	37	64	32
Maintain Reference	43	57	51	47

-N/O third graders differed from Main Group third graders for Maintain Reference contexts: whereas the latter preferred overt pronouns in these contexts, the former preferred null pronouns. Thus, Overters had a large impact on the results for the third grade Main Group.

The removal of Overters also resulted in an increase in the preference for null pronouns in Change Reference contexts and a very slight decrease in the preference for overt pronouns in these same contexts. Notice that responses coded as 'other' made up 4% of Main Group third grader data (see Table 4-6), whereas there were no such responses among -N/O third graders. Thus, the difference between the two third grade participant groups for Change Reference environments was mostly due to 'other' responses.

2 (Pronoun Type) by 2 (Discourse Context) by 2 (Design Groups) ANOVA

For the -N/O third graders, Pronoun Type by Discourse Context was significant [$F_1(1,14) = 7.96$, $p = .014$], as it had been for the Main Group third graders.

Correlated Sample T-Test

In the Change Reference context, the difference of 26 percentage points was significant [$t_1(15) = -2.7$, $p = .016$]. In the Maintain Reference context, the difference of 14 percentage points was not significant [$t_1(15) = 1.5$, $p = .155$]. These results show that even though –N/O and Main Group third graders' means differed, this did not change the significance of the results from the ANOVA or the *t*-tests.

3.2.3 Fifth Graders

The -N/O fifth graders preferred overt pronouns in Change Reference Contexts and null pronouns in Maintain Reference Contexts, as demonstrated by the means in Table E-6.

Table E-6 Mean percent of responses by Pronoun Type as a function of Discourse Context for -N/O (N=22) and Main Group (N=32) fifth graders

Context	-N/Os		Main Group	
	Overt	Null	Overt	Null
Change Reference	67	33	65	34
Maintain Reference	41	59	46	53

Compared with Main Group fifth graders, -N/O fifth graders' preference for overt pronouns in Change Reference contexts was 2 percentage points greater; their preference for null pronouns in Maintain Reference contexts was 6 percentage points greater.

2 (Pronoun Type) by 2 (Discourse Context) by 2 (Design Groups) ANOVA

For the -N/O fifth graders, the Pronoun Type by Discourse Context was significant [$F_1(1,20) = 8.1$, $p = .01$]. Thus, the removal of Nullers and Overters did not change the result for the relevant interaction.

Correlated sample t-tests

In the Change Reference context the 34 percentage point difference was significant [$t_1(21) = -3.47$, $p = .002$]. In the Maintain Reference context, the 18 percentage point difference was not significant [$t_1(21) = 1.67$, $p = .11$]. Again, these results show that, although the –N/O and Main Group fifth graders' means differed, the significance of the results from the ANOVA and the *t*-tests was the same.

3.2.4 Seventh Graders

The -N/O seventh graders preferred overt pronouns in Change Reference Contexts and null pronouns in Maintain Reference Contexts. Table E-7 below presents the means for each Discourse Context for both -N/O and Main Group seventh graders.

Table E-7 Mean percent of responses by Pronoun Type as a function of Discourse Context for -N/O (N=15) and Main Group (N=20) seventh graders

Context	-N/Os		Main Group	
	Overt	Null	Overt	Null
Change Reference	53	47	64	35
Maintain Reference	37	63	49	51

Compared with Main Group seventh graders, the –N/O seventh graders' preference for overt pronouns in Change Reference contexts was weaker (compare the 29 percentage point difference for the Main Group to the 6 percentage point difference for the -N/O

group). –N/O seventh graders' preference for null pronouns in Maintain Reference contexts was stronger than that of Main Group seventh graders (compare the 26 percentage point difference for the –N/O group to the 2 percentage point difference for the Main Group). All 5 seventh graders excluded for the –N/O analyses were Overters. Thus, while the general pattern of preferences remained the same, the –N/O seventh graders demonstrated less sensitivity to Change Reference contexts and more sensitivity to Maintain Reference contexts than the Main Group seventh graders.

2 (Pronoun Type) by 2 (Discourse Context) by 2 (Design Groups) ANOVA

For the seventh graders, Pronoun Type by Discourse Context was significant [$F_1(1,13) = 6.12$, $p = .028$].

Correlated sample t-tests

The 6 percentage point difference in the Change Reference context was not significant [$t_1(14) = -.495$, $p = .628$]. In the Maintain Reference context, the 26 percentage point difference was significant [$t_1(14) = 2.45$, $p = .028$]. Thus, there was an inverse effect for Main Group and –N/O seventh graders: the *t*-test for Change Reference was significant for the former group, but failed to reach significance for the latter; the *t*-test for Maintain Reference was significant for the latter, but failed to reach significance for the former.

3.2.5 Eighth Graders

The -N/O eighth graders preferred overt pronouns in Change Reference Contexts and null pronouns in Maintain Reference Contexts. Table E-8 below presents the means for each Discourse Context for both -N/O and Main Group eighth graders.

Table E-8 Mean percent of responses by Pronoun Type as a function of Discourse Context for -N/O (N=6) and Main Group (N=10) eighth graders

Context	-N/Os		Main Group	
	83	17	88	12
Change Reference	29	71	52	47
Maintain Reference	83	17	88	12

All 4 excluded eighth grade participants were Overters. The exclusion of the Overters did not have as much of an impact on Change Reference contexts as Maintain Reference contexts. Compared with the Main Group eighth graders, -N/O eighth graders preferred overt pronouns in Change Reference contexts at a higher rate (5 percentage points higher) and null pronouns in Maintain Reference contexts at a higher rate (24 percentage points higher). Unfortunately, there were very few -N/O eighth graders (N=6) so these results must be taken with caution.

2 (Pronoun Type) by 2 (Discourse Context) by 2 (Design Groups) ANOVA

For the -N/O eighth graders, Pronoun Type by Discourse Context was significant [$F_1(1,4)=9.12$, $p = .039$], as it was for the Main Group eighth graders. The main effect of Pronoun Type, which was significant for the Main Group eighth graders, was not significant for the –N/O eighth graders [$F_1(1,4) = 5.24$, $p = .084$].

Correlated sample t-tests

In the Change Reference context, the 66 percentage point difference was significant [$t_1(5) = -3.87$, $p = .012$]. In the Maintain Reference context, the 42 percentage point difference was also significant [$t_1(5)=2.83$, $p = .037$]. Thus the –N/O and Main Group eighth graders performed the same for Change Reference contexts, but differently for Maintain Reference. Unfortunately, the small number of eighth grade participants makes any conclusion tentative at best.

3.2.6 Ninth Graders

The -N/O ninth graders preferred overt pronouns in Change Reference Contexts and null pronouns in Maintain Reference Contexts. Table E-9 presents the means for each discourse context for both -N/O and Main Group ninth graders.

Table E-9 Mean percent of responses by Pronoun Type as a function of Discourse Context for -N/O (N=22) and Main Group (N=29) ninth graders

Context	-N/Os		Main Group	
	80	20	84	16
Change Reference	31	69	41	58
Maintain Reference	80	20	84	16

All 7 participants who were excluded were Overters. Compared to the Main Group ninth graders, the -N/O ninth graders' preference for null pronouns in Maintain Reference contexts was greater (21 percentage points more), and their preference for overt pronouns in Change Reference contexts was slightly weaker (4 percentage points less).

2 (Pronoun Type) by 2 (Discourse Context) by 2 (Design Groups) ANOVA

For the -N/O ninth graders, Pronoun Type by Discourse Context was significant [$F_1(1,20) = 51.21$, $p < .0001$], as it was in the analysis of the Main Group ninth graders. The main effect of Pronoun Type, which had been significant for the Main Group ninth graders, did not reach significance for the –N/O ninth graders [$F_1(1,20) = 2.82$, $p = .11$].

Correlated sample t-tests

In the Change Reference context, the 60 percentage point difference was significant [$t_1(21) = -6.97$, $p < .0001$]. The 38 percentage point difference in Maintain Reference context was also significant [$t_1(21) = 4.23$, $p < .0001$]. The difference between the –N/O and Main Group ninth graders is that the results for the participant-based analysis for Maintain Reference was significant for the former, but was not significant for the latter.

3.2.7 Adults

The -N/O adults preferred overt pronouns in Change Reference Contexts and null pronouns in Maintain Reference Contexts. Table E-10 below presents the means for each Discourse Context for both -N/O and Main Group adults.

Table E-10 Mean percent of responses by Pronoun Type as a function of Discourse Context for -N/O (N=26) and Main Group (N=30) adults

Context	-N/Os		Main Group	
	Overt	Null	Overt	Null
Change Reference	85	15	83	17
Maintain Reference	21	79	27	72

For the analyses of -N/O adult data, 3 Overters and 1 Nuller were excluded. The result of this exclusion was simply an increase in strength of both the preference for overt pronouns in Change Reference and null pronouns in Maintain Reference contexts.

2 (Pronoun Type) by 2 (Discourse Context) by 2 (Design Groups) ANOVA

For the –N/O adults, the relevant interaction, Pronoun Type by Discourse Context, was significant [$F_1(1,24) = 109.15$, $p < .0001$], as in the Main Group adult analysis.

Correlated sample t-tests

In the Change Reference context, the 70 percentage point difference was significant [$t_1(25) = -8.39$, $p < .0001$]. In the Maintain Reference context, the 58 percentage point difference was significant [$t_1(25) = 8.06$, $p < .0001$]. The removal of three Overters and one Nuller did not affect the statistical results. In other words, the ANOVA and *t*-test results were similar for the –N/O and Main Group adults.

3.3 Conclusion

The general pattern, i.e., preference for overt pronouns in Change Reference contexts and null pronouns in Maintain Reference context, was altered for some groups after Nullers/Overters were excluded. In Table E-11 below, mean percents of overt pronouns in Change Reference and null pronouns in Maintain Reference are presented for both the -N/Os and the Main Groups for each age group. These means are simply a

repetition of half the means presented in each table (E-4 through E-10) in Section 3.2 above.

Table E-11 Mean percent of overt pronoun responses in Change Reference contexts and null pronoun responses in Maintain Reference contexts by Age Group

Age Group	-N/Os		Main Group	
	Overts in Change Reference	Nulls in Maintain Reference	Overts in Change Reference	Nulls in Maintain Reference
First grade	59	59	51	57
Third grade	63	57	64	47
Fifth grade	67	59	65	53
Seventh grade	53	63	64	51
Eighth grade	83	71	88	47
Ninth grade	80	69	84	58
Adults	85	79	83	72

Compared with the Main Group first and fifth graders and adults, the –N/O first and fifth graders and adults preferred overt pronouns in Change Reference at higher rates. The –N/O third, seventh, eighth, and ninth graders, however, preferred overt pronouns in these contexts at lower rates. This weaker preference for overt pronouns in Change Reference contexts was most prominent for seventh graders (11 percentage point difference between –N/Os and Main Group means). Compared with the Main Group, all –N/O groups preferred null pronouns in Maintain Reference contexts at higher rates. This trend was strongest for eighth (difference of 24 percentage points) and ninth graders (difference of 11 percentage points), whose null pronoun response rates hover around 70%, and are therefore more similar to the adult rate of 79%.

For the most part, the differences in means between the Main and –N/O Groups were not reflected in the statistical analyses. Interactions and *t*-tests had similar outcomes for Main and –N/O Groups for all age groups, with three exceptions: seventh, eighth, and

ninth graders. There were inverse *t*-test effects for Main and –N/O seventh graders. The non-Overter seventh graders' preference for overt pronouns in Change Reference contexts was not much above chance level (53%) and was not significant by *t*-test. On the other hand, the general preference for overt pronouns, which was common among seventh graders (see Table E-1), represents a preference for the inclusion of information. Thus, we cannot conclude that the seventh graders really performed like first graders with respect to Change Reference. Still, it is surprising that the 15 non-Overter seventh graders did not demonstrate sensitivity to Change Reference, especially since the –N/O third and fifth graders did.

The non-Overter seventh, eighth, and ninth graders demonstrated a significant preference for null pronouns in Maintain Reference contexts. On the other hand, the abundance of Overters in all three of these age groups (see Table E-1) indicates that many children do not become sensitive to Maintain Reference until sometime after the ninth grade. Thus, there is some individual variation in the development of sensitivity to Maintain Reference contexts. For some children, this develops in the seventh grade, for others, this develops during the ninth grade. Unfortunately, the removal of N/Os creates too small a data set to statistically compare –N/Os to Overters and Nullers. Thus, while the preference for all overt pronouns, regardless of discourse contexts, is itself informative and indicative of a possible stage in the development of pronoun preference, more data would be needed to elucidate the preference patterns of both –N/Os and Overters and Nullers.

APPENDIX E

AMBIGUOUS PRONOUNS IN CHILDREN'S NARRATIVES

1. Introduction

Since the infelicity of null pronouns in Change Reference contexts is due to ambiguity, we decided to explore the possibility that the same children who did not demonstrate sensitivity to Change Reference in the psycholinguistic experiment would also produce infelicitous ambiguous pronouns in their speech. To investigate this possible relationship, we collected narratives from children in Querétaro. We then analyzed pronoun use in a portion of those narratives.

2. Method

2.1 Participants

Oral narratives were collected from 136 participants. Table F-1 presents the number of participants included per age group, as well as mean ages and number of males and females.

Table F-1 Number of participants who produced narratives, by age group

Age Group	N participants	Mean age	Males	Females
Third grade	37	9;23	19	18
Fifth grade	36	11;04	18	18
Seventh grade	20	12;78	9	11
Eighth grade	11	13;82	8	3
Ninth grade	32	14;7	9	23

2.2 Materials

A picture book was used to elicit narratives from the younger children. This book originally had one-sentence text below each picture. All words, except the title on the cover, were blotted out. The book was chosen because there are two characters in the story. Although they are pigs, they appear to be of the same sex (male), thereby creating a context in which ambiguous pronouns might arise. There are also frames in which only one of the characters does something. We hoped this would elicit third person singular referring expressions. The illustrations, which appear at the end of this appendix, are reproduced with permission of Sterling Publishing Co., Inc., NY, NY from WHAT'S PRETEND? By Harriet Ziefert, text © 2004 by Harriet Ziefert, Illustrations © 2004 by Richard Brown. Narratives were recorded with a digital recorder. In order to facilitate the use of third person singular referring expressions, the two pigs were given names, which were written over their pictures on the front cover of the picture book.

2.3 Procedure

Third through seventh grade children who had participated in the preference task reported in Chapter 4 were asked if they would tell the researcher a story. They were given a picture book to narrate. To create a situation of no mutual knowledge, the researcher did not look at the pictures with the children. Children were not given any instructions about whether they should look at all the pictures before starting their story or tell the story as they looked at the pictures for the first time.

A second narrative was elicited from fifth and seventh graders. For the second narrative, children were asked to make up a story or relate an anecdote about a friend.

The picture book was not used with eighth or ninth graders; these participants were asked to tell a story of their choosing. They either made up their own stories, related anecdotes, or told fairy tales.

Children were grouped into three categories according to how they performed on the preference task, as shown in Table F-2.

Table F-2 Criteria for three participant categories based on scores from the preference task

Category	Criteria for Change Reference environments	Criteria for Maintain Reference environments
I "Immature"	3-6 null pronouns	3-6 overt pronouns
II "In transition"	2 null pronouns	2 overt pronouns
III "Mature"	0-1 null pronouns	0-1 overt pronouns

Criteria for both Change Reference and Maintain Reference environments had to be met to be included in one of the categories.

2.4 Selection of transcripts

All 'immature' and 'mature' participants' narratives were transcribed. Table F-3 presents the distribution of immature and mature participants by age group.

Table F-3 Distribution of immature and mature participants, by age group[46]

Age group	Immature		Mature	
	N	%[a]	N	%
Third grade	4	11	1	3
Fifth grade	3	8	4	11
Seventh grade	2	10	1	5
Eighth grade	1	9	3	27
Ninth grade	1	3	6	19

[a]Percents represent number of immature/mature participants out of total number of participants from each age group (see Table 4-3).

In total, 15 mature and 11 immature participants' narratives were transcribed.

2.5 Transcriptions

Narratives were transcribed by the author, and were checked by a native Spanish speaker from Mexico. For each age group an immature and a mature participant were selected. If these participants had narrated the picture book and had told a made-up story, then both narratives were included. If not, then only one narrative was included. One important criterion for selecting narratives was the appearance of third person singular forms. Unfortunately, as one can see in the picture book, many of the frames included the two boy-pigs doing something together. This elicited more third person plural references than third person singulars. Some narratives did not include any third person singular referents, and were, therefore, not useful for the current study.

2.6 Identifying ambiguous pronouns

The pronouns that are of interest are those that are locally ambiguous such that the interlocutor cannot identify the referent. Some locally ambiguous pronouns are

[46] Narratives were not collected from either first graders or adults. However, it is of interest to note that out of 30 first graders, there were 4 immature and 0 mature participants. Out of 30 adults, there were 14 mature participants and 1 immature participant.

disambiguated later in discourse; others are entirely unrecoverable. Both types will be discussed here. The analyses presented in Section 3 are post hoc, and, therefore, are limited in the sense that extralinguistic discourse cues cannot be taken into account. On the other hand, the no mutual knowledge context (that is, the researcher did not look at the picture book as the child narrated) eliminated the possibility of successfully employing the deictic function of pronouns. Narratives that include an abundance of pronouns without clear, unambiguous referents indicate immature, egocentric discourse. Also of interest here are narratives that include unambiguous pronouns, especially those that seem to fulfill the function of changing or maintaining reference.

3. Results: Qualitative analyses of narratives

3.1 Introduction

We hypothesized that children categorized as immature based on their preference task scores would also produce many ambiguous pronouns, whereas children categorized as mature would produce fewer ambiguous pronouns. The selected narratives analyzed in this chapter suggest that such a conclusion may be warranted.

The numbers at the end of the original Spanish versions indicate the participant number. The pronouns that will be discussed are in bold face and numbered. In the English translations, pronouns in parentheses correspond to null subjects in the original Spanish version.

3.2 Third grade

3.2.1 Immature third grader

This male participant was 9;7 when interviewed. One narrative was elicited using the picture book.

*José sale de su casa y Ø le dice a Carlos que entren a **1. su** casa a jugar. Después, Carlos le dice que Ø tiene hambre y Ø van a la cocina. XX **2. Ø 3. Le** dice que vayan a jugar a **4. su** casa. Y después Carlos le dice que Ø quiere dibujar y Ø dibujan y Ø **5. los** pegan en el refri. Después Ø siguen en la cocina y y Ø se van al cajón donde **6. Ø** tiene donde tiene José todos sus disfraces. Y José es el doctor, Ø se disfraza del doctor y y Carlos de del enfermo. Y después y **7. Ø 8. lo** revisa* [looks at book cover] *a Carlos. Y después, este, Ø se van a ver la tele. Hmhm. Y, y después, … ¿cómo es esta parte? Y después … José le dice. No. Al revés. Carlos le dice que… que.. … que **9. Ø** grite. Uh huh. Carlos le dice a José que **Carlos** grite. Entonces **10. Ø** grita. Y después Ø se van a jugar a que José era un bebé y Carlos se tapaba los oídos. Entonces Carlos también empieza a a gritar que Ø se callara, mientras el otro gritaba. Y después José le dice que que Ø se vayan a jugar a otro lado.* (325)

José leaves his house and (he) says to Carlos that (they) go in **1. his** house to play. After, Carlos says to him that (he) is hungry and (they) go to the kitchen. XX **2. (He)** says to **3. him** that (they) go play in **4. his** house. And after Carlos says to him that (he) wants to draw and (they) draw and (they) stick **5. them** on the fridge. After (they) stay in the kitchen and and (they) go to the box where **6. (he)** has, where José has his costumes. And José is the doctor, (he) dresses up as a doctor and Carlos is the sick person. And after **7. (he)** examines **8. him**— [looks back at book cover] Carlos [= direct object]. And after um (they) go to watch T.V. mmm. And after … How is this part? And after, José says to him. No. The opposite. Carlos says to him that… that… that **9. (he)** yell. Uh huh. Carlos says to José that Carlos yell. So **10. (he)** yells. And then (they) go to play that José was the baby and Carlos covered the ears [=Carlos's ears]. Then Carlos also starts to yell that (he) shut up, while the other one yelled. And after José says to him that that (they) go play in another place.

Pronouns 1 through 4 are ambiguous; they can refer to either José or Carlos. Consider pronoun 1. José leaves his house and says to Carlos that they go play in 'his' house. 'His' could refer to Carlos or José. Two sentences later one of the boys (pronoun 2) asks the other (pronoun 3) to 'go play in his house' (pronoun 4). This may be a simple

repetition of the end of the first sentence, i.e., the same boy may be asking the same question. If this is the case, the referent of pronouns 1 and 4 is the same, but it is impossible to decipher this from the context. Later we find out that the boys are in José's house, since they "go to the box where José has his costumes." If the text is cohesive, then pronouns 2 and 4 refer to José and 3 refers to Carlos, since the boys are presumably in José's house. Another possibility is that the text is not cohesive and that when pronouns 2, 3, and 4 occur, the boys could be in Carlos's or José's house. In either case, the interlocutor, upon hearing 1 through 4, does not have enough information to establish referents for these pronouns.

There is some indication that sections of the narrative are characterized by a lack of cohesion. Consider the sentences that have been repeated below as (1) and (2) for expository purposes.

(1) And José is the doctor, (he) dresses up as a doctor and Carlos is the sick person.
(2) and after **7. (he)** examines **8. him**— [looks back at book cover] Carlos.

In (1) José and Carlos are both accurately identified without hesitation (see picture 7). In (2), however, the participant looks back at the cover of the picture book to identify the object of 'examine,' Carlos,[47] indicating that he was having difficulty remembering the characters' names. This suggests a lack of cohesion between (1) and (2), which, in turn, implies that pronouns 7 and 8 are not endophoric. It is possible that narrating an unknown text resulted in processing difficulties that made narrative cohesion less attainable. If there was no cohesion between (1) and (2), then we can interpret pronouns 7 and 8 as deictic, referring to the pictures in the book.

[47] The object of 'examine' clearly refers to Carlos, since *a* precedes Carlos' in the original narrative. Personal *a* is used before animate direct objects in Spanish.

Pronoun 5 also suggests that the child refers to the pictures in the book by means of deixis. This direct object pronoun refers to the drawings that José and Carlos made. The referent of this pronoun can be inferred from the context. José and Carlos draw, and then they stick 'them' on the fridge. Drawing implies that there is a final product (drawings), so the most likely referent for 'them' is the implied drawings. This direct object pronoun can be analyzed as referring to the inferred drawings. On the other hand, in the book the children narrated there is a picture of José and Carlos drawing followed by a picture of a refrigerator with two drawings on it. Therefore, the direct object pronoun may be entirely deictic since the child sees the drawings in the book. If this second interpretation is correct, the use of 'them' is infelicitous since the child's interlocutor cannot see the drawings.

The referents of 9 and 10 are not ambiguous. They are labeled simply to draw attention to the repair that results in an ungrammatical string. For expository purposes, the relevant sentences are repeated below as (3), (4), and (5).

(3) *Carlos le dice que… que … que* ***Ø*** *grite.*
Carlos to-him says that… that … that (he) yell.
"Carlos tells him to yell."

(4) *Uh huh. Carlos le dice a José que* ***Carlos*** *grite.*
Uh huh. Carlos to-him says to José that Carlos yells.
"Uh huh. Carlos says to José that Carlos yell."

(5) *Entonces* ***Ø*** *grita.*
So (he) yells.
So (he) yells.

At this point in the narrative the child knew which character was José and which was Carlos, a conclusion confirmed by 'uh huh' in (4). Sentence (3) is a grammatical string in which the second verb is in the present subjunctive form. For adult speakers of

Spanish, the null pronoun in (3), the subject of *grite*, unambiguously refers to José since the subject of a subjunctive verb in a dependent clause is not typically coreferent with the subject of the main clause. In other words, a sentence such as *quiere que trabaje*, '(he) wants that (he) work,' means that Person A wants Person B to work. Thus, sentence (3) is grammatical, and the self-correction in (4) actually results in an error: it is José who is told to yell and then yells, not Carlos. Perhaps the error is simply due to the complexity of the subjunctive construction. Another possible explanation is that the child is transitioning out of a stage in which he overproduces nulls, in which case (4) represents a hypercorrection.

Two self-corrections support the idea that the child is in transition. Pronoun 6, the null subject of "where (he) has," is followed by a self-correction in which the referent of 6 is identified, "where José has his costumes." The inclusion of the full lexical NP Carlos in sentence (4) is similar. The child produces an ambiguous pronoun, followed by a clarifying lexical NP. Overall this narrative includes sections that lack cohesion, as well as several ambiguous pronouns. We will now contrast the above narrative with a narrative from a mature third grader.

3.2.2 Mature third grader

This male third grade participant was 8;10 when he was interviewed. He was the only mature participant among the third graders. One narrative was elicited using the picture book.

*Carlos y José eran dos amigos. Este.. Y Carlos invita jugar a su casa. Ø Entran a su casa y Ø empiezan y Ø empiezan a platicar. Más tarde más tarde Ø se ponen a dibujar en la cocina para **1.** poner**los** en el refrigerador. Después Ø juegan Ø juegan y Ø se*

ponen disfraces. Este José José juega que Ø es el doctor y Carlos que Ø es el enfermo. Luego Ø se ponen a ver televisión. Primero caricaturas y luego deportes. Más tarde Ø se ponen a… a platicar! Este… Ø se ponen a imaginar cosas. Mmm. Luego Ø se empiezan a contar cosas. Ø Se empiezan a contar chistes. Luego Ø empiezan a jugar y José es un bebé y y y Carlos es la mama. Este Luego Carlos, como ***2. Ø*** *es la mama,* ***3. Ø*** *lo trata de* ***4. Ø*** *lo trata de calmar, pero pero José sigue llorando. Al final Ø ya no quieren jugar a eso. Al final Ø se fueron a sus casas.* (302)

Carlos and José were two friends. Um… And Carlos invites to play at his house. (They) go inside his house and (they) start to chat. Later (they) begin to draw in the kitchen to put **1. them** on the refrigerator. Later (they) play (they) play and (they) put on costumes. This José José plays that (he) is the doctor and Carlos that (he) is the patient. Later (they) begin to watch television. First cartoons and later sports. Later (they) begin to chat. Um… (they) begin to imagine things. Mmmm. Later (they) start to tell things. (They) start to tell jokes. Later (they) start to play and José is a baby and and and Carlos is the mom. Um… Later Carlos, since **2. (he)** is the mom, tries to calm **3. him**, **4. (he)** tries to calm him but José keeps on crying. At the end (they) don't want to play that anymore. At the end (they) went to their homes.

Only pronoun 1 could be considered infelicitous (recall the discussion of this same usage of direct object 'los' in the immature third grader's narrative). All other pronouns in the narrative are unambiguous. For example, the narrator clearly establishes a referent for null pronouns 2 through 4. The fact that the NP 'Carlos' is left-dislocated in "Carlos, since (he) is the mom, tries to calm him," makes the referent especially salient.

3.2.3 Comparison of third graders

The narratives suggest that the mature third grader produces fewer ambiguous pronouns than the immature third grader. Unfortunately, there are very few third person singular pronouns in the mature third grader's narrative. Therefore, our interpretation of the differences between the mature and immature third graders is tentative.

3.3 Fifth Graders

3.3.1 Immature fifth grader

The following narrative is from a female fifth grader who was 11;2 when she was interviewed.

3.3.1.1 Picture book narrative

*José y Carlos están hablando. En la mañana. Luego José le platica a Carlos que le ha pasado en el día. Luego Ø quieren dibujar un rato. Y Ø **1. le** muestran sus dibujos de que ... es-- Ø están dibujando. Luego Ø se van de la cocina que Ø dibujan. Luego **2. Ø 3. le** muestra, luego **4. Ø 5. le** muestra **6. sus** juguetes y **7. Ø 8. le** dice si **9. Ø** quiere jugar al doctor. Entonces **10. Ø 11. le** pide que **12. Ø** revise mm. que si **13. Ø** puede que si **14. Ø 15. lo** puede revisar. Luego, un tiempo después Ø se ponen a ver la tele. Un programa chistoso. Y luego Ø lo cambian a… de béisbol. Luego Ø tienen un poco de hambre. Y Ø sienten que **16. Ø** tiene ha.. Ø tienen hambre como de comerse un cocodrilo. Luego Ø están pensando en qué Ø podrían hacer. Entonces es… Ø empiezan a … hacer cosas chistosas. Luego… mmm.… que que le pide José a Carlos que si Ø pod— que si Ø quiere jugar a- al bebé. Entonces este Ø empiezan a jugar. Luego… ya **17. Ø 18. le** dic-- eh porque empieza a llorar José. Y **19. Ø 20. le** dice que **21. Ø** se calle este porque **22. Ø** hace mucho ruído. Y luego Ø ya se callan y Ø están felices. Luego Ø ya se van ya ya. Fin.* (535)

José and Carlos are talking. In the morning. Later José tells Carlos what (he) has done during the day. Later (they) want to draw for a while. And (they) show **1. him? her?** their drawings that… (they) are drawing. Later (they) leave the kitchen that (they) draw. Later **2. (he)** shows **3. him**, Later **4. (he)** shows **5. him 6. his** toys and **7. he** says to **8. him** if **9. (he)** wants to play doctor. So, **10. (he)** asks **11. him** that **12. (he)** examine, if **13. (he)** can, if **14. (he)** can examine **15. him**. Later, a little while after (they) start to watch T.V. A funny program. And later (they) change it to… from baseball. Later (they) are a little hungry. And (they) feel that **16. (he)** has… (they) are hungry enough to eat a crocodile. Later (they) are thinking about what (they) could do. So it's.. (they) start to do funny things. Later…. Mmm… that that José asks Carlos if (he) ca— if (he) wants to play… baby. So um (they) start to play. Later, **17. (he)** says (cut off) to **18. him**-- eh because José starts to cry. And **19. (he)** says to **20. him** that **21. (he)** be quiet um because **22. (he)** is making a lot of noise. And later (they) are quiet and (they) are happy. Later (they) leave. The End.

Ambiguous pronouns are pervasive in this narrative. Pronouns 2 through 16 all refer to José or Carlos, but are entirely ambiguous. The referents of these pronouns are never

established for the interlocutor. Pronouns 17 through 22 are also ambiguous. These pronouns are included in a false start. The relevant sentences are repeated below in (7).

(7) *Luego… ya* ***Ø*** ***le*** *dic-- eh porque empieza a llorar José. Y* ***Ø*** ***le*** *dice*
Later… (filler)[48] (he) to-him sa-- um because starts to cry José. And (he) to-him says

que ***Ø*** *se calle este porque* ***Ø*** *hace mucho ruído.*
that (he) reflexive quiet um because (he) makes much noise.

'Later… (he) says to him—um because José starts to cry. And (he) tells him to be quiet because (he) is making so much noise.'

José had asked Carlos if he wanted to play 'baby.' Therefore, if the participant had not self-corrected and had simply said "and he tells him to be quiet because he's making so much noise," it would not have been clear who was acting like a baby. The fact that the speaker stops herself and adds that it is José who starts to cry suggests that she makes a small, but not entirely successful, attempt at disambiguating her pronouns for the interlocutor. It can be inferred that the subject of 'tell' is Carlos, and the subject of 'making noise' is José, since José is crying. On the other hand, José could be crying because Carlos is making so much noise. This is a less likely interpretation, but it cannot be ruled out based upon the information provided by the speaker.

There is also an unrecoverable pronoun in this narrative. Consider the indirect object pronoun 1 in "and they show (him? her?) their drawings." There are only two characters, José and Carlos, in the picture book. Thus, pronoun 1 cannot be deictic, and its referent is entirely inaccessible to the interlocutor.

[48] Although in some contexts *ya* is an adverb, meaning 'enough' or 'already,' is very frequently used as a filler in the Mexican children's narratives. In such cases we do provide a corresponding English word *ya* in our translations.

3.3.1.2 Immature fifth grader's made-up story

In contrast to the picture book narrative, the immature fifth grader's pronouns were much more accessible to the interlocutor when she made up her own story.

*Dos niños van al parque en la tarde. Luego… Uno se llama Juan y el otro se llama Pablo. Y uno se sube a la resbaladilla y el otro este se sube a los columpios, pero Pablo se cae del columpio. Este… luego.. .este… (laughs)… em.. luego van a **1. su** casa a ver, porque, a ver si **2. Ø** se lastimó muy duro entonces este Ø bajan y este **3. Ø 4. le** quitan las heridas. Este… luego Ø regresan al parque porque ellos quieren volver a ir a jugar. Entonces este… Pablo se sube a la resbaladilla y le sigue Juan. Entonces se van corriendo a unas carreras a **5. su** casa y este… Ø llegan a cenar con **6. su** mamá. Y… fin.*

Two boys go to the park in the afternoon. Later… one is called Juan and the other is called Pablo. And one goes up the slide and the other um goes on the swings, but Pablo falls off the swing. Um.. later… um (laughs)… um… later (they) go to **1. his? their?** house to see, because, to see if **2. (he)** hurt himself very badly, so um (they) come down and um **3. (they)** take away **4. his** wounds. Um… later (they) return to the park because they want to play again. So um… Pablo goes up the slide and Juan follows him. Then (they) leave racing to **5. his? their?** house and um… (they) arrive to eat dinner with **6. his? their?** mother. And… The end.

The narrator makes a false start in the second sentence after she says *luego,* 'later.' Instead of continuing her story, she stops to give the two boys names. Presumably, the main purpose of naming her characters is so that she will be able to refer back to them later. This demonstrates that the immature fifth grader has acquired the tools necessary to produce a cohesive text.

The null pronoun 2 and the possessive pronoun 4 clearly refer to Pablo, who might have hurt himself badly, since he is the character that fell off the swing. Even though the referent of third person plural null pronoun 3 was not specified, this does not indicate an immature reference-tracking system, since this is a common usage of null

third person plural pronouns in adult Spanish (for example, see Lapidus & Otheguy, 2005).

The only potentially ambiguous pronouns in this narrative are the possessive pronouns 1, 5, and 6. If the participant intended for Juan and Pablo to be brothers, then these possessive pronouns unambiguously refer to both characters; however, since Spanish third person possessive pronouns do not agree with the possessor in number,[49] 1, 5, and 6 could refer to only one of the main characters, in which case, these would all be examples of ambiguous pronouns. There is not enough information to determine whether the boys are brothers. Thus, we do not know if there are any ambiguous pronouns in this narrative. Regardless of whether 1, 5, and 6 are ambiguous, the immature fifth grader's made-up story is far less confusing than her picture book narrative.

3.3.2 Mature fifth grader

This female fifth grader was 11;1 when she was interviewed.

3.3.2.1 Mature fifth grader's picture book narrative

*José y Carlos estaban jugando un día, cuando de repente Carlos este… tuvo una idea y Ø jugaron a que **1. él** era el papá y que José era el hijo. Después Ø jugaron a que Ø eran unos piratas y también a que Ø eran doctores. Después Ø miraron mucho la tele y Ø vieron las caricaturas, el circo, y béisbol. Después les dio un poco de hambre entonces Ø pensaron que-- Ø empezaron a jugar a que la cocina era como coco los cocodrilos. José y Carlos ya se estaban aburriendo pero Ø empezaban a hacerle como le… Después José y Carlos estaban jugando que uno era el bebé y el otro se tapaba los oídos porque no **2. le** gustaba como **3. Ø** era. Después de todo eso José y Carlos ya no querían jugar porque Ø pensaron que era muy mala idea hacer que los que que **4. Ø** llorara y que, **5. Ø** le molestaba al otro. (508)*

[49] Spanish third person possessive pronouns agree in number with the possessed noun, not the possessor.

José and Carlos were playing one day when suddenly Carlos um… had an idea and (they) played that **1. he** was the father and that José was the son. Then (they) played that (they) were pirates and also that (they) were doctors. Then (they) watched a lot of T.V. and (they) watched cartoons, the circus, and baseball. Then they got a bit hungry so (they) thought that… (they) started to play that the kitchen was like croc- the crocodiles. José and Carlos were already getting bored but (they) started to make like the… Then José and Carlos were playing that one of them was the baby and the other covered the ears because it wasn't pleasing to **2. him** how **3. (he? it?)** was. After all that, José and Carlos didn't want to play anymore because (they) thought that it was a very bad idea to make that they that that **4. (he)** cried and that **5. (he)** bothered the other one.

The only overt subject pronoun in this narrative is pronoun 1, and it is used contrastively.[50] Null pronouns 2 through 5 are ambiguous; they could refer to either Carlos or José. The use of 'the other one' in the final sentence suggests that the speaker was avoiding specific reference to Carlos or José. Thus, even the mature fifth grader produced some ambiguous pronouns in her picture-book narrative.

3.3.2.2 Mature fifth grader's made-up story

The mature fifth grader's made-up story did not contain any ambiguous pronouns.

Child: *Había una vez una niña que se llamaba … Marisol.*
Researcher: *Marisol, muy bien*
Child: *Marisol era bajita, un poco gordita y le gustaba mucho cantar.* ***1. Ella*** *quería ser cantante de grammy XX pero su abuelita le decía que mejor no y que Ø fuera una presidenta. Después* ***2. Ø*** *dice no* ***3. Ø*** *quería ser presidenta y* ***4.*** *le Ø enseña a su abuelita que* ***5.*** *Ø podia cantar muy bien y que* ***6.*** *Ø podia ser una artista. Pero la abuelita vio que sí* ***7.*** *Ø quería y* ***8. Ø*** *la dejó ser artista. Después a Marisol, Marisol fue con la disquera y Ø grabó un disco. En-- y después de eso Ø se hizo muy famosa XX Y desde allí la abuelita ya ha visto que* ***9. ella*** *sí quería ser buena artista. Ya.*
Researcher: *¿Ya? ¿Qué dijo la abuelita?*
Child: *Que que que que* ***10****.* ***ella*** *debería ser lo que* ***11. ella*** *quisiera.* (508)

[50] The obligatoriness of overt pronouns in such contrastive contexts is a topic of debate (see, for example, Amaral & Schwenter, 2005). Such usage is beyond the scope of the present study. However, a comparison of the development of overt pronouns in contrastive contexts with those in non-contrastive contexts may be informative for the debate. For example, we might predict that pronouns would emerge earlier in obligatory contexts than in contexts that permit variation.

Child: Once upon a time there was a little girl named Marisol.
Researcher: Marisol, very good.
Child: Marisol was short, a little fat and it was very pleasing to her to sing. **1**. **She** wanted to be a singer of XX grammy XX But her grandma told her no and that (she) should be a president. Then **2. (she)** said XX no **3. (she)** didn't want to be a president and **4. (she)** shows her grandma that **5**. (she) could sing very well and that **6. (she)** could be an artist, but the grandma saw that yes, **7. (she)** wanted it and **8. (she)** let her be an artist. Later, Marisol, Marisol went with the recorder and (she) recorded an album. In.. and after that (she) became very famous XX And since then the grandma has seen that yes **9. she** wanted to be a good artist. That's it.
Researcher: That's it? What did the grandma say?
Child: That that that that **10**. **she** should be whatever **11**. **she** wanted.

The overt subject pronouns 1 and 11 are in Maintain Reference environments. Had they been omitted, the referent would still have clearly been Marisol. The overt pronouns 9 and 10 are in Change Reference environments. If these pronouns had been null, their referents would have been clear due to the discourse context. On the other hand, changing reference seems to be the function of 9 and 10. Therefore, overt pronouns may signal a change in reference even when such a signal is not necessary for disambiguation.

Null pronouns 2 through 6 were all in Maintain Reference environments and unambiguously referred to Marisol. The reference to Marisol is clear from the context as well as the maintenance of reference. Null pronouns 7 and 8 were in Change Reference environments, but given the discourse context, we can tell that 7 refers to Marisol, who wanted to be an artist, and 8 referred to the grandma, who let Marisol become an artist. There were no ambiguous pronouns in the mature fifth-grader's made-up narrative.

3.3.3 Comparison of fifth graders

The mature fifth grader's picture book story contains fewer ambiguous than the immature fifth grader's picture book story, suggesting that there is a connection between

sensitivity to Change Reference contexts in the preference task and the production of ambiguous pronouns in speech. Notice also that the mature fifth grader's narratives contain overt subject pronouns, whereas the immature fifth grader's narratives do not. Thus, the mere presence of overt subject pronouns in production data might be indicative of a later stage of development with respect to the alternation between overt and null subject pronouns. Both participants produced more ambiguous pronouns when narrating the picture book, indicating that the physical presence of the referents influenced both narrators' choice of referring expressions. This is reminiscent of the findings for definite NPs, discussed in Chapter 3 (Section 4.3). Recall that children produced more infelicitous definite NPs when the referent was visible than when the referent was not visible. Thus, when children can see a referent, they sometimes refer to that referent deictically, even when the referent is not accessible to their interlocutor.

3.4 Seventh Graders

3.4.1 Immature seventh grader

This female seventh grader was 12;11 when she was interviewed.

3.4.1.1 Immature seventh grader's picture book narrative

*José le dice hola a Carlos y Carlos le dice hola. El.. **1. Ø 2. Le** dicen qué quieren jugar y qué quieren a la vez comer. Y le dice José a Carlos, ¿qué prefieres comer? Un plátano o … o un … o dibujar. Y le dice este… este Carlos, le dice bueno, no, hay que jugar a los--al doctor. El.. eh… A la hora de que José está jugando se supone que este Carlos tiene—se empieza a sentir mal. Aburridos ya de jugar eso prefirieron ver la tele y reír mucho pero se aburrieron del programa que estaban viendo y le cambiaron al béisbol. Este José le dijo a Carlos, "e imagínate que ahorita aparezcan unos cocodrilos." Y **3. Ø 4. le** dice, sería fantástico, ¿no? Y **5. él**, **6. él** que pedó—**7. Ø** se empezó a reír, **8. Ø** dijo 'No te rías por favor' Y **9. Ø 10. le** dice ¿qué es eso? le dice José a Carlos. Es es para que parezcas niño chiquito. ¡Quieto ya! ¡Pareces bebé! ¡Ya Contrólate! Y ya quítate esos ropones. Y se fueron felices. (705)*

José says hi to Carlos and Carlos says hi to him. He.. **1. (They)** ask **2. him** what (they) want to play and what (they) want to eat at the same time. And José says to Carlos, "what do you prefer to eat? A banana or … or a … or to draw?" And (he) says to him um … um Carlos, says to him fine, no, we must play the – doctor. He… um.. When José is playing, supposedly um Carlos has – (he) starts to feel badly. Already bored of playing that (they) preferred to watch T.V. and laugh a lot but (they) got bored of the program (they) were watching and (they) changed it to baseball. This José said to Carlos, "and imagine that right now some crocodiles appeared." And **3. (he)** says to **4. him**, "it would be fantastic, no?" And **5. he, 6. he** who asked**-- 7. (he)** started to laugh, **8. (he)** said "don't laugh please." And **9. (he)** says to **10. him**, "What is that?" José says to Carlos. (It) is is so that you appear like a little boy. Quiet already! (You) seem like a baby! Control yourself already! And take off those clothes. And (they) went off happy.

Pronoun 1 is presumably an inaccessible pronoun referring to an unidentified specific third person plural entity.[51] As mentioned earlier, there are only two characters in the picture book, making the use of a plural verb in "they ask him" quite odd. Indirect object pronoun 2 is singular. Therefore the referent of pronoun 2 is ambiguous and could refer to either José or Carlos.

In the sentence "and 3. (he) says to 4. him, 'it would be fantastic,'" it is unclear who is speaking. Thus, pronouns 3 and 4 are ambiguous. In the next sentence, "and he, he who asked," an incorrect form, *pedó* occurs. We interpret this form to be an overregularization of the third person singular preterit form of *pedir*, 'to ask.' The correct, irregular form is *pidió.* If this interpretation is correct, then it follows that overt pronouns 5 and 6 most likely refer to José, since he is the character who asked Carlos to imagine crocodiles. However, since the text is confusing, this conclusion is tentative.

Null pronoun 7 the subject of "started to laugh" is ambiguous. On the one hand, the null triggers a Maintain Reference reading. Thus, if our interpretation of pronouns 5 and 6 is correct, we might infer that the subject of 7 is also José. In other words, we

[51] The final *–n* in *dicen* and *quieren* are very clearly pronounced, unambiguously marking third person plural in these verbs.

would interpret ‘he, he who asked—(he) started to laugh’ as ‘he who asked started to laugh.’ On the other hand, the referent of 7 could easily be inferred as Carlos since the referent of 7 is asked not to laugh, just after he starts laughing. Presumably, the boy who suggested that they imagine crocodiles is the one who would be laughed at by the other; however, this interpretation is far from definitive. Another possible piece of evidence that Carlos is the referent of 7 is that a few frames after the crocodiles appear, there is a picture of Carlos laughing (see picture 16). If Carlos is indeed the referent of 7, this is a case of ambiguity resulting from the use of a null pronoun in a Change Reference environment. Assigning reference to pronoun 8, the null subject of “(he) said, ‘don’t laugh please’” depends upon the reference assigned to pronoun 7. Thus, pronoun 8 is also ambiguous. Furthermore, pronoun 8 is also a null pronoun in a Change Reference context, thereby increasing the inaccessibility of the referent for the interlocutor.

3.4.1.2 Immature seventh grader’s made-up story

Unlike the finding for the fifth graders’ narratives, there appears to be just as much ambiguity in the immature seventh grader’s made-up story as there was in her narration of the picture book.

Child: *Bueno yo ya había inventado un cuento. Lo voy a contar.*
Researcher: *Perfecto*
Child: *Se supone que se llama ¨El Ángel Perdido.¨*
*Era una vez un señor que era bastante viejo y Ø no podía-- o sea Ø tenía que estar al cuidado de muchas personas. Pero **1. él** vivía retirado de la ciudad en una granja con sus animales y era muy huraño. Y Ø sólo tenía una vecina que era muy amable y que por cierta razón **2. ella** lo quería. Un día, el el señor encontró una bola abajo de la alfombra decía ¿qué diablos es esto? Y Ø le pegaba Ø le pegaba y **3. Ø** empezaba a chillar y **4. Ø** dice ya cállate. Ø Pegaba y **5. Ø** se iba a dormir. Al día siguiente, Ø volvió a encontrar la bola entonces Ø le volvió a pegar porque Ø no sabía qué era.*

Un día el… el señor estaba muy enfermo y ***6. Ø*** *salió de ahí porque el ángel estaba asustado no* ***7. Ø*** *quería salir porque* ***8. Ø*** *pensó que el señor no lo iba a recibir. Ø Salió y* ***9. Ø*** *le dijo ¨ven conmigo¨ y* ***10. Ø*** *le dice ¨no,* ***11. (yo)*** *no quiero ir allá.* ***12. Yo*** *quiero seguir viviendo.¨*

Llegó la señora y ***13. Ø*** *dice y* ***14. Ø 15. le*** *dijo este… el viejito le dijo, ¨por favor ayúdame, Ø no quiero morir¨ Y Ø le dice, ¨no vas a morir ya todos están muertos. Todo los que Ø tienes aquí a tu alrededor ya murieron.¨ Y Ø se quedó de, ¨no o sea yo estoy viendo todos, no?¨ Y ya bueno o sea ya como ya las cosas así normales pues Ø ya estaba muerto. Y pues Ø ya vivieron felices para siempre. (705)*

Child: Well, I already invented a story. I'm going to tell it.
Researcher: Perfect
Child: It's supposedly called "The Lost Angel." Once upon a time a man that was pretty old and couldn't, I mean, (he) had to be taken care of by a lot of people. But **1. he** lived far from the city on a farm with his animals and (he) was very antisocial.

And (he) had only one neighbor who was very nice and for some reason **2. she** loved him. One day, the the man found a ball under the rug. (He) said, "what the heck is this?" and (he) hit it (he) hit it and **3. (he? it?)** started to scream and **4. (he? it?)** says "be quiet already" (he) hit (it) and **5. (he? it?)** went to sleep. The next day, (he) found the ball again so (he) hit it again because (he) didn't know what (it) was.

One day the… the man was very sick and **6. (he? it?)** came out of there because the angel was afraid. **7. (He? It?)** didn't want to come out because **8. (he)** thought the man wouldn't receive him. (He) came out and **9. (he)** said to **10. him**, "come with me" and **11. (he)** said "no, **12. (I)** don't want to go there. **13. I** want to keep on living."

The woman arrived and said and **14. (he? she?)** said to **15. him? her?** I mean, the old man said to her, "please help me, (I) don't want to die." And (she) says to him "you are not going to die. Everyone is already dead. Everyone that you have around you already died." And (He) was like, "no, I mean, I am seeing everyone, no?" And well I mean well like well those normal things well. (He) was already dead. And well (they) lived happily ever after.

Notice the immature seventh grader's subject pronouns are overwhelmingly null, though she does produce two overt third person singular subject pronouns (1 and 2). Both 1 and 2 are in Maintain Reference contexts and their referents would have been clear even if they had been null pronouns. Pronouns 3 through 6 are ambiguous; they could refer to the old man or the ball, since the ball is clearly animate. These pronouns are only

disambiguated much later when we find out the ball is actually an angel. The referents of null pronouns 3 and 4 are particularly difficult to track because these pronouns occur in Change Reference contexts. Null pronoun 5, the subject of "went to sleep," presumably refers to the old man. This interpretation is facilitated by the fact that 5 is null and triggers a Maintain Reference reading. It is also possible, however, that the angel went to sleep.

Pronoun 6, which is the null subject of 'came out' also triggers a Maintain Reference reading, and initially the interlocutor assumes the referent of 6 is the old man. This turns out to be incorrect: it is the angel who emerges from its hiding place. The interlocutor also mistakenly takes the old man to be the referent of pronoun 7, the null subject of "didn't want to come out." The next sentence, however, "(he) thought the man wouldn't receive him," indicates that the angel is the referent of pronouns 6, 7, and 8. Pronouns 9 through 13 are ambiguous until later in the story, when the old man says he doesn't want to die.

The narrator's self-correction that occurs after pronouns 14 and 15 ("I mean, 'the old man said to her'") indicates that the narrator knows that 14 and 15 are ambiguous. Perhaps, then, this self-correction is a sign that the narrator is transitioning into a more mature stage and is beginning to consider the interlocutor's need for more information.

3.4.2 Mature seventh grader

This female seventh grader was 12;9 when she was interviewed.

3.4.2.1 Mature seventh grader's picture book narrative

The middle section of the following narrative was omitted because all references were to third person plural entities.

*Un día llega Carlos a la casa de José y **1. Ø** le empieza a saludar. **2. Ø** Le pregunta cómo Ø está y José le responde "muy bien." José le invita a pasar a su casa y ya adentro, **3. Ø** le pregunta si **4. Ø** tiene hambre o si **5. Ø** quiere algo de comer. .... Carlos y José se ponen a jugar al bebé. Carlos es el papá y José es el bebé. Pero Carlos se desespera a ver que **6. Ø** llora demasiado. Un tiempo después Ø se aburren y Ø se van a la casa de Carlos. (710)*

One day Carlos arrives at José's house and **1. (he)** starts to greet him. **2. (He)** asks him how (he) is and José responds to him 'very well.' José invites him to come into his house and once inside, **3. (he)** asks him if **4. (he)** is hungry or if **5. (he)** wants something to eat …. Carlos and José start to play baby. Carlos is the father and José is the baby. But Carlos becomes infuriated seeing that **6. (he)** cries so much. A little while later (they) get bored and (they) go to Carlos's house.

This narrative illustrates a mature system of reference tracking. The referents of null pronouns 1, 2 and 3 are clear because these pronouns appear in Maintain Reference contexts. Consider pronoun 1. The listener believes that 1 refers to Carlos because Carlos is the subject of the previous sentence, and it is expected that the null pronoun will corefer with the subject of the previous sentence. So too with null pronoun 2, the referent of which is still Carlos. This is confirmed when the speaker says *y José le responde 'muy bien,'* 'and José responds to him 'very well.' Although there are no overt pronouns in this narrative, the speaker avoids ambiguous nulls by including full lexical NPs, such as when she says *Carlos es el papá y José es el bebé*, 'Carlos is the father and José is the baby.' The referents of all the pronouns are entirely accessible to the listener.

3.4.2.2 Mature seventh grader's anecdote

*Bueno, pues, de mi hermana… sí un día que **1. Ø** salió a dejar la basura típica de una XX pero Ø tenemos un vecino que tiene un Rottweiler. Entonces ya de regreso, este, **2. Ø** se topó con el Rottweiler y **3. Ø** la empezó a perseguir. Mi hermana, no más pensar en subirte a una reja [self-corrects] en subirse a una reja pero no no no ya… **4. Ø** se fue corriendo a la casa y ya Ø la abrimos. **5. Ø** Se metió.*

O.K., well, about my sister… yes one day that **1. (she)** went to take out the garbage typical of a XX but (we) have a neighbor who has a Rottweiler. So then upon returning, um, **2. (she)** came across the Rottweiler and **3. (it)** started to follow her. My sister only thinking about you climbing a fence [self-corrects] about her climbing a fence but no no no **4. (she)** went running to the house and (we) opened it. **5. (She)** went inside.

There are no overt subject pronouns in this narrative, but none of the null pronouns are ambiguous. Null pronoun 1 is in a Maintain Reference environment and refers to the protagonist of the story. Null pronoun 2 is in a Change Reference context. In the previous sentence, a second human entity is introduced, the neighbor; however, the sentence, "but we have a neighbor who has a Rottweiler," is parenthetical and does not take our focus away from the protagonist, the speaker's sister. Null pronoun 3 is in a Change Reference context, but we assume that the Rottweiler follows the sister, not the other way around, due to our real world knowledge. The null pronoun in 4 refers to the 'my sister.' Null pronoun 5 is in a Change Reference context, but it is clear from the discourse context that the sister went inside the house.

3.4.3 Comparison of seventh graders

The difference between the immature and mature seventh graders' narratives is striking. The immature participant produced an abundance of ambiguous pronouns in her narrative of the picture book and her made-up story. Her stories were difficult to follow,

and some of her pronouns were never disambiguated. The mature participant, on the other hand, did not produce ambiguous pronouns in either of her narratives.

3.5 Eighth Graders

3.5.1 Immature eighth grader

This eighth grade boy was 13;2 when he was interviewed.

*De que Ø tengo un amigo que su papá siempre tomaba cerveza y Ø se emborrachaba y todos **1. le** hacían la burla. Y un día Ø teníamos partido y Ø ganamos y su papá, por festejar, Ø se fue y Ø tomó cerveza. Ø Se emborrachó mucho. Ø Lo llevaron al doctor y Ø lo operaron y Ø se murió. Y luego todavía Ø **2. le** siguen haciendo burla.* (806)

(I) have a friend that his father always drank beer and (he) got drunk and everyone made fun of **1. him**. And one day (we) had a game and (we) won and his father, to celebrate, (he) went and drank beer. (He) got very drunk. (They) brought him to the doctor and (they) operated on him and (he) died. And later (they) are still making fun of **2. him**.

This very short narrative does not provide much substance for analysis. The only possibly ambiguous pronouns are those labeled 1 and 2. They could potentially refer to the alcoholic father or to the friend of the speaker, i.e., the son of the alcoholic. Most likely they refer to the alcoholic father. In either case, this is a comparatively spare and immature narrative.

3.5.2 Mature eighth grader's picture book story

This eighth grade girl was fourteen years and two months when she was interviewed. Because the narrative is so long, we present it here in three parts.

3.5.2.1 Part A

Un día José estaba en su casa deseando que lo visitara su amigo… y llegó Carlos y ***1. Ø*** *le fue a tocar y …XX…. hola…. entonces… José invita a Carlos a pasa.* ***2. Ø*** *Le dice, '¿quieres pasar? Tengo una pelota nueva.' 'Ah sí,' y Ø pasa, pero entonces a Carlos le da hambre. Y* ***3. Ø 4. le*** *dice mejor Ø vamos a la cocina después Ø jugamos con la pelota, …. y el otro le dice, 'no Carlos, no seas tragón. Yo quiero jugar …mira Ø tengo muchos juguetes' … y* ***5. Ø*** *abre su baúl y* ***6. Ø 7. le*** *enseña todos sus juguetes…que* ***8. Ø*** *tiene así de doctor de piratas… '¿A qué* ***9. Ø*** *quieres jugar?' Y ya… '****10. Yo*** *quiero jugar al doctor.' 'Bueno pero* ***11. yo*** *soy el doctor.' 'Está bien.' … ya Carlos se acuesta en la cama y* ***12. Ø*** *se hace el enfermito ….*

One day José was in his house hoping that his friend would visit him… and Carlos arrived. And **1. (he)** went to knock and … XX… hi.. so… José invites Carlos to come in, **2. (he)** says to him, "Do (you) want to come in? (I) have a new ball." "Ah yes," and (he) goes in, but then Carlos gets hungry. And **3. (he)** says to **4. him**, why don't (we) go to the kitchen, later (we'll) play ball…. And the other says to him no Carlos, don't be a pain. I want to play … look (I) have a lot of toys… and **5. (he)** opens his trunk and **6. (he)** shows **7. him** all his toys… that **8. (he)** has, like of doctors, of pirates… "What do **9. (you)** want to play?" And so… "**10. I** want to play doctor." "O.K. but **11. I** am the doctor." "Fine." ... so Carlos gets into the bed and **12. (he)** acts like the sick person …

At the very beginning of the narrative the speaker establishes that José is in his house and Carlos comes to visit. This helps the interlocutor locate the referents of pronouns 1, 2, 5, 6, 7, and 8. We infer that pronoun 3, the null subject of '(he) says to him,' refers to Carlos because of the context (Carlos is hungry). Our interpretation that pronoun 3 refers to Carlos is also influenced by the fact that 3 is a null pronoun in a Maintain Reference context. Even so, it is impossible to know that Carlos is the intended referent, since José could also suggest that they go to the kitchen (since his visitor is hungry). Thus, pronouns 3 and 4 are ambiguous.

3.5.2.2 Part B

Entonces Carlos le dice no pero yo tengo mucha hambre, ya Ø jugué contigo, dame de comer. 'Bueno, está bien, vamos a la cocina.' Ø Van a la cocina. '¿Como qué se te antoja?' '¿Qué tienes?' ***13. Ø*** *Se queda mmm… …. de repente Carlos se empieza*

*imaginar cocodrilos extraños, ¿quien sabe por qué? Pero **14. Ø** se estaba imaginado cocodrilos… Ah, **15. Ø** se estaba imaginado que su amigo come como un cocodrilo. … Ø van a la sala, y **16. Ø** no le da de comer finalmente porque no había nada en la cocina y entonces **17. Ø** se queda con hambre… todo enojadito… **18. Ø** se va a sentar a la sala…y el tipo este, y el otro José está, 'no te enojes, no te enojes, vamos a jugar otro rato'… y 'no yo no quiero jugar porque estoy enojado porque no me das de comer' …. Pero de todos modos el otro sigue insistiendo.*

Then Carlos says to him no, but I am very hungry, (I) already played with you, give me something to eat. Fine O.K. let's go to the kitchen. (They) go to the kitchen. What do (you) feel like having? What do (you) have? **13. (He)**'s like mmm… … all of a sudden Carlos starts to imagine strange crocodiles, who knows why? But **14. (he)** was imagining crocodiles… Ah, **15. (He)** was imagining that his friend eats like a crocodile. Later (they) go to the living room, and **16. (he)** doesn't give him anything to eat in the end because there was nothing in the kitchen and so **17. (he)** remains hungry … all angry .. **18. (he)** goes to sit in the living room.. and this one. And the other one is, don't get mad, don't get mad, let's play a bit more… and no I don't want to play because (you) don't give me anything to eat … But even so the other one keeps insisting.

Null pronoun 13 refers to José. Carlos asks José what there is to eat, and José stops to think about it. Even though there are a series of null pronouns in Change Reference contexts, the narrator provides enough contextual information so that the interlocutor can locate the referent of each subject. Pronouns 14 and 15 clearly refer to Carlos. These are null pronouns in Maintain Reference contexts. Carlos is established as the subject of 'starts to imagine crocodiles,' and the next two null pronouns refer to the same subject. Pronouns 16 and 17 are unambiguous because the interlocutor already has enough background information to establish referents for these pronouns, even though these are null pronouns in Change Reference contexts. We know that null subject 16 in '(he) doesn't give him anything to eat' refers to José and null subject 17 in '(he) remains hungry' refers to Carlos because of the prior context. Perhaps overt pronouns would facilitate Change Reference interpretations, but they are not needed here for disambiguation.

Pronoun 18 is ambiguous at the moment it is uttered: the subject of "(he) goes to sit in the living room'" could refer to either Carlos or José. The next sentence, "and the other one is, 'don't get mad,'" disambiguates 18, making it clear that the referent is Carlos. Thus, 18 is an example of a null pronoun that signals Maintain Reference.

3.5.2.3 Part C

*Y entonces le grita José a Carlos para que juegue y **19. Ø** lo hace reír… y ya entonces ya Ø se contentan…. Y **20. Ø** dice bueno pero ahora **21. yo** [=Carlos?] escojo el juego, **22. Ø** quiero jugar al busito, y **23. Ø** se pone unas cosas rosas raras en la mano y el tipo [=José] se sienta en la sala, y **24. Ø** le dice, "no pero **25. yo** no quiero jugar al busito" …. "bueno **26. yo** te cuento el juego y Ø me dices si te gusta" … a José no le gustó el jueguito así que Ø se acostó en la sala y Ø empezó a llorar y a comportarse como un bebé.. Carlos se enojó y le empezó a doler la cabeza entonces Ø se sentó en la sala, Ø ignoró a José, … pero como Ø se cansó de que José estuviera gritando tanto, finalmente … Ø le gritó que Ø se callara… que Ø ya lo había hartado .. y que Ø ya se iba ir si Ø no se callaba. y entonces José le pidió perdón a Carlos, que le dijo, "bueno ya te perdono. Pero no lo vuelvas hacer." Y se fueron felices como amigos como siempre. (804)*

And so José yells at Carlos that (he) play and **19. (he)** makes him laugh … and so then (they) become happy …. And **20. (he)** says O.K. but now **21. I** [=Carlos?] choose the game, **22. (I)** want to play with a scuba suit, and **23. (he)** puts some strange pink things on his hand, and the boy [=José] sits down in the living room and **24. (he)** says to him, no but **25. I** don't want to play scuba … well **26. I** will tell you the game and (you) tell me if it's pleasing to you … José didn't like the game so (he) lied down on the floor and (he) started to cry and to act like a baby. Carlos got mad and his head started hurting him so (he) sat down in the living room (he) ignored José … but since (he) got tired of José yelling so much, finally … (he) yelled at him to be quiet … and that (he) was already fed up ... and that (he) was going to go if (he) didn't be quiet. And so José asks Carlos to forgive him, that (he) said, O.K. (I) forgive you. But don't do it again. And (they) left happy like friends forever.

Pronoun 19 is ambiguous, but we infer that the referent is José because we know that Carlos had been angry. Pronouns 20 and 21 refer to Carlos. We infer this reference because we know that José had chosen the game earlier. Thus, pronoun 21 is used contrastively. At this point in the narrative the pronouns become more ambiguous. We

can infer that pronouns 24 and 25 refer to José, since Carlos says he wants to play with a scuba suit. Pronoun 26, however, could refer to either boy at the moment it is uttered. When the narrator says, "José didn't like the game," it becomes clear that the referent of 26 is Carlos.

3.5.3 Comparison of eighth graders

Unfortunately, we do not have enough data to compare the immature and mature eighth grader's ambiguous pronoun production. Of note is the clear difference in length: the mature eighth grader's narrative was much longer than the immature eight grader's narrative. The mature eighth grader's narrative, while relatively cohesive and complete, was not entirely devoid of ambiguous pronouns.

3.6 Ninth Graders

3.6.1 Immature ninth grader

This immature ninth grade girl was 14;10 when she was interviewed.

*Bueno que había una vez una mujer que trabajaba en un hospital. Y en su trabajo le tocaba tener a muchos pacientes. Y en ese trabajo, Ø conoció a un hombre muy guapo el cual estaba enfermo de cáncer. Pero em ella lo atendió durante mucho tiempo y Ø se enamoró de él. Pero **1. Ø** se dio cuenta de que Ø no iba a sobrevivir mucho tiempo y Ø murió. Pero luego Ø se dio cuenta de que Ø era un millonario y que ella era la única que había hablado con él. Y Ø se había quedado con toda su fortuna. (906)*

Well… once upon a time there was a woman that worked in a hospital. And in her work, she had many patients. And in that job, (she) met a very handsome man, who was sick from cancer. But, um, she tended to him for a long time and (she) fell in love with him. But **1. (she?)** realized that (he) was not going to survive for a long time and (he) died. But later (she) realized that (he) was a millionaire and that she was the only one that had spoken with him. And (she) ended up with all of his fortune.

The only potentially ambiguous pronoun is the null pronoun 1. The most likely referent of this null subject is the woman, but it is also possible that the man realized that he was not going to survive. All of the other pronouns have clear, accessible referents.

3.6.2 Mature ninth grader

This mature ninth grade girl was fourteen years and eleven months when she was interviewed.

*Bueno mi abuelito.. que se llamaba, ai… ¿Cómo se llamaba?… Leopoldo… **1. él** un día pues su, mi abuelita estaba embarazada, y entonces pues **2. Ø** ya iba a dar a luz…y entonces Ø se la llevaron al hospital. **3. Él** estaba trabajando… y pues ya Ø se la llevaron al hospital… Y pues **4. Ø** ya estaba dando a luz, casi, casi… y entonces cuando **5. él** se enteró…. **6. El** fue corriendo al hospital pero **7. Ø** iba así como todo nervioso…. Porque **8. él** se ponía muy nervioso…y entonces pues **9. Ø** iba corriendo y resulta que en la entrada del hospital había una puerta de vidrio de esas que dan vuelta… pero era como muy transparente entonces **10. Ø** no la veía y entonces y como **11. Ø** iba muy nervioso… **12. Ø** Corrió, **13. Ø** corrió, **14. Ø** corrió… y **15. Ø** se estampó contra el vidrio… y entonces pues ya después **16. él** era que estaba en el hospital….y ya.. y la … Mi abuelita ya había salió… **17. Ø** ya había dado a luz y todo… pero no fue tan grave… y pues después ya entonces **18. él** salio…y ya.. (931)*

Well my grandpa … who was called, um, What was his name? … Leopoldo … **1. He** one day well his, my grandma was pregnant, and so well **2. (she)** was already going to give birth ... and so (they) brought her to the hospital. **3. He** was working. … and well (they) brought her to the hospital … And well **4. (she)** was already giving birth, almost, almost… and so when **5. he** found out … **6. He** went running to the hospital but **7. (he)** was going along like all nervous… Because **8. he** got very nervous… and so **9. (he)** went running and (it) turned out that at the entrance to the hospital there was a glass door, one of those that goes around... but (it) was like very transparent so **10. (he)** didn't see it and so and since **11. (he)** was going along so nervous… **12. (He)** ran, **13. (he)** ran, **14. (he)** ran… and **15. (he)** smashed against the glass.. and so well after **16. he** was the one who was in the hospital… and so… and the… My grandma had already left… **17. (she)** had already given birth and everything… but (it) wasn't so serious… and well after then **18. he** left… and that was it…

There are no unambiguous pronouns in this narrative. The interlocutor easily follows the speaker as she switches back and forth between references to her grandfather and grandmother alternating between overt and null subjects.

4. Conclusion

More data are needed to confirm the relationship between ambiguous pronouns in production data and the preference for null pronouns in Change Reference contexts. However, the dramatic differences between the immature and mature third, fifth, and seventh graders' narratives included in this appendix indicate that such a relationship is likely. Less helpful are the narratives from the eighth and ninth graders, though even these narratives suggest that the mature and immature participants differ with respect to narrative ability. Thus, the narratives analyzed support the interpretation that the development of sensitivity to Change Reference is related to a general increase in the use of referring expressions that clearly identify referents.

The following pictures are frames from the book, WHAT'S PRETEND? (Ziefert, 2004). Pictures are numbered to indicate the order of appearance.

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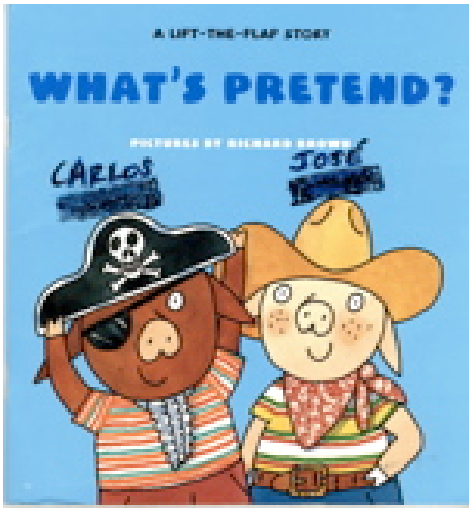

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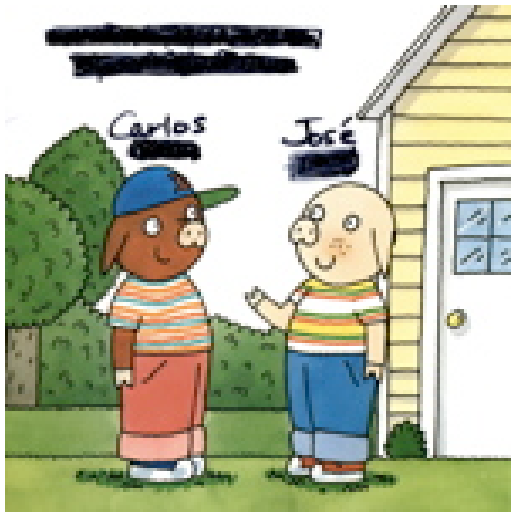

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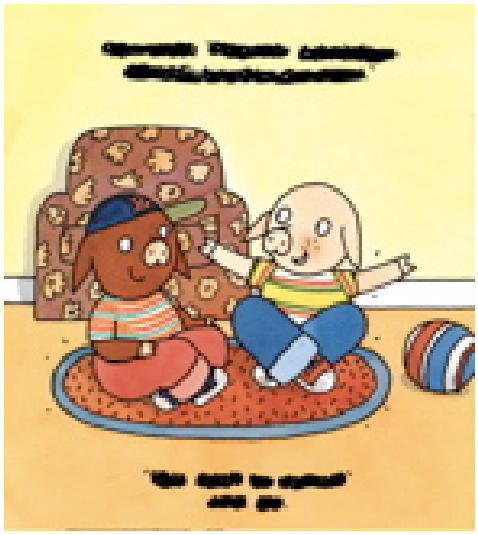

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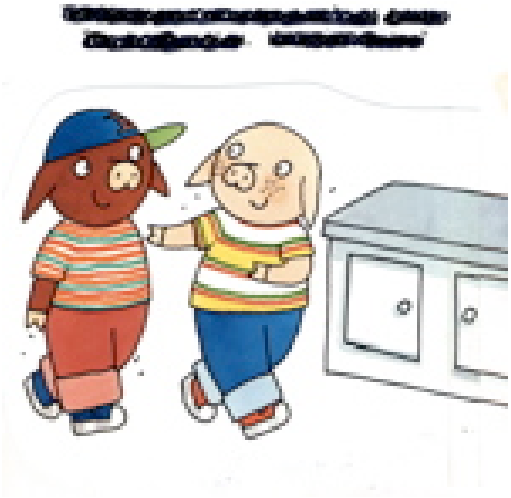

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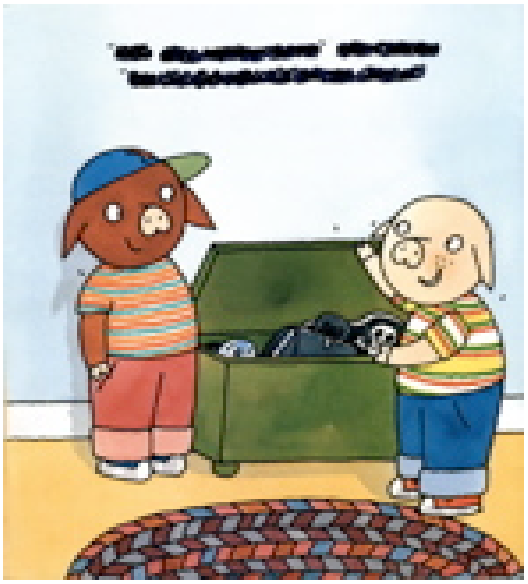

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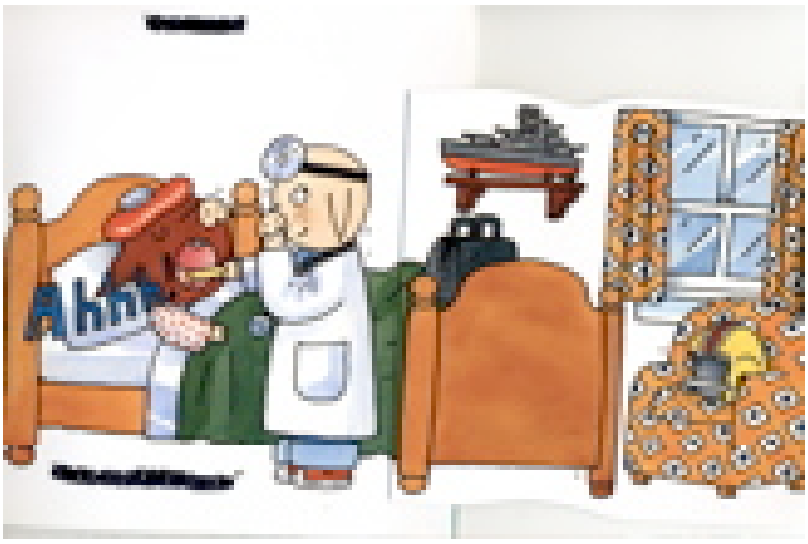

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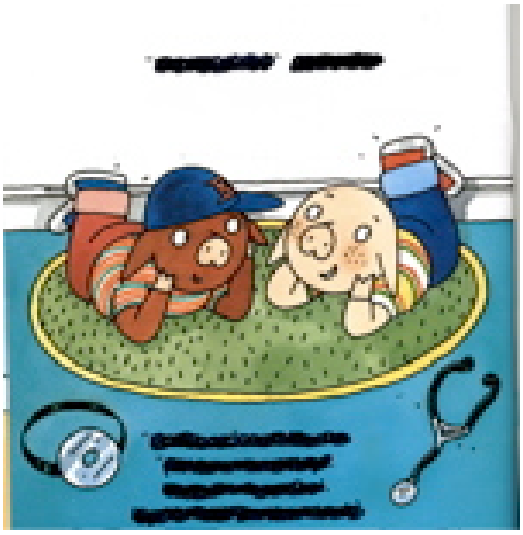

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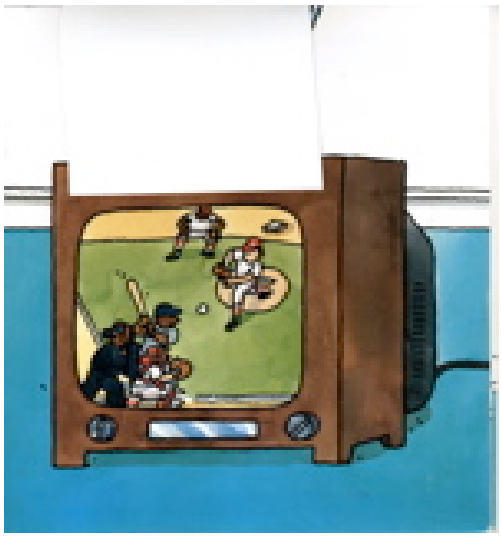

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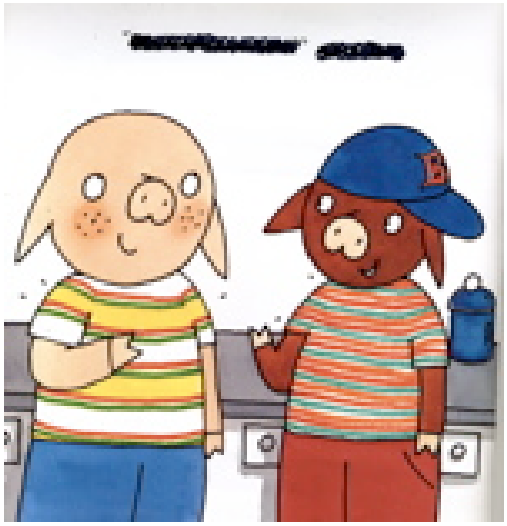

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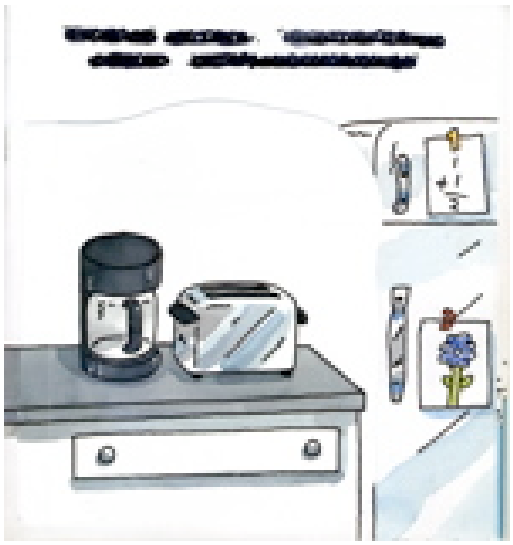

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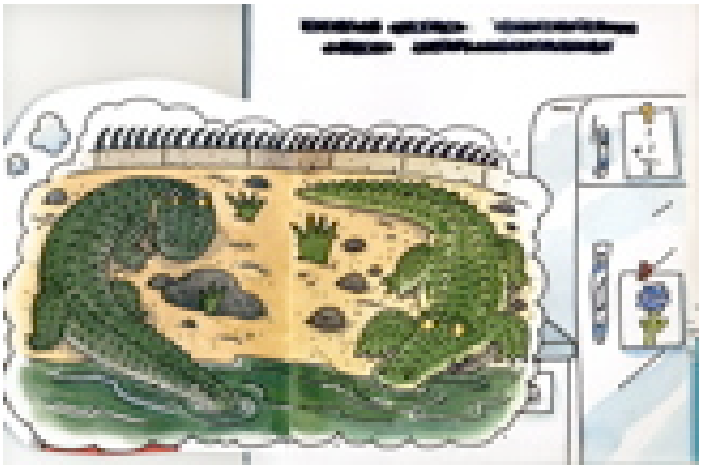

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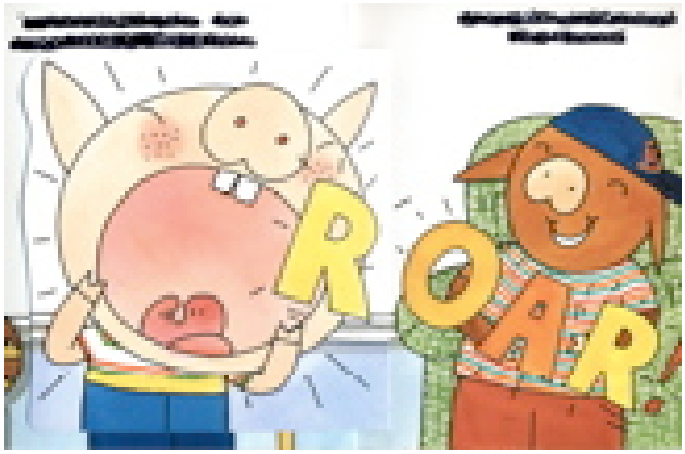

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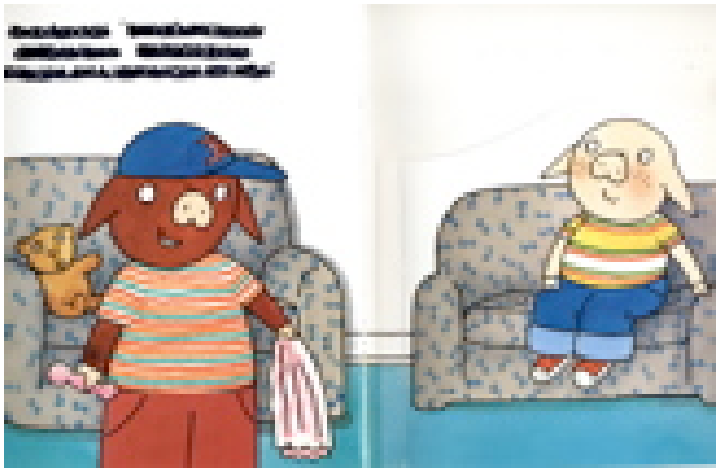

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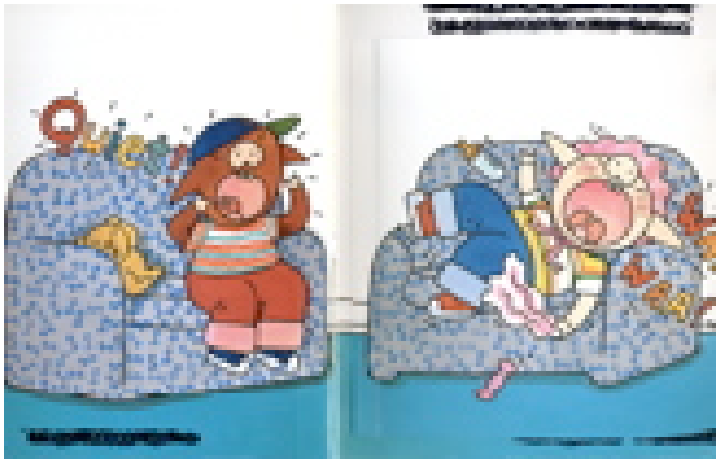

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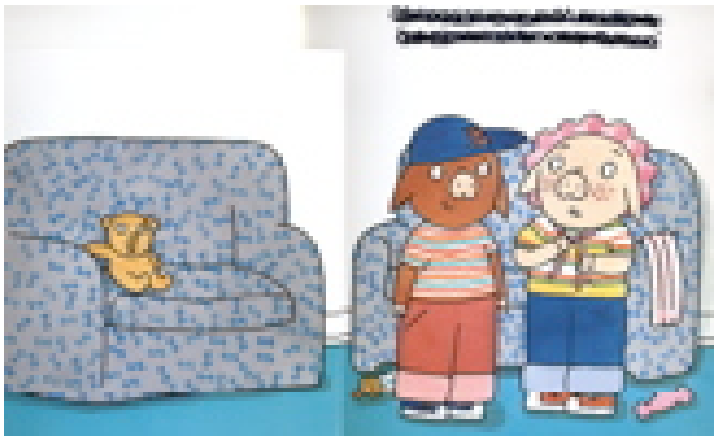

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