

# Anaphoric Preferences of Null and Overt Subjects in Italian and Spanish: a Cross-linguistic Comparison

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## Declaration

I hereby declare that this thesis is of my own composition, and that it contains no material previously submitted for the award of any other degree. The work reported in this thesis has been executed by myself, except where due acknowledgement is made in the text.

Francesca Filiaci

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# Abstract

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This thesis focuses on the cross-linguistic differences between Italian and Spanish regarding the pragmatic restrictions on the resolution of null and overt subject pronouns (NS and OSP). It also tries to identify possible links between such cross-linguistic differences and morpho-syntactic differences at the level of the verbal morphology of the two languages.

Spanish and Italian are typologically related and morpho-syntactically similar and have been assumed to instantiate the same setting of the NS parameter with respect to not only its syntactic licensing conditions, but also the pragmatic constraints determining the distribution of null and overt subject pronouns, and this assumption has had important implications for cross-linguistic research. The first aim of this study was to test directly for the first time the assumption about the equivalence of Italian and Spanish; in order to do so, I run a series of self-paced reading experiments using the same materials translated in each language, so that the results were directly comparable. The experiments were based on Carminati's (2002) study on antecedent preferences for Italian NSs and OSPs in intra-sentential anaphora, testing the Position of Antecedent Strategy. The results suggest that while in Italian there is a strict division of labour between NS and OSP (confirming Carminati's findings), this division is not as clear-cut in Spanish. More precisely, while Italian personal pronouns unambiguously signal a switch in subject reference, the association between OSPs and switch reference seems to be much weaker in Spanish. These results, which are interpreted in terms of Cardinaletti and Starke's (1999) cross-linguistic typology of deficient pronouns, highlight an asymmetry between the strength of NS and OSP biases in Spanish that could not have emerged through the traditional methodology used by the numerous variationist studies on the subject, based on corpus analysis.

A subsequent pair of experiments tested the hypothesis that the cross-linguistic differences attested might be related to the relative syncretism of the Spanish verbal morphology compared to the Italian one with regard to the unambiguous expression of person features on the verbal head. The results only provided weak support for the hypothesis, although they did confirm the presence of the cross-linguistic differences in the processing and resolution of anaphoric NS and OSP dependencies revealed by the previous experiments.

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# CHAPTER 1

## Introduction

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### 1.1 Scope of the Thesis

The aim of this thesis is to explore the cross-linguistic differences between Italian and Spanish regarding the interpretation of anaphoric subjects, in particular of phonetically empty subjects (*pro*) and overt subject pronouns.

Both Italian and Spanish are null subject languages, which means that the subject position in a tensed clause can be occupied by a phonetically empty anaphoric expression. The alternation of null subjects with overt one, such as personal pronouns, NPs, or proper names, produces subtle interpretational differences in the discourse, and a great deal of linguistic and psycholinguistic research has focused on the investigation of the factors that determine the felicitous use and interpretation of different anaphoric expressions in given discourse conditions. So, in the context of null subject languages, one of the main questions is: under which discourse conditions can (or must) subject pronouns be dropped, and when are they necessary? What principles constrain their use and guide their interpretation? And do these principles have cross-linguistic validity?

My work focuses on the last question: to what extent are the pragmatic principles constraining the choice and guiding the resolution of anaphoric expressions universal? In order to tackle this question I will analyse in detail Italian and Spanish. These two languages are closely typologically related, both belonging to the Romance family, they have similar syntactic and morphological characteristics, and they instantiate the same setting of the null subject parameter. For

these reasons, it has often been assumed by the literature, sometimes implicitly, that the two languages could be considered equivalent from the point of view of their null subject properties in general and their use and interpretation of null and overt subject pronouns in particular (see for example [Alexiadou & Anagnostopoulou 1998](#), [Sorace et al. 2009](#)). The research questions I am trying to address in this study can be formulated more precisely in the following terms:

1. Can Spanish and Italian be considered equivalent from the point of view of the anaphoric properties of null and overt subject pronouns?
2. If differences between the two languages emerge, what is their extent and where should we expect to find them?
3. What could be the source of any cross-linguistic variation? Is it related to other morpho-syntactic differences between the two languages?

## 1.2 Background

With a series of self-paced reading experiments and questionnaire studies, Carminati (2002) provided psycholinguistic evidence that the resolution of intra-sentential anaphora in Italian produces a processing penalty if a null subject is forced to retrieve an antecedent in a non-prominent position, whereas the opposite effect obtains for personal pronouns, that is, a penalty is incurred when the overt pronoun has to co-refer with the most prominent antecedent. Carminati defines prominence in syntactic terms: the most prominent antecedent in a sentence, she argues, is the constituent that occupies the highest structural position, SpecIP, that is the preverbal subject position. The preverbal subject position in Italian, apart from being structurally higher, is normally occupied by the sentence topic (see [Casielles-Suárez 2004](#), on Spanish), and can therefore be considered particularly prominent also from the point of view of information structure.

Carminati also claims that these parsing biases, that she names the ‘Position of Antecedent Strategy’ are based on universal pragmatic principles and she refers in particular to Accessibility Theory ([Ariel 1990](#)), according to which *poorer*, uninformative expressions should be universally used to retrieve prominent discourse antecedents, whereas relatively *richer* and more informative expressions can be

used to retrieve less prominent antecedents. If the universality claims of the pragmatic principles that motivate the Position of Antecedent Strategy are correct, then we should find equivalent parsing strategies for null and overt subjects in other null subject languages.

Variationist studies on several varieties of Spanish have consistently reported a correlation between the use of overt subject pronouns and a switch in subject reference to a non–topic antecedent (for example [Cameron 1992](#), [Enríquez 1984](#), [Flores-Ferrán 2002, 2004](#)), which seems to suggest that similar parsing strategies apply to Spanish and Italian. On the other hand, [Morales \(1997\)](#) partly challenges this view, arguing that at least in some varieties of Spanish (Puerto Rican Spanish in particular) preverbal subject pronouns do not necessarily signal topic discontinuity, but can also be used to *reinforce* a topic. Preliminary psycholinguistic evidence ([Alonso-Ovalle et al. 2002](#)) also suggests that, in Spanish, subject pronouns ambiguously referring to prominent and non-prominent antecedents (i.e. the syntactic subject or object of the previous clause) are interpreted by participants at chance level between the two possible interpretations.

### 1.3 Experiments

Four experiments are presented in this thesis. The experimental paradigm used throughout the study is a moving window self-paced reading. The idea is that if an anaphoric expression is forced to select an antecedent against its processing bias, this will produce a processing penalty for the reader, which will result in increased reading times. Comprehension questions were asked to verify that the anaphors were interpreted correctly. Higher reaction times and higher error rates should occur for questions following sentences that were particularly difficult to understand, providing further evidence for the presence of processing difficulties.

The first two experiments (Chapter 4 and 5) were designed to answer question (1), and (2) above and tested whether the processing biases encoded by the Position of Antecedent strategy apply to Italian and Spanish in a comparable way. The first experiment used the materials and procedure of [Carminati’s \(2002\) Experiment 1](#). The procedure was a clause by clause self-paced reading task; the

materials were adapted from Carminati (2002) and translated into Spanish to obtain two equivalent sets of materials. This allowed me to compare the data directly across the two languages. The results indicated the presence of cross-linguistic differences concerning only the processing of the overt pronoun. This cross-linguistic difference was confirmed by Experiment 2, implemented using the same experimental design, but a more stringent methodology. Furthermore, the materials in this experiment were presented phrase by phrase, allowing for a more detailed insight in the on-line resolution of anaphoric subjects.

A further experiment, presented in Chapter 6, tackled question (3), and looked at the possible relation between the cross-linguistic differences between Italian and Spanish, as revealed by Experiment 1 and 2, and other morpho-syntactic asymmetries between the two languages. It tested the hypothesis that the different anaphoric preferences of overt subject pronouns in the two languages may be related to the extent to which the verbal morphology uniquely identifies person features on the verb. In Spanish more verbal tenses than in Italian have homophonous forms for two or more persons. In these tenses, the verbal morphology alone may not be sufficient to identify unambiguously the person features of the subject. According to the ‘Morphological Ambiguity Hypothesis’, this ambiguity should account for the fact that overt pronouns in Spanish, unlike Italian, do not seem to display a strong preference for antecedents in particular structural positions. It also predicts that in Italian the structural bias of the overt pronoun should be relaxed when the pronoun is used with a tense with ambiguous verbal morphology.

A last experiment, also reported in Chapter 6, dealt again with question (2), as it tested whether the null subject bias, that was found to be valid for both Italian and Spanish, still applies in different discourse contexts, namely when the order of main and subordinate clause and the coherence relation between them are manipulated. This experiment revealed that, in both languages, both the relative order of main and subordinate clause and the type of coherence relation between clauses affect significantly the null subject bias.

## 1.4 Findings

As for question (1), the results of Experiment 1 and 2 suggest that, in the discourse contexts analysed, Italian and Spanish cannot be considered equivalent. The data showed that the resolution of null subject anaphors yields comparable processing penalties in both languages, but also revealed the existence of cross-linguistic differences regarding the anaphoric preferences of overt pronouns. While in Italian overt subject pronouns are strongly biased towards retrieving a non-prominent antecedent, facilitating a switch in subject reference, in Spanish they do not seem to be associated with such bias. They produce no significant processing penalties when they are used to maintain the subject reference across clauses and do not seem to facilitate reference switch to a non-topic antecedent. These results are compatible with predictions based on accessibility theoretic assumptions (Ariel 1990) about the universality of the Accessibility Markers scale and of the pragmatic principles that motivate the anaphoric preferences of different expressions. They are also compatible with cross-linguistic typologies of pronouns proposed by [Cardinaletti & Starke \(1999\)](#) within the generative framework, or [Bresnan \(1997, 2001\)](#) within the framework of Optimality Theory.

As for question (3), the results of Experiment 3 do not provide support for the Morphological Ambiguity Hypothesis as formulated here, since the amount of ambiguity of the agreement inflection morphology did not seem to affect significantly the resolution of overt pronouns in either language.

On the other hand, the results of Experiment 4 (Chapter 6) suggest that different discourse contexts need to be analysed before any definitive claims about the anaphoric properties of null and overt subjects can be made. This experiment suggests that the anaphoric preferences of the null subject are affected by the order of main and subordinate clause, an effect also attested by a questionnaire study in [Carminati \(2002\)](#), and which the author attributed to the *Late Closure* strategy ([Frazier & Fodor 1978](#)). The results also indicate that the type of subordination relation between clauses has an effect on the antecedent preference of the null subject, but only in the main-subordinate clause order.

## 1.5 Broader Significance

This thesis is the first attempt to compare directly the properties of equivalent anaphoric expressions in two morpho-syntactically similar languages and to test the cross-linguistic validity of a pragmatically motivated processing strategy such as the Position of Antecedent strategy.

By comparing directly the same experimental tasks, carried out in two different languages, this work not only provides data about the cross-linguistic validity of pragmatic principles that are claimed to be universal, but it also provides information that is essential for the cross-linguistic study of anaphora resolution, a phenomenon at the interface between syntax and pragmatics. The cross-linguistic study of such phenomena has been the focus of increasing attention within the field of language acquisition during the last decade, since so called *interface phenomena* have been claimed to be the locus of cross-linguistic influence in situations of language contact, like for example in contexts of simultaneous or consecutive bilingual language acquisition (Hulk & Müller 2000, Müller & Hulk 2001, Sorace 2011). From a developmental point of view, interface phenomena are considered to be unstable, late acquired, and particularly vulnerable to language loss, but it is clear that both syntactic and pragmatic aspects need to be thoroughly understood in all the languages involved before generalisations about vulnerability to cross-linguistic influence can be made.

As mentioned above, the results of this study are compatible with accessibility theoretic assumptions about the universality of Accessibility Markers scale. Finally, this study offers an analysis of Spanish overt pronouns as weaker forms, compared to their Italian counterparts, in terms of Cardinaletti & Starke (1999) cross-linguistic typology of deficient pronouns.

## 1.6 Structure of the Thesis

The rest of the thesis is organised as follows:



Chapter 2 discusses the similarities between Italian and Spanish regarding their null subject characteristics. It also provides a description of their overt pronominal system.

Chapter 3 describes linguistic and psycholinguistic theories of anaphora resolution and discusses their predictions about the distribution and interpretation of anaphoric expressions with reference to their cross-linguistic validity.

Chapter 4 focuses on Italian and Spanish and provides a review of the data available on the distribution and interpretation of null and overt subjects in each language. This chapter also presents the first experiment, comparing directly the resolution of null and overt subjects in Italian and Spanish.

Chapter 5 presents the second experiment, which uses the same variables and design as the previous one, but, thanks to a more stringent methodology, provides more stringent results and investigates more in detail the time-course of the anaphora resolution.

Chapter 6 presents the Morphological Ambiguity hypothesis, an attempt to find a source for the cross-linguistic differences between Italian and Spanish. A further control experiment presented in this chapter looks at the effects of the relative order between main and subordinate clause and of the coherence relation between clauses on the anaphoric preferences of the null subject.

Chapter 7 gives a summary of the experimental findings, a general discussion about their relevance and possible directions for future work.



## CHAPTER 2

# Anaphoric expressions in Null Subject Languages

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### 2.1 Introduction

Anaphors are expressions that depend, for their interpretation, on the interpretation of another expression in the discourse (the antecedent). Languages differ in terms of the type and number of anaphoric expressions in their inventories, which can range from phonetically empty expressions (often referred to as zero, null anaphor, *pro*, or  $\emptyset$ ) to different types of overt pronouns and nouns. This thesis focuses on two types of anaphors that can occupy the subject position of a tensed clause in Italian and Spanish: the phonetically empty null anaphor, and the personal pronoun.

Languages that, like Italian and Spanish, allow the subject of a tensed verb to be phonetically null are known as null subject languages. Linguists have been trying for some time to provide a unified account for the properties of null subject languages, as opposed to non-null subject languages (those requiring the subject of a tensed verb to be overtly realised), but this effort has not been entirely successful, since whenever a large enough sample of (typologically different) languages is considered, this phenomenon appears to be more diverse than was originally thought.

In this chapter I will discuss the similarities and differences between Italian and Spanish in terms of their null subject properties and their pronominal systems. I will argue that these null subject properties are largely but not completely equivalent, and that they should be related to the nature of the verbal morphology.

The first part of the chapter deals with the morphosyntactic similarities and differences between Italian and Spanish within the broader context of null subject languages. In the second part of the chapter I outline and compare the characteristics of Italian and Spanish pronominal systems with particular reference to the cross-linguistic typologies proposed by [Cardinaletti & Starke \(1999\)](#), within the Generative framework, and by [Bresnan \(1997, 2001\)](#) within the framework of Optimality Theory.

## 2.2 Typologies of Null Subject Languages

The label of null subject language has been used to identify a diverse group of languages that have in common the possibility of leaving the subject of a tensed verb phonetically empty as shown by the following examples from Spanish and Italian, contrasted with English:

- (2.1) a. It.: Anna/ $\emptyset$  guarda la televisione.  
 b. Sp.: Anna/ $\emptyset$  ve la televisión.  
 c. Eng.: Anna/\* $\emptyset$  watches TV.

But are all “ $\emptyset$ ” the same? Do they display the same properties across null subject languages and within each language? And what is exactly a *phonetically empty* referring expression?

The existence of a phonetically empty expression occupying the subject position in null subject languages was postulated to satisfy the Extended Projection Principle (EPP) ([Chomsky 1982](#)), stating that the subject position in a sentence must be filled. [Huang \(1994, 2000\)](#), following [Chomsky \(1982\)](#), [Rizzi \(1986a\)](#) and [Falk \(1993\)](#), identifies three types of null subjects (referential, quasi-argumental and expletive<sup>1</sup>) and suggests that languages should be divided into three classes

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<sup>1</sup>This three-way division is the result of the interaction of two properties: referentiality and argumenthood. Referential expressions are referential arguments of the verb; quasi-arguments and expletives are both non-referential, but quasi-arguments are actual arguments of the verb (e.g. the subject of temporal or atmospheric predicates) whereas expletives are not. [Huang \(2000, p. 50\)](#) illustrates the difference with the following Italian examples:

- (i) (a) Pavarotti<sub>i</sub> dice che  $\emptyset_i$  mangia gli spaghetti.  
 ‘Pavarotti<sub>i</sub> says that  $\emptyset_i$  eats spaghetti.’  
 (b)  $\emptyset$  piove.  
 ‘(It) is raining.’

depending on which types of null subjects are allowed by their grammar. The three classes are:

- (2.2)      A. Non-null subject languages (no null subjects are allowed);  
               B. Full null subject languages (all three types of null subjects are possible);  
               C. Semi-null subject languages (null subjects are allowed only under restricted circumstances).

Class (2.2A) includes languages like English and French; class (2.2B) includes languages such as Italian and Spanish, but also Chinese and Japanese. The last class, (2.2C), includes a variety of languages, some of which only allow expletive null subjects (like Dutch and German), others allow expletive and quasi-argumental null subjects (e.g. Icelandic and Faroese), and finally others allow all three types of null subjects but only in restricted syntactic contexts (e.g. Yiddish).

Within the classification suggested by Huang, then, Spanish and Italian belong to the same class of languages, since they allow all three types of null subjects without syntactic restrictions, but notice that this class also includes languages that are typologically unrelated to these two, and very different from a morpho-syntactic point of view, such as Chinese and Japanese. As a matter of fact, one of the most striking differences between null subject languages like Italian and Spanish on the one hand, and Chinese or Japanese on the other, is the availability in the former type, but not in the latter, of rich verbal agreement morphology allowing for the identification of the content of the unpronounced subject.

### 2.2.1 Null Subjects and verbal morphology

Within the Principles and Parameters framework, it is assumed that languages vary along a limited number of options (the parameters) with a limited number of settings, and that the setting of one parameter is responsible for a whole set of properties in the language. Based on this assumption, linguists have tried to

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(c)  $\emptyset$  sembra che Pavarotti mangi gli spaghetti.  
 ‘(It) seems that Pavarotti eats spaghetti.’

identify clusters of properties co-occurring across languages, as the presence of such clusters would suggest the existence of a single underlying parameter.<sup>2</sup>

One of the early observations about the availability of referential null subjects was that they tended to occur in languages with rich verbal agreement morphology (Taraldsen 1978, Perlmutter 1971). This observation led researchers to think that the two properties were related, in the sense that, it was argued, the agreement morphology on the verb must allow for the recovery of the content of the phonetically empty subject, licensing its presence. Languages like Italian and Spanish are consistent with this generalisation, since they present all three types of null subjects together with a system of subject–verb agreement where the verbal morphology expresses overtly person and number features, as is shown in the following example from the indicative present paradigm in the two languages:

<b>Italian</b>	<b>Spanish</b>
parlo	hablo
parli	hablas
parla	habla
parliamo	hablamos
parlate	hablais
parlano	hablan

In spite of such cases, when a larger number of typologically different languages is taken into account, this correlation turns out to be falsified in both directions: on the one hand null subjects (and indeed null objects) are allowed in languages that lack subject–verb (or object–verb) agreement morphology, as in the case of Chinese; on the other hand, the presence of a relatively rich verbal agreement morphology does not seem to be sufficient by itself to license null subjects in a language (for example Icelandic and German have relatively rich verbal paradigms, but still do not allow thematic null subjects).

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<sup>2</sup>More recent developments of the theory have moved away from this idea of parametric variation. What I am interested in here is the relation between the availability of null subjects and the characteristics of the verbal morphology, it is beyond the scope of this thesis to discuss the implications of more theoretical developments.

### 2.2.1.1 The Morphological Uniformity hypothesis

Jaeggli & Safir (1989) tried to identify a possible more subtle relationship between null subjects and verbal agreement morphology with the Morphological Uniformity hypothesis, suggesting that null subjects are licensed in languages in which the verbal inflectional paradigm is morphologically uniform. For a paradigm to be morphologically uniform, the authors claim, all of its forms have to be either underived bare roots or derived inflected forms. The Morphological Uniformity hypothesis, correctly predicts that null subjects should be permitted in languages with rich agreement morphology if all the forms in the paradigm are inflected, which is the case for both Italian and Spanish. It also predicts that null subjects should be expected in languages that, like Chinese, have no verbal agreement morphology, since all the verbal forms are uniformly uninflected. Finally the hypothesis correctly predicts that in languages like English or French, where some forms are inflected but others correspond to the bare verb stem, null subjects should not occur.

Notice that the notion of Morphological Uniformity does not require that each form in the paradigm be unique, or even inflected specifically for person or number; forms could be inflected, for example, for tense, mood, or aspect, like in the case of Japanese, what is important is that no form correspond to the bare stem alone. Jaeggli and Safir argue that the Morphological Uniformity hypothesis accounts for the cross-linguistic distribution of non-referential (quasi-argumental and expletive) null subjects. For referential null subjects to be permitted, a language needs, apart from a morphologically uniform paradigm, also a mechanism to recover the content of the null subject; this can be achieved in different ways. In languages of the Spanish and Italian type, with *strong agreement*<sup>3</sup>, identification occurs through the features in the Agreement node that has to govern the empty category and needs to be able to assign case to it. In languages without strong agreement, the authors argue that there are two processes involved: the null subject can be c-commanded by a higher NP, in which case it will be interpreted as co-referential with that NP, or, under a null-topic analysis, a null

<sup>3</sup>Jaeggli and Safir do not really clarify what they mean by *strong agreement*, but from their discussion, it seems to be related to the actual morphological richness of the agreement.

operator can move leaving a Wh-trace in subject position which needs to be free in the scope of the operator, yielding a reading involving disjoint reference from any c-commanding NPs.

An important aspect of the Morphological Uniformity hypothesis is that it sets out two separate conditions for the availability of thematic null subjects across languages: a licensing condition and an identification condition. Languages that meet the licensing condition can be further divided depending on whether they also possess any identification mechanisms, and on the type of mechanisms that are involved in the identification process. On the other hand it is not clear what motivates the requirement that the verbal morphology should be uniform for null subjects to be licensed. Furthermore, even this hypothesis can be falsified when enough languages are considered, as many morphologically uniform languages do not actually seem to license null subjects (see [Huang 2000](#), p. 69 for more details).

### 2.2.1.2 Licensing and identification: *strong* Agreement

Since the empirical evidence does not point to any clear, direct relationship between specific morphological characteristics of the verbal agreement system and the conditions that are necessary and sufficient to trigger the availability of null subjects, any formulation of the null subject parameter needs to take into account that such a relationship, if it exists, is probably indirect. To formalise this fact [Rizzi \(1997, p. 273\)](#) proposes the following formulation of the parameter (based on [Rizzi \(1986a\)](#)) where the two requirements of formal licensing and identification are separate, and the licensing condition (2.4A) no longer mentions any morphological characteristics of the verbal system:

- (2.4) The Null Subject Parameter:
- A. Formal licensing:  
 $pro$  is licensed by  $X_y^{\circ}$  under agreement or government
  - B. Identification:  
 $pro$  inherits features from licensing  $X^{\circ}$

The first requirement, as stated in clause (2.4A), now simply states that for the null subject to be licensed in a language, it needs to be in a local agreement



or government configuration with a licensing head. The set of licensing heads is parameterised (Rizzi 1986) and the parameter can take a number of different values: in a language like English, that does not drop arguments, the set of licensing heads is empty; in languages like Italian and Spanish, that allow *pro* in subject position, Inflection (or AgrS), must belong to the set of licensing heads. Whether or not a head belongs to the set of licensing heads does not seem to depend on any of its morphological characteristics, in fact there seem to be no independent features that determine whether a head is a potential licenser or not, apart from the occurrence of null arguments within its governing domain.

The second clause of the parameter (2.4B) establishes a possible link between the appearance of referential null subjects and the morphological realisation of the verbal agreement, stating that for *pro* to be interpreted referentially, it needs to be able to inherit (person and number) features from its licensing head, that is the verbal Inflection. According to Rizzi, for the identification to be possible, the licensing head needs to be *rich*, that is it needs to realise overtly the grammatical feature of *person*. Even though Rizzi never spells this out clearly, this requirement should imply that in a paradigm where some forms lacked overt person inflection, or corresponded to the verb root, these forms should not be able to identify the content of a referential null subject.

This formulation of the parameter, similarly to the Morphological Uniformity hypothesis, accounts for two facts: that a rich verbal morphology is not sufficient to license null subjects, this depends on what Rizzi calls the *strength* of the agreement, and that there should be languages that allow non-referential null subjects only, because their strong agreement fulfils condition (2.4A) but is not rich enough to allow for identification, but the opposite situation should not be attested (i.e. languages that only admit referential null subjects). As Rizzi (1986) points out, though, his formulation of the null subject parameter makes incorrect predictions for Chinese, a language that, lacking agreement morphology, should be unable to fulfil requirement (2.4B) and should be expected to allow only non-referential null subjects. Rizzi argues that a typology like (2.2) should include a different class for languages of the Chinese type, separating them from the Spanish/Italian type. He argues in fact that the identification requirement is

operative only in languages that make morphological and grammatical use of person and number features. In a language like Chinese, that does not make use of such features, this requirement is vacuous and referential null subjects are allowed even in the absence of agreement morphology on the verb. Although it seems implausible that the content of referential null subjects is simply never recovered in Chinese-type languages, Rizzi does not speculate any further about the nature of possible recovery mechanisms. Perhaps the intuition is that such recovery cannot happen at the morpho-syntactic level but is fulfilled at some other level of representation. See section 2.2.1.3 for a brief discussion of Huang's (2000) approach to this issue.

As for the notion of *strong* agreement, Rizzi (1982, 1986*a,b*, 1997) claims that agreement in Italian can be thought of as characterised by a [+ pronominal] feature specified in the licensing head Inflection. This feature enables Inflection to license null subjects, it is parameterised, and therefore absent in non-null subject languages, and independent from morphological richness. Rizzi further argues that the strong agreement in Italian can behave like a clitic pronoun (Rizzi 1982, p. 131) in the sense that, because it is *rich* and specified for person and number, it can be interpreted like a definite pronoun. The fact that agreement inflection in Italian is obligatory, and that it is not in complementary distribution with subject NPs (unlike object clitics, which are in complementary distribution with overt object NPs) is due to the fact that the specification of the [+ pronominal] feature is *optional*. According to Rizzi, this feature is only specified in null subject sentences; when it is not specified, *strong* inflection behaves pretty much like the inflection of non-null subject languages, that is, although it is still morphologically *rich*, it is not [+ pronominal].

Rizzi's analysis is not without problems. We will go back to the question of the pronominal nature of the verbal agreement inflection in section 2.2.2, for the time being it should be noticed that, if the setting of the null subject parameter (or at least the setting of the licensing requirement) amounts to the specification of a [+pronominal] feature on Inflection, and if this feature is only specified optionally in Italian (and Spanish), this is really equivalent to saying that Italian (and Spanish) can optionally switch between a positive and a negative setting of

the null subject parameter and it is not clear what should trigger the switching. If, on the one hand, Rizzi's idea captures the intuition that overt subject sentences are fundamentally equivalent in null subject and non-null subject languages, it is on the other hand problematic from the point of view of acquisition. Given that, according to the Principles and Parameters model, acquisition amounts to setting parameters based on evidence, a parameter that can switch settings within one language should be unlearnable and therefore problematic (or simply useless) from the point of view of the theory.

### 2.2.1.3 Pragmatic and syntactic languages

Going back briefly to the issue of differentiating between null subject languages with and without agreement morphology in (2.2B), a different approach from Rizzi's is suggested by Huang (1994, 2000), who, following Givón (1979), argues that languages can be divided into two classes: syntactic and pragmatic. Languages belonging to each of the two classes are systematically different in a number of properties which include, according to Huang, anaphora resolution mechanisms. Italian, Spanish or English are prototypical syntactic languages, in which the content of any dropped argument is identified by syntactic means; Chinese, Japanese and Korean are prototypical pragmatic languages, in which the binding properties of empty categories are determined pragmatically. Huang (2000, p. 265) claims that if there is a clash between world knowledge and syntax, pragmatic languages will use world knowledge to interpret the linguistic expression, whereas syntactic languages will rule out the expression as ungrammatical.

Huang's observations seem to indicate that argument drop in languages with and without rich agreement morphology may be a different phenomenon altogether, that should be accounted for in relation to other characteristics of the languages. As Rohrbacher (1999) points out (p. 246), dropped subjects in Japanese, identified through the discourse, could be assumed to be instances of Topic Drop, or phonetically empty topics, rather than empty pronouns. Rohrbacher questions therefore the feasibility and even the desirability to develop a theory that accounts for both types of argument drop in a unified way.

In the following sections I will concentrate more specifically on the characteristics of the Italian and Spanish type of subject drop and on its relationship with rich verbal agreement.

#### 2.2.1.4 Referential Agreement

Rohrbacher (1999) also puts forward an interesting and more sophisticated hypothesis to capture a cross-linguistic correlation between the richness of the verbal morphology and certain syntactic properties of the verb, namely the amount of movement it undergoes and the availability of null subjects.

Based on data from several Germanic languages (English, Mainland Scandinavian, Faroese, Icelandic and Yiddish), Rohrbacher argues that person specification is the key feature that triggers verb raising to Inf(lection)P. He suggests that movement of the verb to InfP occurs exactly in those languages that *minimally distinctively mark* both first and second person features on the verb through subject–verb agreement. Verbal forms are *distinctively marked* for a given feature if their phonological matrices are different from those of the forms which carry a different value of that feature. Notice that the requirement here is not that the person marker be overt: a form with no phonetically overt person marking is still distinctively marked as long as there are no other forms in the paradigm with the same phonological matrix (i.e. an empty matrix) but a different value for the person feature.

The cross-linguistic evidence also shows that first and second person features only need to be *minimally* distinct, that is, the differentiation only needs to occur for first *and* second person in at least one number of one tense of the regular verb paradigm(s). Rohrbacher also explains, based on Beard (1991), that the reason why only first and second person need to be distinctively marked, while the third person can be homophonous with other forms, is that the third person can be considered an unmarked form. The third person is the form that may not be marked by overt morphology in languages with null–marked finite forms, because it represents the unmarked value of the person feature. So while first person can be represented as [+1<sup>st</sup>, -2<sup>nd</sup>] and second person as [-1<sup>st</sup>, +2<sup>nd</sup>], third person can

be represented by the unmarked  $[-1^{\text{st}}, -2^{\text{nd}}]$ , where a negative value of the feature represents the unmarked value.

Finally, the reason why person features crucially influence syntactic properties of the verb, but gender or number features do not, is due to the fact that (first and second) person features identify speaker and hearer in the conversation, whereas gender features only bear grammatical meaning and number features only specify groups versus individuals. Person marking has therefore *referential* abilities that gender and number lack. According to Rohrbacher, distinctive person marking makes Inflection a referential category, that is a ‘substantive element with non-grammatical meaning’ (Rohrbacher 1999, p. 129). He further suggests that only referential elements (i.e. nouns, verbs and inflection affixes in languages with minimally distinct person specification) are listed in the lexicon. On the contrary, functional elements bearing only grammatical significance are simply ‘phonetic spell-outs of feature bundles that are abstractly represented on syntactic nodes’ (ibid.). It follows that referential Inflection affixes are heads which are taken from the lexicon and enter the syntactic derivation projecting an AgrP node where the verb moves to be merged with the affix; non-referential affixes do not affect verb movement because they are simply produced by a post-syntactic phonetic spell-out rule, they are not inserted in the syntactic derivation and they do not project.

Rohrbacher further claims that referential inflectional affixes *license pro-drop*, since, he assumes, when AgrSP is projected by the inflection affix, the specifier position of AgrS can be left phonetically empty. In contrast, in languages with non-referential inflection affixes, AgrSP is not projected and the highest inflectional projection is TP, which is headed by abstract Tense features. In spite of being abstract, such features still project the functional projection TP, because (unlike the abstract non-referential inflection features) they are essential for the interpretation of the sentence at logical form and are therefore always structurally represented (Rohrbacher 1999, p. 136). However, since the head of TP is phonetically abstract, its specifier position cannot be left empty too, due to the Principle of Economy of Projection (Rohrbacher 1999, p. 246), so an overt subject is necessary to fill the SpecTP position.

Thanks to Rohrbacher’s agreement theory, we do not need anymore to stipulate that the *strength* of agreement features varies across languages idiosyncratically, for no independent reason. The theory predicts that Inflection is a (*strong*) licensing head in exactly those languages in which first and second person agreement features are minimally distinctively marked on the verb and that null subjects, at least of the non-referential type, should be available in exactly these languages.

As for referential null subjects, Rohrbacher argues that they will be available in those languages in which both the *function* and the *content* of *pro* can be identified. Following Rizzi (1986a), Rohrbacher assumes that these two types of identification need to be carried out by the licensing head. The function of *pro* is identified through Case assignment, leading to the prediction, confirmed by the data, that the occurrence of referential *pro* will be limited to those languages in which nominative case is assigned by the licensing head carrying the agreement features. As for the identification of the content of *pro*, Rohrbacher thinks it depends on formal aspects of the agreement affixes, and that it is at least partly determined by language-specific requirements. So, for example, in Yiddish, while topic-drop, which is limited to the first position of main clauses, occurs with all persons in the Indicative Present, *pro*-drop only occurs with the second person singular, the only person that is *uniquely* identified by phonologically *overt* morphology as shown in the example below (from Rohrbacher 1999, p. 254):

<b>Indicative Present</b>	
1 <sup>st</sup> sing.	kuk∅
2 <sup>nd</sup> sing.	kukst
(2.5) 3 <sup>rd</sup> sing.	kukt
1 <sup>st</sup> plur.	kukn
2 <sup>ns</sup> plur.	kukt
3 <sup>rd</sup> plur.	kukn

Rohrbacher argues that an identification requirement in Yiddish must be restricting the occurrence of referential *pro* to the uniquely and overtly specified second person singular. He also points out that such requirement is language-specific,

so for example it does not seem to apply to Italian, where the third person singular of the Indicative Present does not have overt third person morphology (it is formed by the verb stem plus the thematic vowel), but *pro*-drop freely occurs with it. On the other hand, he adds, there are some indications that in Italian the identification, and therefore the distribution, of referential *pro* is affected by the homophony of the agreement marking system. This can be seen in the Italian Subjunctive Present, in which the three singular persons are homophonous, and referential *pro* is only possible with the first and third person, or in the Subjunctive Past, in which first and second person singular are homophonous, and *pro* is preferred with the first person (Cardinaletti 1997).

### 2.2.2 Spanish and Italian as Null Subject languages

Rizzi's proposal, presented in section 2.2.1.2, suggests that the verbal inflection in null subject languages can optionally behave like a clitic pronoun and can be interpreted referentially thanks to its rich agreement specification. As I mentioned before, this approach gives a unified account of the null subject phenomenon in Italian and Spanish, but it also raises some problems, namely how to account for the fact that the verbal inflection in languages like Italian and Spanish is obligatory and co-occurs with overt subject NPs. The solution adopted by Rizzi is to argue that the [+pronominal] feature is only optionally specified, suggesting in fact that the inflection can switch between having or not clitic-like pronominal properties.

This solution may capture the intuition that sentences with overt preverbal subjects are fundamentally equivalent in null subject and non-null subject languages. This intuition is shared for example by Cardinaletti (1997), who claims that, with the exception of the possibility of dropping subjects, null subject languages and non-null subject languages are largely equivalent, share similar clause structures and display similar properties with regard to three key aspects: the distribution of weak subject pronouns, the position of preverbal subjects and nominative case assignment. Presenting evidence from Italian and Italian dialects, Cardinaletti shows that *pro* must occupy a preverbal position (the specifier of AgrSP); that, although overt preverbal subjects can be left-dislocated to

a non-argumental position, they can also appear in a lower position, within the sentence; and that nominative case is assigned to the preverbal subject position through specifier-head agreement without any special mechanisms to assign nominal case post-verbally. With the Specialisation hypothesis, Cardinaletti further suggests a split Agreement projection (Agr1 and Agr2), making two different subject positions available (the specifiers of the higher Agr1P and of the lower Agr2P), each specialised to host different types of subjects. *Pro*, having the distribution and structural properties of a weak pronoun (in terms of Cardinaletti & Starke 1999), can only appear in the lower Agr2P specifier, the position occupied by weak (i.e. non-referential) pronouns in non-null subject languages; on the contrary, strong pronouns, full nouns and Italian overt weak pronouns raise up to Agr1P, possibly attracted by a semantic ‘subject-of-predication’ feature. This feature, Cardinaletti argues, cannot attract non-referential subjects (weak pronouns in non-null subject languages), although it is not clear why it should not attract referential null subjects, that is referential *pros*.

Cardinaletti does not comment explicitly on the nature of the agreement inflection, but it should be noted that her line of argument is incompatible with the idea that it may be a pronominal element, since she explicitly maintains that the properties of null subject languages are related to the structural properties of *pro*, *pro* being a weak pronoun, separated from the agreement morphology and occupying its own structural position. The only specific comment that Cardinaletti makes about inflection morphology is that its richness legitimates the null subject in a specifier-head configuration (Cardinaletti 1997, p. 34), but this only seems to mean that she is collapsing licensing and identification conditions reducing them both to some non specified morphological characteristic of the inflection that is not discussed into any further detail.

### 2.2.2.1 Pronominal Agreement

Other researchers have taken more seriously the idea that the agreement inflection in null subject languages may be akin to a pronoun.

Within the Minimalist framework, Platzack (2004), following a proposal by Borer (1989), argues that across languages there are two types of agreement:



pronominal and anaphoric. Languages may have a relatively rich agreement morphology, like French or German, but if agreement is marked as anaphoric, then following Binding Principle A:

(2.6) Binding Principle A:

An anaphor must be bound in its governing category.

the anaphor will have to be bound by a c-commanding antecedent within the clause. In languages where agreement is pronominal, like Italian or Spanish, Binding Principle B will apply:

(2.7) Binding Principle B:

A pronoun must be free in its governing category.

which means that the agreement cannot be bound by a c-commanding antecedent within the clause. Platzack accounts for the possibility of having overt subjects in null subject languages arguing that they are actually placed outside the clause, in a left dislocated position.

The idea that overt subjects in null subject languages occupy a position external to the clause has been suggested by others before Platzack. [Alexiadou & Anagnostopoulou \(1998\)](#) (henceforth A&A), for example, make a proposal that goes at least partly along these lines, and claim that several differences regarding the properties of subjects in Germanic, Celtic, Arabic, Romance and Greek, including the availability of referential null subjects, can be explained by positing two parameters: one concerning the way in which the Extended Projection Principle is satisfied, the other regarding the availability of the TP specifier for postverbal subjects. In Greek, Romance languages, Celtic and Arabic (but not in Germanic languages) the Extended Projection Principle can be satisfied via verb raising, by a strong agreement morpheme, a (pro)nominal element characterised by: a categorial D-feature, interpretable phi-features (i.e. person, gender and number) and (potentially) case. In other words, according to A&A, a language with strong agreement is a language in which the agreement morpheme is a lexical entry with its own categorial feature, entering the numeration independently from the verb root, so that the Extended Projection Principle can be

satisfied through feature checking by the agreement D-feature. The authors point out that the strength of agreement does not seem to correlate cross-linguistically with the morphological richness of a verbal system. It is rather a more *abstract* property, in the sense that it cannot be predicted by looking at the amount of phonetically realised verbal morphology, but its postulation explains a cluster of syntactic properties across languages.

A&A also claim, contra Cardinaletti (1997), that in null subject languages AgrS does not project a specifier, and that preverbal subjects are always in a clitic left dislocated position, holding a relation with the verbal morphology that is equivalent to the relation between a dislocated object and its resumptive clitic within the sentence.

A&A generally talk about Romance languages in their paper, probably assuming that Italian and Spanish largely share equivalent properties and equivalent settings for the parameters discussed, however they do mention Cardinaletti's objections to the idea that preverbal subjects may be left dislocated in Italian and acknowledge the fact that the Italian data may present some complications for their analysis. Furthermore, they discuss briefly at least two possible parametric differences between the two languages. The first difference concerns an asymmetry between Greek (and Italian) compared to Spanish, regarding the possibility of placing constituents before a preverbal subject. Following a suggestion by Zubizarreta (1994), A&A relate this asymmetry to the fact that Greek (and Italian, according to Cinque (1990)), allow multiple clitic left dislocations of XPs whereas Spanish does not. On the other hand, this may simply indicate that preverbal subjects do not compete for the same position as left dislocated arguments in Italian and Greek, and as Cardinaletti (1997) points out, the fact that they *can* be left dislocated sometimes in these languages, does not necessarily mean that they always are.

The second difference relates to the fact that Spanish allows VSO order, whereas Italian only allows VOS. A&A relate this property of Italian to the fact that the agreement morphology cannot check Case in this language. As a consequence,

when the subject remains VP internal, the object has to raise because of a constraint that forbids covert feature raising of both subject and object. This may point to the existence of cross-linguistic differences between the properties of agreement morphology in Spanish and Italian.

If the verbal agreement morphology is an (obligatory) clitic pronoun satisfying the Extended Projection Principles, and all overt subjects are in a dislocated position outside the sentence, do we still need to posit the existence of a subject position hosting a referential empty pronoun within the sentence? A&A argue that the answer to this question is yes, and that although the elimination of referential *pro* would be desirable from a conceptual point of view, it would be problematic from the point of view of theta-theory. The opposite conclusion is reached by [Ordóñez & Treviño \(1999\)](#), who, following [Jelinek \(1984\)](#) and [Taraldsen \(1992\)](#), argue that the verbal agreement is a clitic that absorbs thematic role as well as case and is therefore the real argument of the verb, eliminating thus the need to postulate a referential *pro*. Ordóñez and Treviño argue that overt subjects, which are completely optional, appear in a left dislocated Topic position, when they are preverbal, or in a position associated with Focus, when they are postverbal. Movement to either position is due to discourse-pragmatic reasons, unrelated to syntax. Furthermore, they claim that the fact that overt subjects hold a clitic doubling relation with the verbal agreement explains a series of parallelisms between clitic left dislocated objects and preverbal subjects in Spanish. They also argue that the fact that null and overt subjects have a different distribution can be reduced to the fact that the former is a clitic, and is therefore analysed as a head, while the latter is an XP. Ordóñez and Treviño's analysis is based on Spanish data only, and the authors do not comment explicitly on whether it should be extended to other null subject languages or even to other Romance languages, so the facts discussed in their paper, and the intuitions behind them, should not be necessarily taken as valid cross-linguistically or directly relevant for Italian.

Finally, it should be noted that the proposal that all preverbal subjects occupy a left dislocated Topic position is not uncontroversial even for Spanish, as [Casielles-Suárez \(2001, 2004, Casielles-Suárez et al. 2006\)](#) points out based on evidence

from the distribution of bare nominals. The author shows that in Spanish bare nominals are perfectly acceptable when they occupy a left dislocated position like in (2.8), whereas they cannot occupy the preverbal subject position in a sentence like (2.9):

- (2.8) Niños, no creo que vengan a la fiesta.  
 ‘Children, I don’t think they will come to the party.’
- (2.9) \*Niños juegan en la calle.  
 ‘Children play in the street.’
- (2.10) a. A Juan yo libros[,] no le dejaría nunca.  
*to Juan I books not cl would.lend-1sg. never*  
 ‘I would never lend books to Juan.’
- b. Yo libros a Juan ...
- c. Libros yo a Juan ...
- d. Yo a Juan libros ...

(Casielles-Suárez 2010)

Examples (2.10a) through (2.10d) further illustrate that Spanish subjects, like the other arguments of the verb, can indeed move to a left-dislocated position and that multiple arguments can be dislocated in the same sentence with no restrictions on their relative order. On the other hand on the basis of the asymmetry between (2.8) and (2.9) Casielles-Suárez (2004) argues that not all preverbal subjects move to the same preverbal position, and suggests that two distinct preverbal positions must be available: a non-dislocated, IP-internal position occupied by (sentence) topics, and a (clitic-left) dislocated position, dedicated to ‘background’ elements, a different type of topical elements that are interpreted as *background*, given information, and need to appear in a dislocated position in order not to be associated with (sentence-final) focus, which can project to the entire VP (Casielles-Suárez 2001). This proposal will be discussed further in the next chapter, section 3.3.1.3, dealing with the syntactic encoding of information-structural instructions in Spanish.

### **2.2.3 Summary**

In this section I have discussed some general characteristics of null subject languages, I have shown that this label has been used to refer to different, possibly ultimately unrelated, phenomena in different languages, but also that at least some cross-linguistic generalisations can and should be made. For example, when languages have a rich verbal agreement morphology, like Italian and Spanish, and display the possibility to drop subjects, the common intuition is that these two properties should be connected, although when it comes to identifying exactly the details of this connection, there is no agreement in the literature. Even within an apparently homogenous class of rich agreement null subject languages, subtle cross-linguistic differences emerge upon careful analysis, so, for example, there is no consensus in the literature as to how the verbal agreement should be analysed: whether it should be considered a pronoun and an argument of the verb, or if it simply identifies the person features of an empty anaphoric expression fulfilling the role of subject. As a consequence there is disagreement regarding both the status of overt subjects in null subject languages and their structural position.

The issue of the relationship between verbal morphology and the distribution of null and overt subjects will be touched upon again in chapter 6, introducing the Morphological Ambiguity hypothesis, and the issue of the structural position of the overt subject in null subject languages will be dealt with again briefly in chapter 3 in relation to the issue of the prominence of preverbal subjects in Italian and Spanish. On the other hand, it has to be pointed out that the experiments and the data presented in this study do not resolve all the fundamental theoretical questions discussed in this survey of the literature. In this thesis my focus instead is on the comparison of the anaphoric properties of null subjects and overt pronouns in Italian and Spanish.

In the next section I will discuss the other anaphoric expression that is the object of cross-linguistic comparisons in this study: the overt subject pronoun.

### 2.3 Cross-linguistic typologies of personal pronouns

The second anaphoric expression that I am concerned with in this study is the overt personal subject pronoun. Both Spanish and Italian have a series of nominative (as well as oblique case) stressed personal pronouns that can appear in the preverbal or postverbal subject position. The paradigms are shown in table 2.1.

Table 2.1: Personal pronouns paradigm in Italian and Spanish.

(a) Italian pronominal system (Serianni & Castelvechi 1991).

		Subject	Object	
Singular:	1 <sup>st</sup>	io	me	
	2 <sup>nd</sup>	tu	te	
	3 <sup>rd</sup>	Masculine	egli/esso/lui	esso/lui
		Feminine	ella/essa/lei	essa/lei
Plural:	1 <sup>st</sup>	noi	noi	
	2 <sup>nd</sup>	voi	voi	
	3 <sup>rd</sup>	Masculine	essi/loro	essi/loro
		Feminine	esse/loro	esse/loro

(b) Spanish pronominal system (Enríquez 1984).

		Subject	Prepositional Object	
Singular:	1 <sup>st</sup>	yo	mí - conmigo	
	2 <sup>nd</sup>	tú	ti - contigo	
	3 <sup>rd</sup>	Masculine	él	él - sí - consigo
		Feminine Neuter	ella ello	ella - sí - consigo
Plural:	1 <sup>st</sup>	Masculine	nosotros	nosotros
		Feminine	nosotras	nosotras
	2 <sup>nd</sup>	Masculine	vosotros	vosotros
		Feminine	vosotras	vosotras
	3 <sup>rd</sup>	Masculine	ellos	ellos
		Feminine	ellas	ellas

In both languages, only the first and second persons singular show a morphological difference between the nominative and the oblique case. In Spanish, all forms except for these two bear overt gender features, whereas in Italian the gender distinction is limited to the third person pronouns. Although in Italian the third person singular forms *egli/esso* and *ella/essa* are the ones that are recommended by prescriptive grammars for use as subjects (with *esso* and *essa* used

to refer to objects and animals rather than people), in the everyday oral and written use, these forms have been replaced by *lui/lei*, which were originally the oblique forms.<sup>4</sup> As matter of fact, *lui* and *lei* are derived from the dative of the Latin demonstrative ILLE/ILLA (ILLĪ > vulg. \*(il)lui; ILLAE > vulg. \*(il)laei), whereas *egli/ella* and their Spanish cognates *él/ella* derive from the Latin nominative form. The different history of the pronouns could be at the root of any cross-linguistic variation regarding their properties, as suggested by Carminati (2002).

More generally, it has been suggested that personal pronouns can display different (morphological, phonological and syntactic) properties across languages and within the same language. In the next sections I will present possible cross-linguistic classifications of pronouns that have been proposed on the basis of such properties.

### 2.3.1 Cardinaletti and Starke's typology

In a seminal study based on data from several European languages, Cardinaletti & Starke (1999) suggested that personal pronouns, but also other grammatical categories, can be divided across languages into two distinct classes with different morphological, syntactic, semantic and prosodic properties; they call these two classes *deficient* and *strong*.

From the morphological point of view, deficient pronouns tend to be reduced compared to strong ones. From the syntactic point of view, they must occur in a special derived position (not in a thematic base position, or in a dislocated, peripheral one) and cannot be coordinated nor modified. From the semantic point of view, deficient pronouns, but not strong ones, must refer to a prominent antecedent in the discourse and can be used as expletives, in impersonal constructions, as non-referential datives, and to refer to non-human antecedents. From a phonological point of view only deficient pronouns can restructure prosodically, that is they can be reduced and can form a single prosodic unit with an adjacent element.

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<sup>4</sup>The experiments carried out and the data presented in this study only deal with third person singular personal pronouns; for Italian the forms used throughout are *lui* and *lei*, in Spanish the forms used are *él* and *ella*.

Cardinaletti and Starke further argue that deficient pronouns can be divided into two classes that they name *clitic* and *weak*, clitic pronouns being more deficient than weak pronouns. This produces a deficiency scale with strong pronouns at one end, then weak ones, sharing some of the properties of strong pronouns and some of the clitics, and finally clitic pronouns, the most deficient category. Of course this further ranking has implications on the syntactic, morphological and phonological level. Based on distributional evidence clitics are analysed as heads whereas weak and strong pronouns are analysed as maximal projections. Weak pronouns are thus like strong pronouns, except that they can only appear in the position where they receive case (the specifier of AgrSP). From the morphological point of view, clitics are systematically more reduced than weak pronouns, which are in turn more reduced than strong ones. Finally, from a prosodic point of view, while all pronouns, strong or weak, can at least potentially receive phrasal and contrastive stress, weak pronouns and strong ones bear lexical stress, whereas clitics do not.

The differences between the three classes of pronouns stem, according to the authors, from the fact that more deficient pronouns contain less morphemes (and less features) than relatively stronger pronouns, due to the fact that they project less structure. Weak pronouns do not include a CP layer containing a functional case feature and a referential index. The case feature needs to be recovered through local agreement within AgrSP, while the lack of referential index produces the impersonal, expletive and non-referential readings as well as the non-human interpretations that are impossible with strong pronouns. Clitics also lack a  $\Sigma$ P layer containing features related to prosody. An economy principle, ‘Minimise Structure’, stating that the amount of structure produced should be kept to a minimum, determines the distribution of the three types of pronouns: the weakest form should always be preferred unless it is ruled out for independent reasons (such as, for example, the lack of a prominent discourse antecedent necessary for a referential reading).

Cardinaletti and Starke further argue that the most basic form in their typology, the one that can be generated in the base and that is contained in the syntactic lexicon, is the strong pronoun, complete with the full CP layer and the



features associated with it. This full structure, they argue, mirrors the functional structure projected by nominal phrases and verbal clauses and this may reflect a restriction imposed by the syntactic lexicon on its entries. Weaker forms are derived from the strong forms by erasing layers of structure, starting from the most external one, together with the features that are associated with it (recovered through movement to AgrSP in the case of the functional case feature) and the referential index if it is not necessary for the required interpretation.

### 2.3.1.1 Spanish and Italian

When this classification is applied to the Italian pronominal system shown in table 2.1, [Cardinaletti & Starke](#) (see also [Cardinaletti 1997](#)) provide distributional and interpretational evidence that the Italian pronouns *egli* (and *ella*) belong to the class of weak pronouns, whereas *lui* (and *lei*) should be analysed as strong pronouns. Since *pro* is also analysed as a weak pronoun, under this analysis Italian has two weak pronouns that differ minimally in that one is phonetically realised and the other one is not, although they both project the same amount of structure. The Minimise Structure principle, which would otherwise make largely the same predictions as [Chomsky's](#) (1981) Avoid Pronoun principle, is argued to deal more appropriately with a language like Italian, as [Cardinaletti & Starke](#) show with the following example (op. cit., p. 198):

- (2.11) a. Gianni<sub>i</sub> partirà quando *pro*<sub>i</sub> avrà finito il lavoro.  
 b. Gianni<sub>i</sub> partirà quando *egli*<sub>i</sub> avrà finito il lavoro.  
 c. \*Gianni<sub>i</sub> partirà quando *lui*<sub>i</sub> avrà finito il lavoro.  
*Gianni<sub>i</sub> will.leave when he<sub>i</sub> will.have finished the job*

The Avoid Pronoun filter predicts that (2.11b) should be as ungrammatical as (2.11c), since in a context where the use of the overt pronoun could be avoided, as shown in (2.11a), the two overt forms should be equivalently bad. The Minimise Structure principle, on the contrary, correctly predicts that both *pro* and *egli* should be grammatical and interchangeable when referring to a prominent discourse antecedent, while *lui* is correctly ruled out, not because it is overt, but because it unnecessarily projects extra structure (the CP layer).

In the system outlined by Cardinaletti and Starke, the strength of a pronoun within a pronominal paradigm should predict, among other distributional and interpretational properties, the antecedent preferences of the pronoun, in other words it should predict whether the pronoun will be able or not to co-refer with a prominent antecedent in the discourse. The authors do not provide an explicit analysis of the Spanish pronominal system, so in principle there are two possibilities open for the Spanish overt personal pronouns, in the sense that the series *él*, *ella* and *ello* could correspond either to the Italian strong pronouns *lui/lei* and share their antecedent preferences, or they could be similar to the (etymologically equivalent) weak series *egli/ella* sharing the antecedent biases of weak pronouns and *pro*.

In the next section I will discuss the cross-linguistic typology of pronominal forms proposed by Bresnan (1997, 2001) within the framework of Optimality Theory. This typology makes largely the same predictions as the one suggested by Cardinaletti and Starke, especially regarding the antecedent preferences of strong and weak pronouns, although these forms are analysed differently and their choice is not motivated by economy principles but by characteristics related to their morphosyntactic markedness. Bresnan's account, on the other hand, may help us to make more specific predictions about the Spanish pronominal system.

### 2.3.2 Bresnan's unmarked pronoun

Bresnan (1997, 2001) proposes a cross-linguistic typology of pronominal forms within the framework of Optimality Theory (Prince & Smolensky 2004). According to Optimality theory, a grammar consists of a ranked list of universal, conflicting, violable constraints; languages prefer to violate constraints that are ranked lower in the list, so systematic cross-linguistic variation can be reduced to a different ranking of the same universal constraints. Since the ranking of constraints is assumed to be the only dimension along which languages vary systematically, Bresnan argues that the inventory of personal pronouns instantiated by languages and the properties that are systematically associated to them represent an instance of cross-linguistic variation that should be explained through the re-ranking of universal constraints.

Bresnan (2001) identifies five forms of pronouns available cross-linguistically: zeros (pronouns with no morphological or syntactic expression), bound pronominals (affixes with a pronominal content morphologically bound to a head), clitics (syntactically independent pronouns phonologically bound to a head), weak pronouns (morphologically and phonologically independent pronouns that cannot receive primary sentence accent), and free pronouns (independent pronouns that can receive primary sentence accent). Notice that according to Bresnan's definition of 'zero pronouns', Italian and Spanish do not really instantiate languages including a 'zero' form in their inventory, since in these two languages *pro*-drop is associated with the presence of obligatory subject–verb agreement on the verbal head, which is considered by some researchers, as we have seen in section 2.2.2.1, as an instance of bound (or clitic) pronominal.

These five forms can be associated with three (sets of) properties that cross-linguistically characterise pronouns: PRO, TOP and AGR. PRO represents the set of defining semantic properties of personal pronouns (like the property of referring anaphorically to variable discourse entities), and it is therefore always associated with any pronominal form. TOP and AGR are optional: TOP represents the property of pronouns that are specialised to refer to topic antecedents, AGR refers to the property of being morphologically specified for number, gender and person features. Each of the five pronominal forms above can in principle be associated with any combination of these three properties, except that Optimality Theory constraints then operate systematically on the set of potential form/feature associations to produce the inventory of pronouns that are actually instantiated in human languages. Furthermore, these constraints single out some form/feature associations as more *marked* than others and therefore cross-linguistically rarer.

The relevant families of constraints, according to Bresnan, are three: HARMONY, STRUCT and FAITH. HARMONY consists of two 'naturalness' constraints defined as follows (Bresnan 2001, p. 120):

- (2.12) Harmony constraints:
- a. Reduced  $\Leftrightarrow$  TOP: Pronominals are reduced if and only if they are specialised for topic anaphoricity.

- b. Overt  $\Leftrightarrow$  AGR: Pronominals are inherently specified for person number and gender if and only if they are overt.

(2.12a) captures the cross-linguistic generalisation that if a language includes reduced pronominal forms ( $\emptyset$ , bound pronominals, clitics or weak pronominals) in its lexicon, these forms are used to co-refer with topics or discourse prominent antecedents. The second constraint maintains that, when languages include a non-overt form (the phonetically unrealised zero pronouns), this form is normally not specified for person/number/gender features; such features are only specified on overt forms. From a conceptual point of view Bresnan suggests that these two constraints can be motivated by two very general needs of languages: (2.12a) by an economy tendency to reduce the expression of frequent and familiar referents, (2.12b) by the necessity to make referential contrasts easily perceptible.

Bresnan (1997) also points out that the formulation of the HARMONY constraint in (2.12a), implies that it is only the reduced form that is morpho-syntactically *marked*, or specialised, to be bound by topic antecedents, whereas the unreduced form is *unmarked* for topic-anaphoricity and it only acquires a focus/contrast interpretation because it is used in opposition to the reduced form. Evidence in support of this claim comes from the observation that, when there is no contrast between reduced and unreduced forms in a language, either because the language does not include reduced forms in its inventory, or due to the fact that the reduced form is unavailable in a given context (because of an accidental gap in the paradigm), the unreduced form can be used without any contrast or focus reading associated to it, showing that its meaning can include that of the reduced form when the contrast is irrelevant. Bresnan (2001) claims that this is the classical sense of *unmarkedness* as neutralisation of opposition used by Jakobson (1984) in his description of the Russian verbal system.

The FAITH constraint requires that every attribute that is present in the input, which consists of the possible feature bundles formed by the combination of PRO, AGR and TOP, should appear in (or be recoverable from) the output, that is the actual form/features associations that are instantiated in the language after the application of the relevant constraints.

The STRUCT constraints capture the general tendency of languages to achieve syntax/semantics iconicity (one syntactic constituent identifies one semantic referent or function) and avoid allotaxy (a non uniform distribution of independent expressions with the same grammatical function). These constraints single out reduced forms as more syntactically marked than free pronouns: zeros and bound pronominals because they violate iconicity; clitics and weak pronouns because, with their distribution limited to certain contexts (i.e. clitics have to be realised in a fixed position relative to their host), they violate allotaxy. From a cross-linguistic point of view, these constraints predict that the unreduced pronoun, being unmarked, should be more frequent across languages. More specifically, the prediction is that it should be possible to find two types of languages: those in which the STRUCT constraints are all ranked above FAITH, and those that have demoted at least some of the STRUCT constraints below FAITH. The first type of languages will only allow free pronouns in their inventories, these forms will be unspecialised for topic-anaphoricity, as we have seen from the formulation of the HARMONY constraints, and will have to be used to refer to topic antecedents, violating FAITH, because the reduced forms are banned by the higher ranked STRUCT constraint. English would be an example of such language. The second expected type of languages will include in their inventories some reduced forms along with the unreduced ones; the reduced forms will be marked for topic-anaphoricity by the HARMONY constraint, while the unreduced ones will be restricted to contrast or focus uses and excluded from reference to topics. On the other hand, it should not be possible to find languages with only reduced forms lacking unreduced free pronouns.

Some concrete examples illustrating this point, based on the analysis of the Chicheŵa pronominal system (Bresnan & Mchombo 1987, Bresnan 1997, 2001), are shown in (2.13) and (2.14) below. Chicheŵa is a Bantu language, including a series of strong free personal pronouns together with morphologically reduced bound forms. In contexts where reduced and unreduced forms can alternate, the bound form is always used as a resumptive pronoun, to refer to a dislocated topic, or to old information prominent in the discourse, while the free pronoun is used for stress or contrast as shown in the following examples (Bresnan 2001, p. 119):

- (2.13) a. ndí íwo  
with it (class 3)
- b. nǎwo < \*na + íwo  
with+it (cl 3)
- c. mkángó<sub>i</sub> uwu ndi-na-pít-á      **nawó<sub>i</sub>**      ku msika  
lion(3) this I-RM.PST-go-INDIC with-it(3) to market  
‘This lion, I went with it to the market.’
- d. mkángó<sub>i</sub> uwu ndi-na-pít-á      **ndí íwó<sub>?\*i</sub>**      ku msika  
lion(3) this I-RM.PST-go-INDIC with it(3) to market  
‘This lion, I went with it to the market.’

(2.13a) and (2.13b) show that the personal pronoun *íwo* can be used as an unreduced free form in (a) or as a reduced pronoun, bound to a preposition as in (b). When the two forms can alternate the unreduced one in (2.13d) cannot be used to refer to a topic antecedent. If the bound form is unavailable in a certain context because of an accidental lexical gap, as in (2.14b), the unreduced pronoun can be used to refer to a topic antecedent, as Bresnan (ibid.) illustrates with the example below:

- (2.14) a. kwá íyo  
to him (class 3)
- b. \*kwāyo < kwa + íyo  
to+him (cl 3)
- c. mfúmú<sub>i</sub> iyi ndi-ká-kú-neněz-a      kwá **íyo<sub>i</sub>**  
chief(3) this I-go-you-tell.on-INDIC to him(3)  
‘This chief, I’m going to tell on you to him.’

According to Optimality Theory, lexical gaps are morphosyntactic elements that should be allowed in a language, given its ranking of constraints, but for some accidental, unsystematic reason lack a phonetic realisation in the lexicon. The high ranked LEX constraint (Bresnan 1997) bans from the inventory expressed, non-null, elements that are not paired with a phonological realisation, as in (2.14b). The use of the free pronoun in this context violates FAITH, which requires that the feature TOP be present in the feature bundle associated with a pronoun used for topic-anaphoricity, but since this constraint is ranked lower than LEX the free pronoun becomes the best candidate in this context.

This account of the cross-linguistic properties of pronouns makes largely the same predictions as Cardinaletti and Starke’s classification, as both typologies predict that weak pronominal forms should be associated to prominent, topical discourse antecedents whereas strong forms should be excluded from these contexts whenever a weaker form is available. Furthermore, in both accounts the strong forms are considered in some way more ‘basic’ than the weak ones: in Cardinaletti and Starke weak forms are derived from strong ones by erasure of structure, for Bresnan strong pronouns are less morpho-syntactically specified than weaker forms. However Bresnan’s account makes the more explicit prediction that strong forms can include the meaning of reduced pronouns given the right circumstances. According to Cardinaletti and Starke, strong pronouns are associated to features missing from the weak ones and although they point out that strong forms are not limited to focus or contrast uses, their analysis seems to predict that they cannot be equivalent in meaning to weaker forms, or that weak forms could be missing from the paradigm of a language, as this would imply the lack of application of a very general economy principle within the language.

### 2.3.2.1 Spanish and Italian

How can Bresnan’s analysis be applied to Spanish and Italian? First of all, the author claims that if a language includes pronominal forms in its inventory, it must include the morpho-syntactically unmarked free form; this means that the Spanish series *él* and *ella* should be analysed as strong, unreduced forms, inherently unmarked for topic-anaphoricity; these pronouns should be excluded

from topic-anaphoricity only if a weaker alternative, specialised for it, is available in the language. The Italian *lui* and *lei* series should be similarly analysed as strong unreduced forms, unmarked for topic-anaphoricity, but excluded from it by the presence of weaker forms.

The weaker forms in the Italian paradigm are *egli* and *ella*, which [Cardinaletti \(1997\)](#) and [Cardinaletti & Starke \(1999\)](#) analyse as weak pronouns (missing the CP layer). This analysis is based, among other things, on the fact that their syntactic distribution is restricted to certain contexts (they cannot be modified or coordinated, they can only appear in the preverbal position and cannot be left dislocated or used in isolation). These restrictions violate Bresnan's STRUCT constraint regarding allotaxy, which singles out reduced weak pronominals and clitics as morpho-syntactically marked. As predicted by both Cardinaletti and Starke's typology and Bresnan's HARMONY constraint (2.12a), the reduced pronouns *egli* and *ella* can/need to refer to a discourse prominent antecedent, and this prediction is borne out as it was shown in example (2.11b). The presence of weak forms in Italian indicates that in this language the STRUCT constraint marking these forms must be ranked below FAITH.

As for the verbal morphology, obligatorily marking subject–verb agreement in both Italian and Spanish, we have seen in the first part of the chapter that some researchers analyse it as a pronominal form, based mainly on data from Spanish, and others as agreement marking morphology. If the verbal morphology is interpreted as a pronominal form, it should have, in Bresnan's terms, the PRO feature characterising pronominal expressions. In this case the language should be considered as including a series of bound pronominals in its inventory. Alternatively, the morphology could be considered simply as a grammatical agreement marking, without pronominal content.

Notice that these two alternatives are not necessarily mutually exclusive within a language. [Bresnan & Mchombo \(1987\)](#) analyse the Chicheŵa obligatory subject marking morphology on the verb as functionally ambiguous in the sense that it can be analysed, depending on the context, as a bound pronominal or as a grammatical agreement marker without anaphoric content. According to



the authors this means that simple SV sentences are structurally ambiguous, as they could be analysed as consisting of a subject occupying a sentence internal position and a verb agreeing with it, or as a dislocated topic bound by an incorporated pronoun that is the argument of the verb. The authors further claim that this functional ambiguity of the subject marking morphology can provide the diachronic mechanism responsible for the potential change of incorporated pronouns into grammatical agreement.

## 2.4 Summary

In this chapter I have introduced the concept of null subject language and some of the different typologies of null subject languages that have been identified in the literature together with their cross-linguistic properties. I have analysed in more detail the case of Italian and Spanish, focusing on the relation, identified early by researchers, between their *pro*-drop properties and characteristics of their verbal morphology. More specifically I have discussed how the *pro*-drop properties of these languages have been related to the morphological richness of their verbal agreement, but also to more abstract properties of it, like its possible (pro)nominal content, which could be in principle only indirectly related to morphological richness. At the present time, there is still no agreement among researchers with respect to the specific features of the verbal morphology that may trigger the possibility of dropping subjects in a language, and the literature does not offer a unified account of the null subject facts even for two languages that are closely typologically related and morpho-syntactically similar like Italian and Spanish.

In the second part of the chapter I have focussed on the morpho-syntactic properties of the overt pronominal systems of Italian and Spanish with reference to the cross-linguistic typologies of personal pronouns proposed by Cardinaletti and Starke (1999), within the generative framework, and by Bresnan (1997, 2001), within the framework of Optimality Theory. These two typologies make largely similar predictions about the morpho-syntactic properties of pronouns in general and about the anaphoric properties of personal pronouns in particular, although they differ regarding some key aspects of their analyses, namely on the content

of strong unreduced pronouns and whether they should be inherently compatible with co-reference with prominent antecedents in the discourse.

Having now set this theoretical background, in the next chapter I will present some current linguistic and psycholinguistic theories of anaphora resolution.

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## CHAPTER 3

# Theories of Anaphora Resolution

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### 3.1 Introduction

In the previous chapter I have analysed the two referring expressions available in null subject languages that are the object of this work: the phonetically unrealised null subject and the overt personal pronoun.

The availability of null subjects in certain languages led researchers to formulate a set of questions about them: is there any systematic correspondence between the use of null subjects and the use of personal pronouns in non-null subject languages? Or put it another way: are null subjects and personal pronouns freely interchangeable in null subject languages or are there rules determining their distribution? What is the nature of these rules? Do they have cross-linguistic validity or are they language-specific? In this chapter I am going to address these questions.

Some early attempts to answer these questions tried to equate the alternation of null and overt pronouns in null subject languages to the use of stressed and unstressed pronouns in non-null subject languages (Luján 1985, 1986), but this solution has been shown to be inadequate and it became apparent that the problem needs to be framed within the more general question of how, in natural languages, expressions from different lexical classes alternate to signal reference to different discourse antecedents. Several theories have tried to model this alternation on the basis of linguistic and psycholinguistic evidence; the general idea is

that the choice of expressions in a given discourse context depends on the prominence of the antecedent. One of the crucial points on which theories do not agree is which factors determine prominence and why.

This chapter provides an overview of theories dealing with anaphora resolution (section 3.2 and 3.3); the second part of the chapter (section 3.4) presents the Position of Antecedent Strategy (Carminati 2002), a parsing strategy for anaphora resolution, the cross-linguistic validity of which is the topic of the present study.

### 3.2 The null and overt subject alternation

One approach to understanding the alternation between null and overt subjects was to compare them to equivalent constructions in non-null subject languages. This approach was taken for example by Luján (1985, 1986) who argued that since null and overt subjects have different binding properties (a claim that was partly based on evidence drawn from Montalbetti (1984)), they cannot be sharing the same features, one being simply the overt counterpart of the other, as had been suggested by Chomsky (1982). Luján suggests that the asymmetries that can be observed between null and overt subjects also apply to the distinction between stressed and unstressed pronouns in a non-null subject language like English and she illustrates this point with the following example comparing English and Spanish (Luján 1985, p. 251):

- (3.1) a. What did John and his wife do this morning?  
 After HE/\* $\emptyset$  woke up, John went to town, but I've no idea of what SHE did.
- b. ¿Qué hicieron Juan y su mujer esta mañana?  
 Después que él/\* $\emptyset$  se levantó, Juan fue al centro, pero no tengo ni idea de lo que hizo ella.

According to Luján, null subjects correspond to unstressed English pronouns whereas overt pronouns (both stressed and unstressed) correspond to stressed English pronouns. Notice that this assumption implies that overt pronouns in null subject languages are *always* associated with contrast or focus, whether or not they bear contrastive stress.

However, at closer examination this generalisation does not turn out to be correct. As we have already seen in section 2.3.1, Cardinaletti and Starke (1999) argue against the idea that (strong) overt subject pronouns in null subject languages are always associated with contrastive stress and focus, and provide evidence that both strong and weak pronouns can be optionally, but not necessarily, associated with contrast or emphasis.

Carminati (2002) argues that the correspondence proposed by Luján does not make correct predictions for Italian; more precisely she claims that the correspondence between Italian null subjects and unstressed English pronouns is correct, but the one between Italian overt pronouns and stressed English pronouns is not, as the overt subject in Italian can sometimes correspond to the unstressed English pronoun. Carminati points out, like Cardinaletti and Starke, that overt pronouns in Italian are not necessarily associated with contrastive focus or emphasis; they are simply used to refer to different antecedents in the previous discourse, as she shows with the following example (ibid., p. 189):

- (3.2) a. Quando Mario<sub>i</sub> ha telefonato a Maria,  $\emptyset$ <sub>i</sub> era appena tornato a casa.  
 ‘When Mario<sub>i</sub> telephoned Maria,  $\emptyset$ <sub>i</sub> had just returned-MASC. home.’
- b. Quando Mario ha telefonato a Maria<sub>i</sub>, lei<sub>i</sub> era appena tornata a casa.  
 ‘When Mario telephoned Maria<sub>i</sub>, she<sub>i</sub> had just returned-FEM. home.’

The example shows that the Italian overt pronoun can be used, without any emphasis or focus, to retrieve an antecedent that is not the subject of the previous sentence (signalling a shift in subject reference). As it can be seen from the translation, English, just like Italian, uses an unstressed pronoun in this context.

According to Carminati, the different properties of null and overt subjects in Italian can be explained by the fact that the two expressions have different *antecedent biases*; that is, while the null subject prefers to retrieve antecedents occupying the syntactically prominent subject position, the personal pronoun is biased towards retrieving less prominent antecedents, like direct or indirect objects.

The details of Carminati’s proposal, on which the present work is based, and the theories it draws upon, will be presented in section 3.4, for the moment it is important to stress that her proposal is based on the idea that different anaphoric expressions are used to signal reference to different discourse antecedents depending on their relative prominence.

### 3.3 Discourse constraints

Although natural languages generally offer several means to express a certain propositional content, the felicitous use of a given option is normally constrained by linguistic and extra-linguistic factors. To give a concrete example, we know that different expressions can be used, in different contexts, to indicate the same referent; for instance, in English an indefinite noun phrase can be used to introduce an entity in the discourse, but subsequent references to the same entity are generally realised through different expressions, like a definite noun phrase, or a null or overt pronoun, as illustrated in the following passage:

(3.3) ‘[...], **cats**<sub>*i*</sub> are a social species and [ $\emptyset$ ]<sub>*i*</sub> use a variety of vocalizations, pheromones and types of body language for communication. [...]. **They**<sub>*i*</sub> are also bred and shown as registered pedigree pets.’

(from [Wikipedia 2010](#))

Example (3.2), in the previous section, showed that in Italian, in a two clause discourse, the same individuals can be referred to by means of different expressions: proper names are used in the first clause to introduce them into the discourse universe, while a null subject or an appropriate personal pronoun, as in (3.2a) and (3.2b) respectively, are used for subsequent mentions, to indicate reference to the same individual.

This lexical alternation is not random, the choice of a referring expression is constrained by the status of the entity that is referred to, which can be intuitively characterised as its salience, or prominence within the discourse.

In the examples above, knowledge about the options offered by a language in terms of its inventory of anaphoric expressions and the syntactic knowledge about

their licensing conditions need to be integrated with knowledge about the pragmatic constraints related to prominence that determine their use. When knowledge from different cognitive domains needs to be coordinated and integrated to achieve an appropriate use and understanding of language, we are dealing with a so called *interface* phenomenon (Sorace 2011).

### 3.3.1 Prominence

The concept of discourse prominence has been related to the ‘assumed cognitive status’ of an entity within a given discourse context (Gundel et al. 1993). The cognitive status of an entity can be thought of as the degree to which the entity is mutually identifiable by speaker and hearer. This means that, when planning an utterance, speakers or writers will decide which expression it is appropriate to use to refer to a certain entity depending on whether or not they think that the entity is readily available and easily identifiable on the part of the hearer/reader.

Gundel et al., building on work by Prince (1981), identify six different cognitive statuses for mental entities, these statuses can be ordered along a scale, the Givenness Hierarchy, which goes from the lower status ‘type identifiable’, the status of an entity that refers to a type of object that is known to the hearer, but for which no representation is activated in their mind (because the object is neither physically present in the environment nor recently mentioned in the discourse), to the highest status ‘in focus’, the mental status associated with an entity that is currently within the focus of attention. Each mental status is related to specific linguistic forms, so that the form that a speaker decides to use can constitute a processing cue for the hearer, helping them to identify the referent of each expression among those that are known to them (or physically present). Notice that the idea of *discourse context* here is not limited to the *linguistic* discourse, but it also includes the physical environment and, more in general, the world knowledge of the hearer.

One would expect the cognitive statuses identified in the Givenness Hierarchy to be cross-linguistically valid and account for the alternation of expressions in different languages. Gundel and colleagues analyse data from five languages: English, Chinese, Japanese, Russian and Spanish, and argue that not all of the

statuses are required in all languages. Table 3.1 shows how linguistic forms available in English and Spanish map onto the six statuses.

Table 3.1: Mapping between cognitive status and linguistic form in English and Spanish (Gundel et al. 1993).

	IN FOCUS	ACTIVATED	FAMILIAR	UNIQUELY IDENTIF.	REFERENTIAL	TYPE IDENTIF.
English	<i>it</i>	<i>HE, this, that, this</i> N	<i>that</i> N	<i>the</i> N	indefinite <i>this</i> N	<i>a</i> N
Spanish	$\emptyset$ , <i>él</i>	<i>ÉL, éste, ése, aquél, este</i> N	<i>ese</i> N, <i>aquél</i> N	<i>el</i> N	$\emptyset$ N, <i>un</i> N	

Notice that the mapping suggested in table 3.1 is in disagreement with Luján’s hypothesis that stressed *and* unstressed personal pronouns in null subject languages correspond to stressed personal pronouns in non-null subject languages. As it was pointed out by Carminati (2002), while the correspondence between  $\emptyset$  and unstressed pronouns seems to be valid, the Givenness Hierarchy suggests that a Spanish unstressed pronoun should correspond to the English unstressed pronoun too. On the other hand the table also seems to suggest, contra Carminati, that in Spanish  $\emptyset$ s and unstressed pronouns may be used interchangeably to refer to discourse antecedents with the same cognitive status. The problem may be just the granularity of the hierarchy, in the sense that the distinctions made by this section of the Givenness Hierarchy may be just not fine enough to discriminate between the amount of ‘givenness’ required for the use of  $\emptyset$  as opposed to the unstressed pronoun, but if Gundel et al.’s analysis is accurate, it may instead indicate the presence of cross-linguistic differences between Italian and Spanish regarding the antecedent bias of the overt pronoun. Since the paper does not provide an analysis for Italian we cannot make any further speculation about these data.

Gundel et al. argue that zeros and unstressed pronouns need to be associated to ‘in focus’ entities. In order to reach this status, an entity needs to be both activated in short term memory (by being introduced in the immediate context), and also at the centre of attention. Attention, the authors claim, will be centred



on those entities that are most likely to be continued as topics in the subsequent utterances. ‘In focus’ entities include therefore the topic of the previous utterance and more general discourse topics that are relevant at any given point.

This idea associates the concept of prominence with the topic-comment structure of the discourse. Topics are defined by Gundel et al. as ‘what the speaker intends a sentence to be primarily about’ (ibid., footnote 10), whereas the comment is the part of the utterance that contains new, non given information which becomes activated in short term memory and can be subsequently brought into the focus of attention through a shift of topic. According to the authors, the topic-comment structure is at least partly encoded in the syntactic structure of an utterance. So for example certain constituents, like the subjects or direct objects of matrix clauses, tend to bring their referents into the focus of attention because they are more likely to be talked about in subsequent utterances than, for example, prepositional objects or constituents in subordinate clauses.

Finally, Gundel et al. claim that there is an entailment relationship between the statuses in the hierarchy: if an entity reaches a certain status, it implies that the conditions to reach the statuses below it (to the right of it in table 3.1) have been met as well. This means that, while each status is necessary and sufficient for the use of the forms that are associated with it, the forms associated to the statuses below it (and entailed by it) could be used as well. So for example, for the form ‘*the N*’ to be used, the entity it refers to has to be at least ‘uniquely identifiable’ but the form could also be used to refer to an entity that is ‘familiar’, ‘activated’, or ‘in focus’. What prevents the forms associated to lower statuses from being always used is the fact that the Givenness Hierarchy interacts with a principle expressed in the form of Grice’s maxim of quantity (Grice 1975):

- (3.4) MAXIM OF QUANTITY:
- a. Make your contribution as informative as required (for the current purposes of exchange).
  - b. Do not make your contribution more informative than is required.

(as quoted by Gundel et al. 1993, p. 295)

Gundel et al. argue that expressions that indicate a higher cognitive status, reached by only few antecedents, are more informative than expressions indicating less restrictive, lower cognitive statuses (which apply to more entities, being entailed by higher statuses). Notice that this definition of informativity implies an inverse relationship between the amount of information conveyed by an expression and its phonological size/semantic content since higher cognitive statuses are associated to shorter and more impoverished expressions.

Speakers/writers will tend to use the expression that provides the right amount of information to indicate that an entity has a certain cognitive status. If they use an expression that provides more or less information than is necessary and sufficient, the hearer will infer that the speaker wants to achieve particular effects.

But are there any reasons, in terms of cognitive mechanisms, why speakers/hearers should abide by this maxim? Is it just an arbitrary decision?

### 3.3.1.1 The cognitive mechanisms

We have seen so far that according to Gundel et al. anaphoric expressions serve as cues helping the hearer to identify a required entity, by providing a certain amount of information about its cognitive status; moreover participants in a conversation should follow Gricean maxims regulating the amount of information that should be provided.

However this account does not explain why speakers and comprehenders should agree to follow some (apparently arbitrary) maxims, and more importantly, it fails to capture a systematic correspondence between linguistic forms and the salience of their antecedent, more precisely that the more salient, or readily available, an antecedent is, the more reduced and semantically impoverished seems to be the expression used to refer to it. Almor (1999, 2000), Almor & Nair (2007), Almor & Eimas (2008) addressed these questions following an approach based on Relevance Theory (Sperber & Wilson 1995), which reduces the pragmatic principles expressed by gricean maxims to one principle: ‘be relevant’, where relevance is obtained by balancing processing cost and communicative effect.

Almor (1999) conducted an experimental study on NP anaphors and with the Informational Load Hypothesis he suggests that:

“[...] comprehenders expect speakers and writers to choose anaphors whose processing cost is balanced by discourse function and are slowed down when this expectation is violated.”

(Almor & Eimas 2008, p. 203)

Cost and discourse function of anaphors are defined in terms of psychological processes, which implies that speaker and comprehender do not deliberately choose to conform to some arbitrary co-operative principles. Instead, their adherence to the relevance principle is dictated by the architecture of the cognitive system involved in the processing of language.

According to Almor, anaphoric expressions serve mainly two discourse functions: firstly they act as cues, as suggested by Gundel et al., to help comprehenders identify antecedents that are more or less activated in the verbal working memory; secondly they can be used to introduce new information about the antecedent.<sup>1</sup>

As for the processing cost, Almor suggests that semantically richer expressions, like nouns or descriptions, activate more semantic information in the verbal working memory, with the result that they are more costly to process in the sense that they use up more memory resources than semantically poorer expressions, such as for example pronouns. This claim is based on the assumption that verbal working memory has a limited capacity, and that the processing of linguistic expressions involves two stages: during the first stage, comprehenders create a representation of the meaning of the new expression independently from the previous discourse (see Almor 1999, and references therein), in the second stage the new word is integrated in the previous discourse representation. Crucially, for a certain time, both representations are active in memory, reducing the working memory capacity until the new information is integrated into the discourse.

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<sup>1</sup>Almor (1999) only considers these two discourse functions, but Almor & Nair (2007) suggests that there can be others; so for example, the need to avoid ambiguity when the discourse includes many antecedents sharing the same grammatical features, particular style choices, or the need to add emphasis could all justify the use of more explicit, costly expressions.

On the other hand, semantically richer expressions provide a good semantic overlap with their antecedent and therefore constitute better cues for the retrieval of an entity in the memory. So if the antecedent is not very activated, the need for a good, semantically overlapping cue will justify the extra processing burden imposed by the heavy informational load. On the contrary, if the antecedent is already activated and within the focus of the hearer's attention, the extra processing cost is not justified, unless the expression has the purpose to add new information about the antecedent.

In the original proposal, Almor assumes that semantic processing is subject to limitations that are equivalent to those affecting phonological processing, and that excessive amount of information adversely affects discourse processing for two reasons: because increased semantic overlap between anaphor and antecedent imposes a burden on the verbal working memory in the same way as increased phonological similarity adversely affects phonological processing (Baddeley 1992); secondly, because the amount of semantic information simply occupies more memory resources which cannot be used efficiently for other purposes like the integration of the information into the discourse representation.

Subsequent work (Almor & Eimas 2008) showed that semantic overlap initially helps the re-activation of an antecedent within the focus of attention, as measured through a lexical decision task where the target words were presented before or after the anaphoric expression. This is consistent with the results of Gernsbacher (1989) for repeated name anaphors. On the other hand, the use of semantically overlapping anaphors to refer to highly salient antecedents adversely affected the integration of the information into the discourse representation, as was shown by poor performance on a delayed cued recall task administered at the end of the experiment.

To summarise, the Informational Load hypothesis accounts for the systematic correspondences between linguistic form of an anaphoric expression and status of the antecedent in structures like the Givenness Hierarchy by appealing to known psychological processes sensitive to the amount of information encoded by

linguistic expressions and the amount of activation of the representation of their antecedents in the working memory.

Almor (1999) further points out that the Informational Load hypothesis can account for the fact that different anaphoric expressions within the same word class (e.g. different definite NP anaphors) can generate different processing costs, depending on the semantic distance between the antecedent–anaphor pair and on the amount of information that the anaphor adds to the antecedent. So, a phenomenon like the repeated name penalty (Gordon et al. 1993, Gordon & Hendrick 1998) is explained as a particular case of NP anaphor in which the cost of the anaphor is not justified by its communicative function, rather than by postulating different processing mechanisms for pronouns and NPs.

### 3.3.1.2 Factors contributing to prominence

The idea that prominence depends on the amount of activation of an entity in working memory, together with the assumption that working memory has a limited capacity and is used both for storing and processing information (Just & Carpenter 1992), allow us to make predictions about the factors that may affect discourse prominence. For example we may predict that anything that draws the attention of the comprehender on a particular entity should increase the activation of the representation of that entity, and also that certain cues may attract comprehenders' attention more powerfully than others producing more robust effects. We may also expect that the activation of an entity will tend to change over time during the discourse, more precisely that it will tend to decrease if the representation is not reactivated (Arnold 2001), or if competing representations become active.

Psycholinguistic studies have used a number of on-line and off-line methodologies to study the relative prominence of antecedents in the discourse, this has been done using probe recognition and lexical decision tasks, or by measuring the ease with which pronouns access a discourse entity (using self-paced reading or eye-tracking), or the likelihood for people to refer to an entity using reduced forms such as pronouns (with questionnaires and corpus studies).

With an eye-tracking reading experiment, van Gompel & Majid (2004) found for example that what could be considered a low level factor such as the lexical frequency of the antecedent affected the ease with which a pronoun is processed, as shown by faster reading times (first-fixation and first-pass) for the region following the pronoun in the infrequent word condition. The results are interpreted on the basis of the *saliency account* (Pynte & Colonna 2000) stating that the lexical frequency of a word affects its saliency within the discourse.<sup>2</sup> This claim is supported by studies within the memory literature, suggesting that infrequent words attract more attention than frequent ones and are therefore encoded more strongly in memory (see van Gompel & Majid 2004, and references therein). On the other hand, the authors warn that the impact of lexical frequency on prominence is limited compared to higher level factors such as the discourse status of the entity. As a matter of fact, they mention in a footnote that the frequency effects disappeared in pilot experiments manipulating the syntactic position of the antecedent, and that previous studies by Simner & Smyth (1999) and Simner et al. (2003) only measuring reading times for whole clauses in a clause-by-clause self-paced reading task did not even detect the effects.

Gernsbacher (1989) suggests that three main factors have an impact on the ease with which pronouns access antecedents: referential distance, topicality and order of mention (see Gernsbacher 1989). Again, it is possible to see that these three factors are related to the focus of attention and the activation of the antecedent; furthermore the author introduces the concepts of *enhancement* and *suppression* to characterise the effects of different anaphoric forms on the activation of their antecedents. She suggests that more explicit anaphoric expressions *enhance* the representation of their antecedent, that is, boost its activation making it more accessible, and at the same time *suppress* the representations of other discourse entities, making them relatively less activated and accessible. Less explicit expressions (i.e. pronouns) only seem to trigger the suppression of their non-antecedents and they do so later than explicit NP anaphors.

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<sup>2</sup>Pynte & Colonna (2000, p. 533) use the expression ‘*discourse saliency*’ apparently without explaining the concept, but given the context in which they use it I think what they really mean is *perceptual saliency*, since they use it to refer to constituents bearing prosodic stress.

Going back to the factors affecting activation, the first one, referential distance, is defined by Gernsbacher as the distance between an anaphor and its antecedent in terms of the amount of intervening lexical material: the larger the distance between anaphora and antecedent the less accessible the antecedent and the more explicit the anaphor. If we assume that working memory has a limited capacity, the processing of more linguistic material will result in a decay of the antecedent representation and in the need for more explicit and semantically overlapping anaphors.

Topicality is not defined in any detail by Gernsbacher, but the idea is that it is related to frequency of mention and to being the first mentioned participant in a sentence or in a narrative<sup>3</sup>. We can imagine that frequently mentioned entities will remain more activated for longer in working memory, or will be *enhanced*, in Gernsbacher terms, and this is why they remain more accessible and can be referred to by using less explicit anaphors.

As for the first position advantage, Gernsbacher claims explicitly that this is not due to factors such as agentivity, subjecthood, or appearing at the beginning of an utterance, but rather to the type of cognitive processes occurring during the comprehension of a discourse. In fact she argues that the task of the comprehender consists in building a mental representation of the discourse, and this representation will build on the first mentioned participant, who will constitute the foundation for the representation, with the following arguments being added and integrated to it. Although Gernsbacher argues explicitly for this *first-mention* advantage, other researchers have argued for a *subject* advantage, since in English (the language of the five experiments presented by Gernsbacher) first-mentioned participants also tend to be syntactic subjects. Carminati (2002, p. 17) discusses evidence, mainly based on Centering theory, suggesting that subjecthood, rather than first mention, is the crucial variable (see also Arnold 2001, and references therein). Carminati's ideas and an outline of Centering Theory will be presented more in detail in section 3.4.

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<sup>3</sup>Topicality is probably the factor that is mentioned more often in the literature as an important element affecting the prominence of antecedents, the problem is that the notion of topic (as well as the notion of focus) is rarely defined clearly, with the result that the term can be used to refer to different phenomena. I will concentrate on the notion of topic in the next section.

As for the third factor mentioned by Gernsbacher, episode structure, she observes that more explicit anaphors are normally used at the beginning of episodes and paragraphs, and she argues that this could be due either to processing shifts at episode boundaries or to the fact that new concepts tend to be introduced in these locations, causing the *suppression* of older ones. Again these explanations can be related to the architecture of working memory. For example, eye-tracking studies (Just & Carpenter 1980) have provided evidence that sentence boundaries impose more processing demands on readers, producing delays in reading times at the end of sentences and paragraphs that have been attributed to the processes of integration and resolution of ambiguities (the so called wrap up effects). If we assume that the verbal working memory is used for both storing and processing incoming linguistic material, it is plausible that the demands imposed by the increased processing load at sentence boundaries may decrease the activation of the discourse entities in the memory.

Other linguistic factors have been observed to affect the prominence of antecedents. Some accounts stress the importance of semantic factors, like the implicit causality of the verb and the semantics of discourse connectives. Such accounts suggest that the semantic properties of verbs and discourse connectives direct the focus of attention on specific thematic roles (i.e. those associated with the endpoint of an action, for example the Goal in a verb with a Source–Goal thematic structure, or the Patient in a verb with Agent–Patient thematic structure), producing thematic role biases (Stevenson et al. 1994, 2000, among others). Other linguistic accounts focus more on the importance of structural factors, like the grammatical role of the antecedents. Examples of such accounts are the grammatical role parallelism (Smyth 1994), and the subject bias (Crawley et al. 1990). Approaches based on Centering theory (Grosz et al. 1995) also focus on structural factors and point at the higher prominence of subjects within the clause compared to oblique objects.

However, the patterns of data are often better understood when interactions between semantic *and* structural factors are taken into account, especially to account for discrepancies between pronoun interpretation and production (see



for example the discussion in [Stevenson et al. 2000](#), or [Fukumura & van Gompel 2009](#)).

Finally, some authors, like [Arnold \(1998, 2001\)](#), suggest that comprehenders use probabilistic information to estimate the likelihood of reference to any given antecedent in the discourse, and that this information has an impact on the partial activation of the available antecedents, affecting their accessibility (what [Almor & Nair \(2007\)](#) call the ‘pre-activation of semantic information’). This idea is similar to the suggestion of Gundel et al. (see section 3.3.1) that some constituents in the sentence should be more prominent than others because they are more likely to be referred to again and continued as topics. Based on the analysis of corpus data from English, Spanish and Mapudungun, [Arnold \(1998\)](#) suggests that the reason why recency of mention, subjecthood, *focus*<sup>4</sup>, grammatical parallelism and goal status jointly affect the choice of anaphoric expressions (and bias the interpretation of reduced anaphors) is that ‘the referents associated with these factors are also more likely to be referred to in the following discourse than other referents [...] (i.e. nonrecent-referents, object-referents, [nonfocussed-referents, nonparallel-referents and source-referents]).’ (ibid., p. 43).

Similarly, [Kehler et al. \(2008\)](#) stresses the importance of coherence relations in the discourse to predict pronoun resolution preferences and argues that such relations build up expectations in the comprehenders about what entities will be mentioned next.

The idea that multiple factors contribute jointly to determine of the antecedent preferences of anaphoric expressions is adopted also by Kaiser and colleagues ([Kaiser & Trueswell 2008](#), [Kaiser et al. 2009](#)) with the *Form Specific Multiple Constraint* approach. This approach differs from the ones discussed above, including Arnold’s, in that Kaiser and colleagues argue that different (but informationally equivalent) anaphoric forms are *sensitive* to different factors among those affecting prominence and antecedent preferences. As a consequence, within the Form Specific Multiple Constraint approach it does not make sense to talk about

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<sup>4</sup>By focus Arnold means the dislocated constituent in cleft and pseudo-cleft constructions.

a unified salience hierarchy, since the anaphoric preferences of different expressions within a language can be influenced by different constraints, or by the same constraints but to a different extent. Kaiser & Trueswell (2008) show for example that the antecedent preferences of the Finnish pronoun *hän* are determined by the syntactic role of the antecedent (subject antecedents are preferred, regardless of the linear order of the constituents), whereas for the Finnish demonstrative *tämä* the most important factor seems to be the linear order of the antecedents rather than their syntactic role.

To sum up, the prominence of an antecedent at any given point in the discourse depends on how active its representation is in working memory, and psycholinguistic research has shown that several factors directing the attention of the hearer (perceptual salience, recency and frequency of mention, topicality, subjecthood, linear position in an utterance, thematic role, coherence relations) can affect the activation of entities in the discourse.

The next section looks in more detail at the relationship between some of these structural factors and the notion of prominence from the perspective of *information structure*.

### 3.3.1.3 Prominence and the structure of an utterance

In the last section I have reviewed psycholinguistic evidence suggesting that different levels of prominence (and different levels of activation in memory) seem to be systematically associated with different constituents in the utterance, where the structurally most prominent constituents are often identified as: the first mentioned participant, the grammatical subject, the *topic*. Notice that these elements often overlap in the languages that are normally studied by psycholinguists (i.e. Indo-European languages, mainly English, but also Spanish, French, Italian).

Anyway, it seems that prominence and the way information is structured in the utterance in these languages could be systematically associated, a notion that is reminiscent of Lambrecht's (1994) Information Structure, or Vallduví's (1990) Informatics. According to Vallduví:

‘speakers seem to structure or package the information conveyed by a sentence at a given time-point [...] according to their assumptions about their interlocutors’ beliefs or knowledge and attentional state. [...] With this packaging speakers seem to instruct hearers to retrieve the information carried by a sentence and enter it into their knowledge-store in a particular way.’

(Vallduví 1990, p. 3)

According to Vallduví, speakers use morphology, prosody or syntax, or a combination of those (depending on the language) to encode instructions that help the hearer to enter information into their knowledge-store in an efficient and non-redundant way. That is to say, speakers indicate, through language-specific means, which part of the message is going to add data to the hearer’s knowledge-store and which part is provided as a background, to link the informative part to existing knowledge. According to information-structural accounts this is done by articulating the utterance into two contrasting parts: one containing the informative element, what could not be inferred from the context (referred to as focus, rheme, comment), and one specifying what the information is about and linking it to the existing knowledge (the theme, topic, background, open-proposition).

In section 3.3.1 we have seen that Gundel et al. (1993) suggest that prominence is associated to the topic-comment structure of the discourse, more precisely that the cognitive status ‘in focus’, corresponds to the topic of the utterance and that topics tend to occupy the syntactic subject position. Similarly, the idea that topics, as well as subjects and first mentioned participants, are the more prominent part of the utterance is common in the psycholinguistic literature, as we have just seen (Gernsbacher 1989, Arnold 2001, van Gompel & Majid 2004, among others). The problem with this literature is that the notion of *topic* is almost never defined clearly, and is used in fact to refer to different concepts, for example: the discourse topic, the sentence topic, given information, shared information, non contrastively stressed information, etc. Similarly the term focus is often used vaguely to refer to a wide range of concepts: the focus of attention

(which normally corresponds to the the discourse topic or the sentence topic), new information, prosodically stressed parts of the utterance.

Arnold (1998, p. 5) even suggests that the notion of topic is too vague and problematic to be useful when dealing with prominence. Nevertheless, since this concept is often used both in the linguistic and in the psycholinguistic literature, and since there seems to be an intuitive connection between the concepts dealt with by the information-structure literature and the idea of prominence used in psycholinguistics, it may be useful to try and characterise the concept of topic and establish if it has a relation with the structure of the utterance and the relative prominence of its constituents.

A first source of confusion regarding topics, as pointed out by Vallduví (1990, p. 38), is the fact that the term is used to refer both to discourse topics and to sentence topics. A *discourse topic* is the entity or proposition that a certain text is understood to be about; according to Vallduví this is a *supra-sentential* notion and therefore it is not relevant for the structure of the text at the sentential level. As Morales (1997) points out, at any given point in the discourse there can be more than one topic: a general topic (the *discourse topic*), repeated over several sentences or paragraphs, and more local ones, dealt with for only a few clauses. One of Gernsbacher's characterisations of topic as 'frequently mentioned entity' (see section 3.3.1.2) seems to indicate that the concept she is referring to should fall into the notion of *discourse topic*, but the other characteristic she attributes to topics, the initial position in a sentence, is on the contrary a structural characterisation at the sentence level, that pertains, as we shall see, to sentence topics.

In order to incorporate into a coherent taxonomy the different notions that have been used to characterise (sentence) topics, Vallduví (1990) proposes a three-way articulation of the sentence, where the focus (the informative part of the utterance) is contrasted with the *ground* (the part of the utterance indicating how the focus fits into the hearer's knowledge-store), which is itself made up of two parts: the link (a sentence-initial, *topic-like* element 'linking up with the

object of thought' (ibid., p. 58)) and the tail (the complement of the link within the ground).

Casielles-Suárez (2001, 2004) adopts a different approach from Vallduví and suggests that utterances can fall into two distinct types of information-structural articulations: the Topic–Comment articulation and the Focus–Background articulation. In the Topic–Comment articulation, the topic is 'the point of departure of the sentence as a message' (Casielles-Suárez 2001). This articulation is viewed as pragmatically, phonologically and syntactically unmarked, since it can be uttered out-of-the-blue. It involves (in English and Spanish) a preverbal subject and a predicate and it bears rightmost focus-related accent, as shown in the following examples where 'Mark' is the Topic and 'took the children to the movies' is the Comment (from Casielles-Suárez 2001, p. 75; the Italian example (3.7) is my translation):

(3.5) Mark took the children to the movies.

(3.6) Mark llevó a los niños al cine.

(3.7) Mark ha portato i bambini al cinema.

The Focus–Background articulation, on the other hand, 'separates the focus, which is the informative part of the sentence, intonationally marked, from the rest of the sentence referred to as the presupposition/ open proposition/ background or topic in the Prague school sense<sup>5</sup>.' (ibid., p. 75). An example of the Focus–Background articulation in English is provided in (3.8), where the focus is in capital letters (ibid., p. 75):

(3.8) Mark CALLED the children.

The Focus–Background articulation is pragmatically marked since it cannot be used at the beginning of a discourse and it is felicitous only if *everything* but the focussed information is recoverable from the previous discourse. A sentence can be analysed as falling into one or the other articulation, but not both.

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<sup>5</sup>This is defined in terms of 'context boundedness', meaning that topics are the entities that the speaker assumes to be highly activated and accessible in the hearer's memory (cfr. for references Casielles-Suárez 2004, Vallduví 1990).

From the informational point of view Topics and Backgrounds have different characteristics: backgrounds are necessarily discourse-old and unaccented, they are not restricted to a unique element within each sentence and they are not restricted to discourse referents; topics are unique elements within a sentence, they can be discourse-new, they are not necessarily unstressed (for example they can be stressed for contrast) and they seem to be restricted to discourse referents (Casielles-Suárez 2004).

Furthermore, as I mentioned in section 2.2.2.1, Casielles-Suárez (2001, 2010) argues that Topics and Backgrounds in Spanish occupy different syntactic positions, where evidence for the existence of different positions comes from facts about the placement of bare nominals. She observes that cross-linguistically Topics tend to occupy a sentence-initial position, which in Spanish corresponds to the preverbal subject position, a (unique) Specifier position within IP, where subject DPs move from a VP internal position in order to get a Topic interpretation (to satisfy a Topic criterion in terms of Rizzi (1996) or to check a Topic feature, in terms of Chomsky (1995)). The examples from section 2.2.2.1 are repeated below. They show that in Spanish (and in Italian) only DPs can move to the Topical preverbal subject position, whereas bare nouns are excluded from it:

- (3.9) a. \*Niños juegan en la calle.  
 b. Los niños juegan en la calle.
- (3.10) a. \*Bambini giocano per strada.  
 b. I bambini giocano per strada.

Backgrounds, on the other hand, are not tied to a specific linear position, they can be dislocated to the left or to the right of a sentence. They cannot be internal to the VP because they need to occupy a non-focussed position and sentence-final focus can project to the whole VP (see Casielles-Suárez 2001, for references). Since the placement of Background elements does not involve DP movement but adjunction, more than one element can be dislocated in each sentence, with no restrictions on their relative order, and bare nominals are not excluded from it:

- (3.11) A él su madre el coche[,] no se lo dejaría nunca.  
*to him his mother the car not cl cl would-lend never*

‘His mother would NEVER lend him the car.’

(3.12) Libros[,] (los) hay en la biblioteca.

*books, (cl) are in the library*

‘There are books in the library.’

(Casielles-Suárez 2001, capitalisation in the original)

(3.13) La policía las recuperó ayer, las joyas.

*the police cl recovered yesterday, the jewels*

‘The police recovered the jewels yesterday.’

(Casielles-Suárez 2004, taken from Hernanz & Brucart (1987))

The same constructions can be used in Italian:

(3.14) A lui sua madre la macchina, non gliela lascerebbe mai.

*to him his mother the car not cl-cl would-leave never*

‘His mother would NEVER lend him the car.’

(3.15) Libri, ce ne sono in biblioteca.

*books, cl cl are in the library*

‘There are books in the library.’

(3.16) La polizia li ha recuperati ieri, i gioielli.

*the police cl has recovered yesterday, the jewels*

‘The police recovered the jewels yesterday.’

Casielles-Suárez’s analysis then implies a systematic relationship between the first-mentioned participant/syntactic preverbal subject in Spanish (and possibly in other Romance languages) and topical phrases. Since Topics are defined by Casielles-Suárez as ‘the point of departure for the sentence as a message’ and normally a multi-clause discourse is not made up of disconnected sentences, but rather of a topic that tends to be maintained over several sentences, it makes sense to think that the hearer’s expectation could be that the topical element of the utterance is the part of the message that is going to be talked about again, beyond the boundaries of the clause where it first appears, attracting the attention of the hearer and making the entity more activated (Arnold 2001) and prominent.

Background elements, in the Focus–Background articulation, are also salient (i.e. activated) by definition, but notice that, being this a pragmatically marked construction, which cannot be used to initiate a discourse, or in out-of-the-blue sentences, it would not normally be tested in psycholinguistic experimental settings.

#### 3.3.1.4 The features of appropriate anaphoric expressions

The last point that needs to be discussed in this section concerns the characteristics of anaphoric expressions that are used to refer to more or less prominent antecedents.

Gundel et al. (1993) notice that the Givenness Hierarchy, presented in section 3.3.1, shows a correlation between the amount of phonetic content of an anaphoric form and the cognitive status of its antecedent, such that the higher the status the more reduced the form. But apart from noticing the correlation the authors do not try to find a reason for it; apparently they do not seem to think that the relationship between phonetic content and cognitive status is necessary or that it has the power to explain the hierarchy.

On the other hand, the authors need to make use of the concept of *informativity* in order to account for the fact that the distribution of anaphoric expressions seems to be constrained by Grice’s maxim of quantity (quoted above as (3.4)). In order to appeal to this maxim, Gundel and collaborators need to assume that different anaphoric forms are associated to different levels of *informativity*, more precisely they claim that the anaphoric forms associated to higher cognitive statuses (which are, incidentally, also more phonetically reduced) are more informative than the forms associated to lower statuses, because they can only apply to a smaller subset of entities. This is due to the implicational nature of the Givenness Hierarchy, where each cognitive status implies all the statuses below it. So for Gundel et al.:

‘for referents that are in focus, an unstressed pronominal or zero, which explicitly delimits the set of possible referents to those that are in focus, will normally be chosen over a demonstrative pronoun, which



gives less information about cognitive status because it only requires that the referent be activated.’

(Gundel et al. 1993, p. 299)

‘Demonstrative pronouns are thus less informative than are unstressed personal pronouns, because anything which is in focus is also activated, but not vice versa. [...] Demonstrative determiners are thus more informative than the definite article or zero determiner, because anything which is familiar is also (uniquely) identifiable, but not vice versa.’

(Gundel et al. 1993, p. 302-303)

I think it should be noted though, that this notion of informativity does not account for the systematic correlation between the form of anaphoric expressions, in terms of their phonological size and semantic content, and the ranking of cognitive statuses. A form is more or less informative *because* it indicates a certain cognitive status, but the mapping relation between each form and each cognitive status could still be completely arbitrary.

Almor (1999) as well resorts to the idea of amount of information (or *informativeness*) of the anaphoric expression, but in his framework this notion qualifies the cost–function relationship between the anaphoric expression and the prominence of its antecedent, the concept is therefore rather different from Gundel et al.’s informativity.

According to Almor the relevant generalisation is that ‘the more salient the referent is, the less information is contained in the anaphoric expression’ (Almor 1999, p. 748). In his view, the amount of information contained in an anaphoric expression is related to the richness of its semantic representation, and such semantic richness has an impact on the burden the expression imposes on the working memory (the informational load). This burden is in turn quantified in relation to the amount of information contained in (the semantic representation of) the antecedent. As we have seen in section 3.3.1.1 a heavy informational load needs to be functionally justified in the discourse, either by the fact that the antecedent

is not very activated in working memory, and needs an effective semantic cue, or by the fact that the anaphor adds *new* information to the discourse. So, semantically poorer expressions, like pronouns, or even zeros, are the most economic choice, in terms of processing burden, to refer to a highly prominent antecedent.

The concept of informational load allows Almor to account for the processing cost of an anaphoric expression in terms of cognitive processes, but the intuition that the cost of an anaphora depends on its informational content is taken from Ariel's (1990, 1991) Accessibility Theory.

Within the Accessibility theory framework, informativity is only one of three criteria used to rank anaphoric expressions hierarchically along a scale that predicts their relative ability to retrieve more or less accessible discourse antecedents, the other two criteria being *rigidity* and *attenuation*. According to Accessibility theory, the choice of anaphoric expressions<sup>6</sup> on the part of a speaker is guided by how readily available (or 'accessible') they think the mental representation of a discourse entity is to the addressee; an accessible entity is one that is highly salient, or prominent<sup>7</sup>. Linguistic expressions can then be considered 'accessibility markers' providing instructions to the addressee as to how to retrieve an entity in memory, giving an indication of its accessibility. Since accessibility is viewed as a graded property, with a wide range of degrees, accessibility markers can be ranked hierarchically along a scale, the Accessibility Markers Scale, depending on the level of accessibility they signal. The relationship between the form of an expression and the level of accessibility that it marks is not random, but can be predicted by applying the three criteria mentioned above (*informativity*, *rigidity* and *attenuation*), which are assumed to be universally valid.

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<sup>6</sup>Accessibility theory actually aims at accounting for the distribution and interpretation of all *definite referring expressions*, that is the 'identifiable, given entities for which the addressee should be able to access a mental representation' (Ariel 2006). The theory does not make a distinction between *referential* expressions (accessing a referent) and *anaphoric* expressions (accessing an antecedent in the discourse). I am referring to anaphoric expressions here because my work focuses on the resolution of anaphoric relations.

<sup>7</sup>Also within Accessibility theory several factors are assumed to affect the prominence of discourse entities, many overlap with the factors identified by other researchers, like discourse and sentence level topicality, grammatical function, order of mention, number of competitors, physical salience, discourse coherence, etc.

*Informativity* (Ariel 1990, 1991) is the most important criterion according to Ariel. It has to do with the semantic content of the anaphoric expression. Expressions with a rich content, or highly informative (like descriptions), are predicted to be used to refer to antecedents that are not very accessible in the memory of the hearer because they will provide a good cue helping retrieval. Highly informative expressions are also appropriate if there is more than one possible antecedent, since the additional information will help the identification of the correct one.

*Rigidity* is defined as ‘how close [an expression] is to pointing to one entity unequivocally in a potentially ambiguous context’ (Ariel 1990, p. 81), for example proper names (e.g. ‘David Cameron’) are more rigid than definite descriptions (e.g. ‘the Prime Minister’, or ‘the British politician’) which are in turn more rigid than pronouns (e.g. ‘he’). The rigidity of an expression is partly dependent on the context, but in general expressions that are more rigid are predicted to be used to mark a lower degree of accessibility compared to non-rigid expressions. Although this criterion is largely overlapping with the *informativity* criterion, Ariel claims that it makes partly different predictions, so it allows for distinctions among accessibility markers that would not be captured on the basis of informativity alone (i.e. between proper names and definite descriptions, between last names and first names, and between 1<sup>st</sup>/2<sup>nd</sup> person pronouns and 3<sup>rd</sup> person ones).

Finally, the *attenuation* criterion has to do with the phonological size of the expression (including the presence of stress). Also this criterion partly overlaps with informativity, but for Ariel it is necessary to capture differences between expressions that vary in size but do not seem to contain different amounts of information in any obvious way, like for example, stressed vs. unstressed pronouns, or unstressed pronouns, clitics, agreement markers and zeros (Ariel 1990).

An example of AM scale that can be obtained by ranking expressions according to these three criteria is reported below (from Ariel 2006, 1991):

(3.17) ACCESSIBILITY MARKERS SCALE:

Full name + Modifier > Full name > Long definite description > Short definite description > Last name > First name > Distal demonstrative

(+ Modifier) > Proximal demonstrative (+ Modifier) > Stressed pronouns + Gesture > Stressed pronouns > Unstressed pronouns > Cliticized pronoun > ‘Rich’ verbal agreement markers > ‘Poor’ verbal agreement markers > zero

Entities with a low level of accessibility need to be referred to by using ‘low accessibility markers’, that is highly informative, rigid and non-attenuated expressions (i.e. definite NPs or proper names, at the top of the scale). Highly accessible entities, that are promptly available in memory, can be referred to using relatively less informative, less rigid and more attenuated expressions, or ‘high accessibility markers’ (like pronouns, or  $\emptyset$ ).

Notice that, according to Ariel, languages like Italian and Spanish, where the verbal agreement morphology expresses systematically person features on the verb, would not be considered as having  $\emptyset$  in their inventory; it is the agreement morphology that should be considered their highest accessibility marker.

### 3.3.2 Summary

In this section I have argued that the choice of anaphoric expressions in a given context is determined by the prominence of the antecedent, and the concept of prominence has been characterised as the amount of activation associated to the entity identified by the antecedent in the mind of the hearer, which determines how readily available that entity is to them at any given point during discourse.

The relationship between anaphors and the prominence of their antecedents can be explained in terms of the architecture of the verbal working memory and by the fact that its capacity is limited and is used both for storing and processing information.

I have shown that the prominence of each discourse entity is influenced by several linguistic factors. More precisely I have argued that anything in the discourse that can affect the focus of attention of the hearer has an impact on the relative activation of discourse entities and therefore on their prominence. Psycholinguistic research has shown that structural factors such as subjecthood, topichood and first mention, as well as semantic factors, like the implicit verb causality and

the semantics of discourse connectors, can redirect people's attention as well as their expectations about the discourse, increasing the activation of certain entities relative to others.

Furthermore, some of the findings concerning the role of structural factors in directing comprehenders' attention can be accounted for by appealing to the information structural notions of *topic* and *comment*, or *focus* and *background*. These notions are encoded by speakers into their messages through structural means such as syntax, prosody and morphology. Syntax seems to play a role in English and Romance languages, so certain syntactic positions are more prominent than others in these languages because of the type of information that is associated with them.

Finally I have shown that the relation between the form of the anaphoric expressions and the prominence of their 'preferred' discourse antecedents is not random, but is related to the formal characteristics of the expressions themselves. Several theories recognise that the amount of information carried by the anaphoric expression is an important factor; Accessibility theory (Ariel 1990) also identifies the ability of an anaphora to refer uniquely to an antecedent and its attenuation (roughly its phonological content) as playing a role, allowing for more subtle distinctions.

In the next section I am going to focus on one specific proposal, the Position of Antecedent Strategy (Carminati 2002) and the motivations for its formulation.

### 3.4 The Position of Antecedent Strategy

The Position of Antecedent Strategy is a parsing strategy proposed by Carminati (2002), to account for the antecedent preferences of null and overt pronominal subjects in Italian, in intra-sentential contexts. The Position of Antecedent strategy is formulated as follows:

(3.18) THE POSITION OF ANTECEDENT STRATEGY:

The null pronoun prefers an antecedent which is in the SpecIP position (or in the AgrS position), while the overt pronoun prefers an antecedent which is not in the SpecIP position.

(Carminati 2002, p. 33)

SpecIP is assumed to be the default position for preverbal subjects in Italian and it is also taken to be relatively more prominent than lower structural positions. The validity of the Position of Antecedent strategy was tested through a series of self-paced reading experiments and sentence-completion tasks. (3.19) provides an example of the basic construction tested in the first experiment of the study (the indexes are mine and they indicate the semantically correct interpretation of the sentence, not the biases of the anaphor):

- (3.19) a. Quando Maria<sub>i</sub> è andata a trovare Vanessa<sub>j</sub> in ospedale, lei<sub>i</sub> le ha portato un mazzo di fiori.
- b. Quando Maria<sub>i</sub> è andata a trovare Vanessa<sub>j</sub> in ospedale,  $\emptyset$ <sub>i</sub> le ha portato un mazzo di fiori.  
 ‘When Maria<sub>i</sub> went to visit Vanessa<sub>j</sub> at the hospital, she<sub>i</sub>/ $\emptyset$ <sub>i</sub> brought her a bunch of flowers.’
- c. Quando Maria<sub>i</sub> è andata a trovare Vanessa<sub>j</sub> in ospedale, lei<sub>j</sub> era già fuori pericolo.
- d. Quando Maria<sub>i</sub> è andata a trovare Vanessa<sub>j</sub> in ospedale,  $\emptyset$ <sub>j</sub> era già fuori pericolo.  
 ‘When Maria<sub>i</sub> went to visit Vanessa<sub>j</sub> at the hospital, she<sub>j</sub>/ $\emptyset$ <sub>j</sub> was already out of danger.’

In (3.19a) and (3.19b) the anaphoric subject of the main clause (‘lei’ or ‘ $\emptyset$ ’) is semantically disambiguated so that it refers to the subject of the preceding subordinate clause (i.e. Maria); in (3.19c) and (3.19d), the anaphors are disambiguated to refer to the (less prominent) antecedent in the syntactic object position (i.e. Vanessa). The sentences were presented clause by clause in a self-paced reading task and the reading times for the second clause (the one containing the anaphoric form) were recorded and analysed.

As predicted by the Position of Antecedent strategy, longer reading times were found for the second clause of sentences like (3.19a), where the overt pronoun is semantically forced to pick a (highly prominent) subject antecedent, and (3.19d),

where the null subject is forced to corefer with a non-prominent object antecedent, inconsistent with their structural biases. Further experiments suggested that the biases hold also for non-canonical subjects (i.e. dative subjects; Carminati (2002, Experiment 4)); that overriding the overt subject bias seems to be less costly and more dependent on contextual factors than overriding the null subject bias (ibid., Experiment 3); and that the violation of the null subject bias in extra-sentential contexts, yields smaller penalties compared to intra-sentential contexts (ibid., Experiment 6).

The Position of Antecedent strategy captures two intuitions about the null and overt subject alternation in Italian, which are in line with the discourse-pragmatic principles discussed in the first part of this chapter: that the null subject prefers to retrieve the most prominent antecedent available in the previous clause; and that the use of an overt pronoun is felicitous if it does not refer to the most prominent antecedent, but to a less prominent one.

These ideas are based on Accessibility theory (Ariel 1990) assumptions that anaphoric forms that are less informative and more attenuated tend to be used to refer to more prominent antecedents, a tendency that can be explained by Almor's Informational Load hypothesis. The Position of Antecedent strategy is also compatible with the Givenness Hierarchy proposed by Gundel et al. (1993), although, as it was noted in section 3.3.1, the hierarchy does not capture the fact that null and overt pronouns in null subject languages may be associated to different levels of prominence (and therefore different cognitive statuses).

As for the notion of prominence, in line with the findings from several psycholinguistic studies (Crawley et al. 1990, Arnold 1998, Grosz et al. 1995, Dimitriadis 1996), Carminati associates prominence within the clause with the syntactic subject position; the author motivates this choice with particular reference to Centering Theory.

Apart from arguing that prominence relations are syntactically encoded, Carminati also claims that the parser makes immediate use of the syntactic information available during its search for appropriate antecedents. On the other hand, none of the experiments in the 2002 study was designed to test this hypothesis, since

they only recorded reading times for whole sentences, which do not provide information about the time-course of the anaphora resolution. Experiment 2 in the present study addresses this question.

### 3.4.1 Centering Theory

Centering theory (Grosz et al. 1983, 1995) is a theory of local discourse coherence developed within the field of computational linguistics. Its aim is to model the way in which discourse coherence between adjacent utterances is perceived, based on the choice of referring expressions and the focus of attention.

According to Centering theory, utterances contain a number of *centers*, that is, entities (semantic objects) that link utterances to each other in the discourse. Each utterance in a discourse has one or more centers to which the following utterances can potentially link (the *forward-looking centers*), and all utterances, except for the first one, contain a center that links them to the previous utterances (the *backward-looking center*). Centers are partially ordered according to their prominence, the highest ranking *forward-looking center* is called the *preferred center*. Prominence is determined by several factors, among which grammatical role is claimed to be central by Grosz et al. (1995), who suggest the following ranking (ibid., p. 214):

$$(3.20) \quad \text{SUBJECT} > \text{OBJECT(S)} > \text{OTHER}$$

The theory models different types of transitions between subsequent utterances depending on which of the centers the following *backward-looking center* refers to. Different types of transition are associated with different levels of coherence and different processing costs, so if the *backward-looking center* of utterance N refers to the *backward-looking centre* of N-1, and is also its highest ranking (i.e. its subject, and therefore likely to be continued in utterance N+1), we have a ‘Continue’ transition, which is associated to the lowest processing cost. The most costly transition is ‘Center Shifting’ in which the *backward-looking centre* of N is not its *preferred centre* (therefore not likely to be continued in N+1) and is different from the *backward-looking centre* of N-1.



Finally, according to Centering theory pronouns are ‘linguistic mechanisms for indicating continuity and coherence’ (Gordon et al. 1993). This means that pronouns have a different status compared to all other, more explicit, anaphoric expressions. Since pronouns are used to signal coherence, the *backward-looking center* in ‘Continue’ transitions, the most locally coherent transition, will have to be realised as a pronoun if any element in N is realised as a pronoun (the ‘Pronoun Rule’ (Grosz et al. 1995, Gordon et al. 1993)).

Centering theory was initially formulated to model discourse coherence in English, but it was subsequently extended to null subject languages (see for example Dimitriadis 1996, Turan 1995, Kameyama 1985). The hypothesis for these languages was that null subjects would be used in Continue transitions, whereas they would be overtly realised in the context of more costly (and less locally coherent) transitions, involving reference to less prominent entities in the previous utterance. Carminati claims that the Position of Antecedent strategy was formulated as a testable hypothesis based directly on the above Centering theory assumptions, in particular that:

- entities in each utterance are ordered depending on their prominence which is mainly determined by syntactic position;
- pronouns have the function of maintaining discourse coherence and are restricted to reference to the most prominent antecedents.

These assumptions are compatible with, and make largely the same predictions as, Ariel’s Accessibility theory and Almor’s Informational Load hypothesis, although I think they do not have the same explanatory power as they fail to capture the link between the form (and content) of an anaphoric expression, its cost, and its function as a memory cue for antecedents with varying levels of activation. Hence the need to formulate specific, and apparently arbitrary, rules (i.e. the Pronoun Rule) to capture this relation.

In particular, if we fail to identify the general connection between form and function of the anaphor, it is not clear why, when Centering theory is applied to null subject languages, null subjects should be used for reference to prominent antecedents (in Continue transitions), when personal pronouns have the

function of signalling discourse coherence. Different authors suggest different explanations, for example Dimitriadis (1996) argues that in Greek null subjects and personal pronouns select different antecedents among the available centers, but the method for selecting antecedents is ‘grammaticised’ and specific to each lexical item. Carminati, on the other hand, argues that gricean-type implicatures must underlie the principles outlined by the Position of Antecedent strategy, and interact with the informativity of the anaphoric forms, but she is not specific about how these interactions should be implemented.

### 3.4.2 The nature of the Position of Antecedent strategy

Carminati argues that the Position of Antecedent strategy is a pragmatically motivated parsing principle that cannot be explained by economy principles related to working memory limitations like it is the case for Minimal Attachment or Late Closure (Frazier & Fodor 1978). According to Carminati (2002) an economy principle would predict in fact that null subjects should *always* be preferred to overt pronouns, unless an ambiguity in the sentence can only be resolved thanks to the features expressed by the pronoun. Therefore she thinks that the division of labour between null and overt subject must stem from the fact that one is more *informative* than the other (a notion explicitly taken from Accessibility theory) and from the fact that some pragmatic gricean-type maxims apply to them.

She also thinks that the Position of Antecedent strategy does not belong to the core grammar, since, in spite its use of syntactically encoded information, it does not predict outright ungrammaticality but simply preference of use, which can be relaxed (incurring a processing penalty) if the context requires it.

For these reasons Carminati claims that the Position of Antecedent strategy is a strategy at the interface between syntax and pragmatics as it represents one of ‘those aspects of discourse that are systematically captured in syntactic terms’ (Carminati 2002, p. 204).

As I have suggested earlier, I think that Accessibility theory and the Informational Load hypothesis can explain a parsing strategy like the Position of

Antecedent strategy in terms of working memory limitations, providing a convincing and non arbitrary explanation for the mechanisms governing its biases. So I think that economy considerations are indeed at the root of the Position of Antecedent strategy, only they are different from what Carminati assumed.

Nevertheless I agree with Carminati that the Position of Antecedent strategy is a strategy at the interface between syntax and pragmatics because the economy considerations on which it operates are based on discourse–pragmatic constraints involving prominence relations which are, at least partly, syntactically encoded in English and in Romance languages.

### 3.4.3 Cross-linguistic considerations

What hypotheses can we make about the cross-linguistic validity of the Position of Antecedent strategy? Whether we assume that it is motivated by (universal) working memory limitations, as I do, or by the application of Gricean maxims, which should also have a very general universal value, the expectation is that, at least to some extent, the Position of Antecedent strategy should apply to other null subject languages apart from Italian.

Regarding this point, Carminati (2002) argues that prominence relations should affect anaphoric choices universally and in the same direction, but one possible source of cross-linguistic variation could arise from the fact that such relations can be encoded differently across languages. More precisely, Carminati says that in some languages the syntactic subject (in SpecIP) may not be the most prominent position, and she brings the example of ‘topic-prominent’ languages, like Chinese, saying that perhaps in these languages the external topic position may be more prominent than the IP-internal subject.

The other important assumption of the Position of Antecedent strategy is the idea, taken from Accessibility theory, that anaphoric expressions can be ranked along a scale based on their formal characteristics (*informativity*, *attenuation* and *rigidity*) and that the relative position along the scale will predict the relative level of prominence (accessibility) of the antecedent with which each expression prefers to be associated. According to Ariel (1990) the three ranking criteria are

universal, in the sense that they can be applied to expressions in any language to create an Accessibility Markers scale. A scale created for a given language, though, is not going to be universal, and this is due to two reasons. Firstly, different languages have different inventories of expressions, for example English, compared to a language like Italian, has overt personal pronouns but it does not have person agreement marking on the verb in its inventory. Secondly, even if two languages have two apparently identical sets of anaphoric expressions, corresponding expressions may rate differently within each language along the three above criteria, and may therefore be associated with different (*absolute*) levels of accessibility (Ariel 2006). In other words, comparable expressions are expected to mark the same *relative* level of accessibility (i.e. definite descriptions should be lower accessibility markers than pronouns, and pronouns should be lower accessibility markers than  $\emptyset$ , and this should apply *universally*), but they do not necessarily mark the same *absolute* level of accessibility because this partly depends on the number and type of expressions included in the inventory of a language and on their *distance* between each other along the scale (e.g. overt unstressed pronouns are used to retrieve non-topical antecedents in Japanese, but they can refer to both topics and non-topics in English).

To sum up, regarding the cross-linguistic validity of the Position of Antecedent strategy, Carminati suggests that ‘the basic relation which is at the source of the Position of Antecedent strategy [should obtain] in all languages, i.e. that overall  $\emptyset$  prefers a more prominent antecedent than the pronoun’ (Carminati, 2002; p. 194). However, the specific features of the antecedent will depend on how prominence relations are encoded in that particular language. As for the overt pronoun, its antecedent preferences in a given language will depend on its absolute position along the Accessibility Markers scale in that language.

The next section will compare more in detail Italian and Spanish as a starting point for the hypotheses formulated and tested in the next chapter.

### 3.4.3.1 Comparing Italian and Spanish

As it was suggested in the previous section, the factors on which the cross-linguistic validity of the Position of Antecedent strategy depends are:

- How languages encode prominence;
- The *absolute* ranking of anaphoric expressions along the Accessibility Markers scale.

As for the first factor, whether prominence relations are encoded in a comparable way in Italian and Spanish, Carminati's assumption for Italian is that, at the clause level, prominence relations are encoded syntactically and that syntactic subjects in the IP specifier are more prominent than the constituents placed in lower positions.

In sections 2.2.2.1 and 3.3.1.3 I have argued, following the suggestion of Casielles-Suárez (2001, 2004) that preverbal subjects in Spanish can either occupy a dislocated position where, from an information-structural point of view, they are interpreted as Background or given information, or they can occupy a (unique) IP internal position where they receive a Topic interpretation, where Topic is defined as old or new information that represents 'the point of departure for the sentence as a message' (Casielles-Suárez 2001, p. 74 and references therein). Furthermore, the IP internal configuration with Topic interpretation should represent the unmarked option, the one that can be uttered out-of-the-blue with no intonational marking. I have also shown, in the first part of this chapter, that researchers have often suggested that topichood has an impact on the prominence, or mental activation, of an entity (Gundel et al. 1993, among others) possibly because topic continuation (and therefore subsequent mention) is the default assumption for coherent stretches of discourse beyond the clause level (Arnold 1998, 2001).

The Italian examples in section 3.3.1.3 (translated from the Spanish ones) further suggest that equivalent constructions are available in Italian and Spanish, involving the SpecIP position for preverbal subjects (as argued by Cardinaletti 1997) and an IP-external, clitic left dislocated position for dislocated arguments (Cinque 1990). These positions seem to yield interpretations that are equivalent in the two languages, suggesting that the same information-structural articulations (Topic–Comment and Background–Focus), as well as their syntactic encoding, may be relevant for both.

Given the above considerations I would predict that both in Italian and in Spanish the SpecIP position of an SVO sentence uttered out-of-the-blue (like the experimental sentences used by Carminati and shown in example (3.19)) is relatively more prominent than the syntactic object position<sup>8</sup>.

The second factor that should affect the cross-linguistic application of the Position of Antecedent strategy concerns the absolute position of equivalent anaphoric expressions along the AM scale. According to Accessibility theory assumptions, this depends on how much each expression rates along the criteria of: *informativity*, *rigidity*, and *attenuation*. However, it is not clear that such absolute ratings can be calculated at all. We can make sure that Italian and Spanish are comparable in terms of the expressions included in the high accessibility end of their Accessibility Markers scale, but this still does not mean that equivalent expressions occupy the same stretch of space along the scale in both languages. The high accessibility end of the scale for the two languages should include the following expressions:

- (3.21) ... > Stressed pronouns (+ verbal agreement) > Unstressed pronouns (+ verbal agreement) > Cliticized pronoun > ‘Rich’ verbal agreement markers (> zero)

Ariel (1991) argues that when the content of a subject can be identified through the verbal morphology, such morphology is the relevant accessibility marker, even if the subject slot in the sentence is empty. According to this view, Spanish and Italian, with their obligatory verbal agreement morphology, do not include zero in their inventory of accessibility markers. In both languages the verbal agreement expresses overtly number and person features, so it seems like they can be considered equivalent in this respect<sup>9</sup>.

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<sup>8</sup>The structural position of object constituents could also be a locus of cross-linguistic variation between Italian and Spanish. According to Torrego (1998), a series of properties of accusative objects introduced by the dative preposition ‘a’ (or *marked accusatives*) in Spanish can be explained by postulating that they raise to the specifier of the functional projection v, taking VP as its object, a movement that does not need to be postulated for Italian objects. It does not seem necessary to me to assume that this movement should have an impact on the relative prominence of postverbal objects in Spanish relative to the SpecIP position.

<sup>9</sup>For the sake of simplicity I will keep referring to sentences with an empty subject slot in Italian and Spanish as null subject sentences and I will use the expression null subject to refer to the anaphoric expression that marks the highest level of accessibility in the two languages.

If the high accessibility end of the Accessibility Markers scale in Italian and Spanish looks like (3.21) and the relative position of the Accessibility Markers along the scale is correct, we can predict that in both languages null subjects (or agreement morphology) should prefer relatively more prominent antecedents than unstressed personal pronouns. More precisely, since null subjects are at the bottom of the scale in both languages, they should prefer *the most prominent* antecedent available in the previous discourse.

Regarding the overt personal pronouns, in Italian they clearly mark a lower level of accessibility compared to null subjects, with no overlap between the antecedent preferences of the two. As for Spanish, two possibilities are in principle open: unstressed pronouns may either occupy a position that is equivalent to their Italian counterparts, showing a preference for less prominent antecedents than the null subject; or they may be ‘closer’ to the null subject than their Italian equivalent, resulting in some overlap between the anaphoric preferences of the two expressions.

In the next chapter I will review some data about the use of overt personal pronouns in Spanish before presenting more refined hypotheses and the results of my first experiment testing the cross-linguistic validity of the Position of Antecedent strategy.

### 3.5 Summary

In this chapter I have discussed the principles constraining the alternation of null and overt anaphoric subjects in null subject languages and I have argued that this alternation can be accounted for by the more general principles that constrain the alternation of anaphoric expressions in the discourse.

This alternation has been shown to depend on the prominence of the antecedent, which has been characterised as the mental activation associated to a discourse entity in the verbal working memory. Entities that are not very much activated in the mind of the hearer need a good cue in order to be retrieved. The need for a good cue justifies the use of a semantically rich anaphoric expression, characterised by a high processing cost, but providing a good semantic overlap

with its antecedent. Entities that are already highly activated in the mind, because they are at the centre of the hearer's attention, only need weaker cues to be retrieved, so that working memory resources can be used to integrate the new information into the discourse rather than produce extra, semantically rich, representations.

The relative activation of discourse entities can be affected by anything that can direct the hearer's attention towards a certain entity, and in general by the factors that have an impact on the working memory (i.e. lexical frequency, number of competitors, recency and frequency of mention). In particular, higher activation, and increased prominence, seems to be associated with those discourse entities that are more likely to be mentioned again in a coherent stretch of discourse (topics, certain thematic roles depending on the coherence relation between utterances).

Languages can use different means to encode information about which entity (or entities) are more 'central' to the discourse and therefore more likely to be mentioned again beyond the clause in which they have been introduced. In Spanish and Italian this information can be conveyed at least in part by the syntactic structure of the sentence, so a preverbal subject, in the SpecIP position, is normally interpreted as the topic of the sentence, and, given that topic continuation tends to be the default assumption for coherent stretches of discourse, the entity in this position is associated with higher prominence compared to the other constituents.

Finally in this chapter I have presented the Position of Antecedent strategy, a parsing strategy proposed by [Carminati \(2002\)](#) for Italian intra-sentential null and over subject anaphors. I have argued that such strategy is motivated by the pragmatic principles outlined in the first part of the chapter, which are driven by economy considerations. Like Carminati, I have also argued that such strategy should be in part applicable to other null subject languages, in the sense that, in any language, null subjects should prefer to retrieve antecedents that are relatively more prominent than those retrieved by overt subjects; more precisely, if the null subject is the highest accessibility marker in a given language, it should always



prefer to retrieve the most prominent antecedent available. As for the overt subject, it is not possible to make cross-linguistic predictions a priori, even if the expressions seem formally equivalent across languages.

The extent to which null and overt subject biases are comparable in Italian and Spanish will be the object of the experiments presented in the next two chapters.



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## CHAPTER 4

# Antecedent biases in Italian and Spanish

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### 4.1 Introduction

This chapter addresses the question of the cross-linguistic validity of the Position of Antecedent Strategy and presents the results of the first experiment which, using a clause by clause self-paced reading task, confirms the validity of the Position of Antecedent Strategy in Italian, replicating Carminati's (2002) results, and highlights the presence of a cross-linguistic difference between Italian and Spanish regarding the interpretation of overt personal subject pronouns. More precisely, while in Italian the interpretation of the overt pronoun is associated with a shift in subject reference, in Spanish this association seems to be much weaker.

The first section of this chapter summarises the analyses of the Spanish (and Italian) pronominal system introduced in Chapter 2 and the hypotheses about the cross-linguistic validity of the Position of Antecedent Strategy presented in Chapter 3. The following section provides a review of the research on the alternation between null and overt pronominal subjects in different varieties of Spanish and introduces some more refined hypotheses on the basis of the data reviewed. Finally, after some methodological considerations, I present the first experiment, the analysis of the data and a discussion of the results. Part of the content of this chapter and of the data presented has been published in [Filiaci \(2010\)](#).

## 4.2 Summary of the preliminary hypotheses

### 4.2.1 Strong and weak pronouns

In Chapter 2 I have shown that, among NS languages, Italian and Spanish can be considered equivalent at least regarding some of their NS properties. In both languages NS are licensed both in referential and non-referential contexts and the identification of their content seems to be dependent on the fact that a rich, obligatory, verbal morphology expresses overtly person and number features on the verbal head. It has been argued that such morphology may have pronominal properties, although such analysis runs into some unresolved problems in both languages, concerning for example the status and structural position of overt subjects and the exact nature of the morphology (see section (2.2.2.1)).

In the same chapter I have also discussed the pronominal system of Italian and Spanish, in particular the fact that Italian has been analysed by [Cardinaletti & Starke \(1999\)](#) as having two series of overt subject pronouns, with different semantic and syntactic properties: a strong series including *lui* and *lei*, and a weak series including the (mostly obsolete) *egli*, *ella* as well as the phonetically empty *pro*. Strong pronouns, unlike weak ones, do not need to be in a local relation with the verb, and can therefore appear in dislocated positions, they cannot refer to non-human antecedents and cannot take their reference from a discourse prominent antecedent. This classification of *lui* and *lei* is compatible with Carminati's finding that sentences containing these pronouns incur a processing penalty if the pronoun is associated to a discourse prominent antecedent (i.e. the previous preverbal subject).

No detailed analysis is provided by [Cardinaletti & Starke](#) for the Spanish pronominal system, so that in principle the Spanish pronouns *él* and *ella* could correspond to (and display the syntactic and semantic properties of) strong pronouns, like the Italian *lui* and *lei*, or weak pronouns, like their Italian cognates *egli* and *ella*.

[Cardinaletti & Starke's](#) analysis makes largely the same predictions as [Bresnan's \(1997, 2001\)](#) analysis of pronominal systems in Bantu languages, carried out

within the framework of Optimality Theory. The main difference is that Bresnan explicitly rules out the existence of languages with only reduced pronominals (weak, clitic, bound pronominals and zeros) and no strong forms, since strong pronouns are considered the *unmarked* option (see section 2.3.2) in the sense that they are cross-linguistically more common and their meaning *includes* the meaning of the weaker forms. In Bresnan's analysis only weak forms are *marked*, and thus specialised, for topic anaphoricity, whereas strong forms can be used to refer to topics in contexts where the contrast with weak forms is neutralised.

#### 4.2.2 The cross-linguistic validity of the Position of Antecedent Strategy

The question of the cross-linguistic validity of Carminati's Position of Antecedent Strategy was introduced in section 3.4.3. In agreement with Carminati's ideas, I have argued that at least some aspects of the Position of Antecedent Strategy should be expected to be cross-linguistically valid, namely that anaphoric choices should be determined by prominence relations and that relatively more *informative*, more *rigid* and less *attenuated* expressions should be used to refer to relatively less accessible, or less prominent, discourse antecedents.

I have argued in sections 3.3.1.3 and 3.4.3.1 that in Spanish as well as in Italian, prominence relations are partly syntactically encoded; more precisely that the non-dislocated preverbal subject position can be considered particularly prominent in both languages relative to the other syntactic positions, since it is associated with topichood, in the sense that it is the position of the argument interpreted as the starting point for the communication.

As for the anaphoric expressions that are the object of this study, both in Italian and in Spanish  $\emptyset$  (or the obligatory person agreement marking on the verb)<sup>1</sup> can be considered the most attenuated and least informative anaphoric

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<sup>1</sup> $\emptyset$ , having no phonetic content, is clearly the least informative and most attenuated expression on an Accessibility Markers scale. If, like Ariel, we assume that when person agreement is marked on the verb, such marker is the real anaphoric expression and no  $\emptyset$  is included in the scale, we can still differentiate between verbal agreement and overt pronoun in terms of *attenuation*, in the sense that agreement alone is more attenuated than agreement plus pronoun, and perhaps *informativity* too, at least for the persons for which the pronoun carries gender features but the agreement does not.

expression licensed in subject position, therefore we expect that in both languages this option will be used to refer to the most prominent discourse antecedent. In processing terms, this means that in both languages  $\emptyset$ s should be processed faster and interpreted more easily when they retrieve the most prominent discourse antecedent, conversely they should be associated to a processing penalty when they retrieve a non-prominent antecedent.

The overt pronoun, on the other hand, is relatively more informative and less attenuated than  $\emptyset$ , therefore we do not expect it to be associated to a higher level of accessibility than  $\emptyset$  in either language. That is to say, overt pronouns are not expected to be *better* than  $\emptyset$  at retrieving prominent antecedents in either language. However, it is not possible to establish a priori what *absolute* level of accessibility an overt pronoun is associated with within a language, as this depends on its absolute scores along the dimensions of *informativity*, *rigidity* and *attenuation*. In practice, this means that the overt pronoun in Spanish may behave like Italian strong pronouns tested by Carminati (2002), and display antecedent biases that are complementary to those of its null counterpart, or it could be relatively *weaker*, and therefore closer to  $\emptyset$  along the Accessibility Markers scale, sharing, at least in part, the antecedent preferences of the weak  $\emptyset$ .

### 4.3 Null and Overt Subject alternation in Spanish

Several studies have focused on the alternation of null and overt subjects in different varieties of Spanish (Enríquez 1984, Cameron 1992, Morales 1997) and on possible changes due to contact with English (Flores-Ferrán 2004, Silva-Corvalán 1994, Montrul 2004, Otheguy et al. 2007, among many others). Most of these studies were conducted within the variationist tradition and are based on the analysis of corpora of spoken language, so they are not directly comparable with the psycholinguistic data on Italian from Carminati's (2002) study. This research has consistently attested the existence of a correlation between the overt expression of subjects in Spanish and a change in subject reference. More precisely, it has shown that NSs tend to be used when their referent is the same as the referent of the subject of the previous tensed verb, conversely overt pronouns tend to be used in contexts where the subject reference switches from the subject of

the previous tensed verb to a different discourse antecedent. These two examples from Flores-Ferrán (2004, p. 119) illustrate this point:

- (4.1) Yo quiero que **tú** sepas que **nosotros** te ibamos a botar como bolsa.  
 ‘I want you to know that we were going to throw you out like a bag.’
- (4.2) Y de regreso  $\emptyset$  me acordé que  $\emptyset$  tenía un montón de correspondencia en casa de mi amigo José de los bancos, y eso porque  $\emptyset$  tuve que [...].  
 ‘and upon returning, [I] remembered that [I] had a bunch of mail in the house of a friend, José of the banks, and that was because [I] had to [...].’

Enríquez (1984) is probably the study that is more directly relevant for the present research, since it is the only one that focuses on Iberian Spanish, more precisely on the educated variety of Castilian spoken in Madrid. The study analyses a corpus of spoken Spanish consisting of spontaneous speech from eighty participants, men and women, ranging between the age of 15 (the *first generation*) to above 56 (the *fourth generation*), interviewed by a Spanish speaker. The researcher analysed all the occurrences of tensed verbs, assuming that overt pronouns can alternate with null subjects in any context (ibid., p. 140). The linguistic variables included in the analyses were: tense and mood of the verb, ambiguity of the tense (whether it had six different endings, *tiempos inequívocos*, or whether the first and third persons singular coincided, *tiempos equívocos*, see example (4.3)), whether a tense was simple or compound, whether the verb was part of a phrase or periphrasis, the semantics of the verb (verbs of mental activity, evaluative verbs, verbs of state, verbs of external activity), the type of clause (positive, negative, main or subordinate and the different types of subordinate), the type of speech act (declarative, interrogative, imperative and exclamative), the text style (*direct* dialogue, *indirect* dialogue (reported speech) and narration), and the presence or absence of contrast and focus.

The data showed that overall subjects are expressed overtly as pronouns about 20% of the time, with wide variation between the different persons. The analysis for the verb tense and mood showed that significantly more overt pronouns were used with the Conditional (an *ambiguous* tense), but overall the ambiguity of

the verb form did not have any significant impact on subject expression. As for the semantics of the verb, the highest number of overt pronouns was used with evaluative verbs, followed by psychic verbs, state verbs and physical activity verbs; the difference between each of these categories turned out to be significant. More interesting for my study is the analysis based on the type of clause, which revealed that overall more pronouns are used in main, independent, clauses than in coordinated and subordinate ones; most importantly, when the referent of the subject in a subordinate clause is the same as the referent of the subject in the main clause, the use of overt pronouns tends to decrease (between 0% and 20% of overt expression depending on the type of clause), conversely it increases dramatically in the context of disjoint subject reference (between 25% and 40%). The type of speech act and text style did not show any clear influence on subject expression, whereas, quite predictably, contrast and focus turned out to be the variables with the greatest impact on it.

Another detailed analysis of the alternation between null and overt subjects in Spanish is offered by Cameron (1992), a study on subject expression in Puerto Rican Spanish. Caribbean varieties of Spanish are known to make more extensive use of overt pronouns compared to other varieties. The data analysed in this study is taken from a corpus of interviews conducted by the author in San Juan, and includes data from five male and five female speakers comparable (for age and social class) to the speakers in the Madrid corpus (Enríquez 1984). Cameron, unlike Enríquez, defines carefully the *envelope of variation*, that is the contexts in which null and overt subjects are potentially interchangeable. He identifies and excludes from the analysis all the contexts where the alternation does not obtain because the subject is either obligatorily, or almost categorically, expressed (i.e. idioms and fixed expressions, emphasis, contrast and focus contexts, postverbal subjects), or obligatorily, or nearly categorically, null (i.e. inanimate and non-human antecedents, discourse markers, generic third person plural, subject headed relative clauses, subjects of imperative and exhortative verbs, existential *haber*, impersonal *se* constructions). The study revealed that a central constraint for pronoun realisation was the variable *Switch Reference*, defined as a reference relation between two subject NPs such that ‘when these two



NPs have different referents, they are “switch” in reference [...], when [they] share the same referent, they are “same” in reference’ (Cameron 1992, p. 117-118). The first NP is called the trigger, the second is called the target and needs to meet the criteria for being a site of variation. The overall rate of pronoun expression was 45% (with 55% null subjects). In Same Reference contexts 69% of subjects were null, in Switch Reference contexts their percentage dropped to 43%. The effect of Switch Reference appeared to be moderated by other variables such as: whether the target subject was singular or plural, the presence of reference chains stretching back beyond the trigger NP, the presence of the expressed subject of an infinitive or participle between trigger and target, the lexical status of the trigger, the verb class of the target VP, the chronological ordering between the actions in the trigger and target VP, the syntactic relation between trigger and target clause.

Cameron also compared the San Juan corpus to the Madrid corpus of [Enríquez \(1984\)](#). His conclusions are that, although the rate of pronoun expression in the Puerto Rican corpus is overall higher, the constraints on subject realisation that he identified in his study appear to have the same weights in each variety. The only considerable difference between the two dialects concerns the expression of *tú*, which is used overtly mainly in the context of generic reference in the San Juan variety, whereas in the Madrid corpus it tends to be used overtly more often when it is associated with specific reference.

A previous study on Puerto Rican Spanish by [Hochberg \(1986\)](#) had suggested that the higher use of overt pronouns in this variety may have a functional explanation. With the *Functional Compensation* hypothesis, Hochberg argued that the high use of overt subjects in Puerto Rican Spanish may be related to the fact that person marking on the verb is rendered ambiguous in some tenses by the deletion of the final /s/ in the second person singular. As illustrated by example (4.3) below, showing the singular forms of Indicative Preterit, Present and Imperfect, such deletion can produce a two-way or a three-way ambiguity in some tenses, whereas others remain unambiguous:

		<b>Preterit</b>	<b>Present</b>	<b>Imperfect</b>
(4.3)	1 <sup>st</sup> person sing.	hablé	hablo	<i>hablaba</i>
	2 <sup>nd</sup> person sing.	hablaste	<i>habla(s)</i>	<i>hablaba(s)</i>
	3 <sup>rd</sup> person sing.	habló	<i>habla</i>	<i>hablaba</i>

According to Hochberg the need to disambiguate the person agreement results in higher use of overt pronouns, especially with the verb forms that become ambiguous. Hochberg's data is based on spontaneous speech from ten Puerto Rican women living in Boston. The author argues that it supports the *Functional Compensation* hypothesis, although her rates of subject expression (see Hochberg 1986, p. 614, table 2) seem to be high (compared to, for example, Enríquez (1986)) across the board, that is, even with unambiguous forms, so that it appears difficult to account for them just in terms of ambiguity.

Subsequent studies like Cameron (1992) and Morales (1997) did not find evidence of functional compensation and dismissed the hypothesis. Morales, comparing the use of overt pronouns in Madrid, San Juan, and Buenos Aires Spanish, argued that, although the rate of expression of preverbal subject pronouns in the San Juan variety is higher, their occurrence is predicted by the same linguistic variables as in the other two varieties. Furthermore, she claims that the function of overt subject pronouns in general seems to be that of *reinforcing topics* ('refuerzo de tópico'), redirecting the focus of attention in contexts in which there is a conflict between two different topics<sup>2</sup>, typically between a *local* one at the clause level, and a more *general* one concerning a larger stretch of discourse.

The studies discussed so far point at the fact that, when factors like contrast and focus are taken out of the picture, the alternation between null and overt subjects in Spanish is driven by the reference of the subject and whether it remains the same across a series of clauses, or it switches to different referents. This process seems to reflect the constraints encoded by Carminati's Position of Antecedent Strategy for Italian: NSs are used when the antecedent of the anaphor

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<sup>2</sup>Morales borrows her notion of topic from Reinhart (1981) and defines it as '[...] una categoría relativa que aparece representada en la oración por la unidad sobre la que se añade la información más importante' ('a category represented in the discourse by the unit about which the most important information is added').

is the discourse prominent previous subject, whereas pronouns are used when the reference shifts to a different, less prominent, discourse antecedent.

To conclude this section I should mention a psycholinguistic study by [Alonso-Ovalle & D’Introno \(1999\)](#), who run a series of questionnaire experiments which, the authors claim, confirm the validity of the Position of Antecedent Strategy in Spanish. The experiments were part of a larger study and were not specifically designed to replicate Carminati’s data, although the results are partly comparable. The study is based on Iberian Spanish; in the first questionnaire participants were presented with ambiguous two–clause discourses like the following:

- (4.4) a. Juan pegó a Pedro. (*pro*) Está enfadado.  
           ‘Juan hit Pedro.  $\emptyset$  is angry.’  
       b. Juan pegó a Pedro. Él está enfadado.  
           ‘Juan hit Pedro. He is angry.’

Participants were asked to decide whether the anaphoric subject of the second clause (*él* or *pro*) referred to the antecedent in the subject position (‘Juan’ in (4.4)), or to that in the object position (‘Pedro’). The results indicate that with *pro*, 73% of respondents chose a subject antecedent, while in the overt subject condition this percentage dropped to 50% and the drop was significant. The authors argue that their results suggest that the Position of Antecedent Strategy applies to Spanish, but it should be noted that, although the 73% preference for a subject antecedent shows quite clearly that the null subject is biased towards taking a prominent antecedent, the choice of antecedent for the overt pronoun is only at chance level, which actually suggests the absence of a bias. In other words, these data may indicate that the first clause of the Position of Antecedent Strategy, encoding the null subject bias, does apply to Spanish, as predicted by the cross-linguistic considerations discussed in section 3.4.3 and summarised in section 4.2.2, but there is no clear evidence that the second clause of the Position of Antecedent Strategy, encoding the overt subject bias, applies at all.

This interpretation of the results of [Alonso-Ovalle & D’Introno](#) is not incompatible with the outcome of the variationist studies discussed in the first part of this section. These studies, in fact, show that null subjects tend to occur when

the subject reference is maintained across clauses, and they tend to decrease when there is a reference shift. This pattern of distribution could indeed be originated by subject biases similar to the ones that apply to Italian, but it could also be generated by one bias alone. That is to say, if only the occurrence of null subjects is constrained by a bias and the overt pronoun just appeared whenever the null subject is independently ruled out, we would expect the same pattern of distribution, without the need to postulate a bias for the overt subject.

### 4.3.1 Evidence from language contact

Another area of linguistics that has produced several studies on the null/overt subject alternation is that concerned with the study of language acquisition and loss in situations of language contact. As mentioned in the previous chapter, subject realisation is considered an *interface* phenomenon (Sorace 2011), since it requires the knowledge and co-ordination of information from different modules of grammar (lexicon, syntax, discourse–pragmatics). Within the field of language development, it has been argued that interface phenomena can be particularly problematic for simultaneous and consecutive multilingual learners and vulnerable to change due to cross-linguistic influence (Hulk & Müller 2000, Müller & Hulk 2001, Paradis & Navarro 2003, Serratrice et al. 2004, Tsimpli et al. 2004, Montrul 2004, Argyri & Sorace 2007, Sorace et al. 2009). This is why the study of situations of contact between null subject and non-null subject grammars and its effects on subject realisation have been considered particularly interesting and have generated a great deal of research.

Studies have generally focussed on the effects of a non-null subject grammar (often English) on a null subject language (Spanish, Italian, Greek). Informally, the idea is that the more *economic* English grammar, where subjects are obligatorily overt and preverbal, should affect the more complex null subject grammar, where the realisation and position of subjects depend on subtle discourse–pragmatic considerations. More precisely, the fact that subject pronouns (and preverbal subjects) in English are not restricted to certain discourse–pragmatic contexts should induce a *weakening*, or loss, of the discourse–pragmatic restrictions on overt pronoun use in the null subject language, or a delay their acquisition. The

use of null subjects, on the other hand, should be unaffected by language contact; once acquired, they should be used correctly, since the non-null subject language does not have an equivalent expression that may *interfere* with their use.

This hypothesis has been borne out by several studies involving Italian and English. These studies have focused on bilingual first language acquisition (Serratrice et al. 2004, Serratrice 2007, Sorace et al. 2009), second language acquisition by adult English native speakers (Sorace & Filiaci 2006, Belletti et al. 2007) and first language attrition under the influence of English (Tsimplici et al. 2004).

As for the studies involving Spanish, the picture appears to be more complex. Silva-Corvalán (1994) looked at the changes occurring in the Spanish spoken by bilingual and heritage Mexican speakers resident in Los Angeles. The study included three groups of speakers: Group 1 (speakers emigrated in the USA after the age of 6), Group 2 (speakers born in the USA or emigrated before the age of 6), and Group 3 (speakers born in the USA with at least one parent born in the USA or emigrated before age 6). It analysed several aspects of Spanish that could potentially be affected by contact with English including the Tense, Mood and Aspect system, the use of clitics, the alternation of *ser* and *estar*, the expression of the complementiser and relative pronoun *que*, the use of SV order and the alternation of null and overt pronouns. Signs of language change, possibly due to contact with English, were found in some aspects of the grammar, for example both Group 2 and Group 3 showed an increase in the rate of preverbal subjects. On the other hand, when the frequency of subject expression was analysed, the author concluded that ‘English-dominant bilinguals do not express a higher percentage of [overt] subjects overall.’ (Silva-Corvalán 1994, p. 162). When compared to the Madrid corpus and to the Boston Puerto Rican corpus of Hochbergh (1986), the rate of subject expression for the three groups of Mexican speakers appears to be intermediate between them (33%, 28% and 26% vs. 21% for Madrid and 37% for Boston Puerto Rican). When the constraints on subject realisation were analysed (coreferentiality<sup>3</sup>, morphological ambiguity, focal status of the subject and semantics of the verb) the author concluded that the *coreferentiality* constraint still applied to all the speakers (except for two

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<sup>3</sup>Whether the subject is coreferential with the previous subject or not.

speakers in Group 3) and was a better predictor of subject realisation than the morphological ambiguity of the verb.

Flores-Ferrán (2004) compared the use of overt pronouns in the Spanish of Puerto Rican speakers resident in New York City and in the island (Ávila-Jiménez 1995, 1996, Cameron 1992). The majority of participants (20 males and 21 females) had been living in New York for at least 15 years at the time of the study, and the length of residence was taken as an indirect measure of exposure to English. Overall the rate of subject expression appears to be the same for speakers resident in Puerto Rico and in New York (with 45% of overt expression). Also when the data is analysed by person, the rates of pronoun expression remain similar across corpora. Furthermore, New York residents seem to be sensitive to the *Switch Reference* constraint, producing a higher rate of overt subjects in Switch Reference than in Same Reference contexts (54% and 38% of overt subjects respectively). When the New York residents are divided into three groups according to their length of residence in New York (recent arrivals, with 0-5 years in New York, established residents, with more than 16 years residence, and New York native-born) the data actually show an increase in the rate of overt subject expression in Same Reference contexts (from 22% of the recent arrivals to 32% of the established residents and 46% of the New York natives), but the author argues that this evidence is not conclusive, since New York natives still produce a higher rate of pronouns in Switch Reference (64%) than in Same Reference contexts, which means that they are still sensitive to this variable, and the difference between the two contexts is comparable to that found in monolingual corpora.

The studies reviewed so far (see Flores-Ferrán 2004, for further references) do not provide clear evidence that contact with English may produce a loss of pragmatic restrictions in the use of Spanish subject pronouns. A psycholinguistic study by Montrul (2004), claims to provide some evidence in support of such influence. The study investigates subject and object expression in a group of 24 intermediate and advanced heritage speakers of Mexican Spanish living in the USA. The task consisted in a story telling and the results showed that the intermediate group produced significantly more pragmatically redundant overt subjects and *illicit* null subjects (used in the context of a shift of reference)

compared to a monolingual control group and to the advanced heritage group. Montrul argues that these results indicate a convergence between the (incomplete) heritage Spanish grammar and the English grammar. However, it should be noted that the pattern observed by Montrul may reflect a situation of incomplete acquisition of Spanish, where the pragmatic restrictions on the null/overt subject alternation were never completely acquired in the first place. Under the original hypothesis, we would expect to find a loss of pragmatic restrictions on the use of Spanish overt pronouns due to the influence of the English overt pronoun, which does not obey such pragmatic restrictions, while it is not clear how the illicit use of null subjects can be attributed to the influence of the English grammar, which does not allow null subjects in similar contexts, and interpreted as a sign of grammar convergence. This phenomenon, therefore, seems to be different from the situations of first language attrition or advanced second language acquisition discussed by Sorace and colleagues and explained in terms of loss of pragmatic restrictions on the use of overt pronouns.

Finally, some data providing a relatively more direct comparison between Italian and Spanish come from a recent study by Sorace et al. (2009) investigating the interpretation of null and overt subjects in older bilingual children. Sorace and colleagues looked at several interface features in the developing grammars of two groups of English–Italian bilinguals (one resident in Italy and one in the UK). The children were compared to a group of Italian monolingual age-matched peers and a group of monolingual Italian adults. Moreover, to disentangle the effects of cross-linguistic influence from those of bilingualism per se, the study included a group of Spanish–Italian bilinguals. The assumption here was that Italian and Spanish are syntactically and pragmatically equivalent in their null subject characteristics, and therefore cross-linguistic influence should have no detectable effect between these two languages. The idea was that, if the Spanish–Italian group behaved like the Italian monolingual control group, this would be evidence in support of the hypothesis that the effects found in the English–Italian bilingual group are due to the influence of the non-null subject language. If on the contrary bilingualism per se is at the root of any developmental differences,

then both bilingual groups (English–Italian and Spanish–Italian) would be expected to behave alike and differently from monolinguals. The results showed, as expected, that English–Italian bilinguals tended to accept more overt subjects than their monolingual peers in contexts of reference to the same topic and that this tendency decreased with age. The Spanish–Italian group patterned with the English–Italian bilinguals, over-accepting overt pronouns especially among the older children. This was an unexpected result, because while the tendency to accept redundant overt pronouns decreased significantly among older children in the English–Italian group, following a developmental pattern similar to that of the Italian monolinguals, only delayed, Spanish–Italian children appeared to behave more similarly to their monolingual peers at a younger age and diverge from them later on, possibly at an age when their exposure to Spanish was likely to increase (i.e. at the end of primary school).

#### **4.3.1.1 Summary**

To summarise, several studies that have investigated the cross-linguistic effects of English on Spanish in situations of language contact have failed to provide clear evidence for a loss of pragmatic restrictions in the use of overt pronouns in Spanish, although signs of attrition and change were found in other areas of grammar. By contrast, a loss of pragmatic restrictions on overt pronouns has been robustly attested in situations of contact between Italian and English.

It has to be noted that the studies conducted on Spanish and Italian are not completely and directly comparable. The work on Italian consists mainly of psycholinguistic studies within the generativist tradition, and the tasks (picture verification tasks and grammatical acceptability judgements) focus mainly on language comprehension. The studies on Spanish, on the other hand, fall mainly within the sociolinguistic tradition, they take a variationist perspective and are based on the analysis of more naturalistic spoken corpora.

Nevertheless, if we assume that, apart from the methodological considerations, the results are at least in part comparable and that a discrepancy does exist between the two languages, a possible explanation for such discrepancy could be precisely what was suggested at the end of section 4.3: that Spanish overt



subject pronouns may not be *directly* constrained by a pragmatic restriction, like their Italian counterparts. Instead their distribution could be a *side-effect* of the pragmatic restrictions on the distribution of null subjects. If this is the case, then the lack of pragmatic specification of the English overt pronouns should have no effect on Spanish, because there are no restrictions to be *weakened* or *eroded*. Furthermore, the restrictions on the use of null subjects cannot be directly affected by English, since there is no counterpart of the null subject in this language.

As for the Sorace et al. study, if it is true that there are pragmatic differences between Italian and Spanish in the use of overt subject pronouns, then the similarities between the behaviour of Spanish–Italian and English–Italian bilinguals cannot be taken as evidence for an effect of bilingualism per se on language development, and the hypothesis of cross-linguistic influence at the level of the syntax-pragmatics interface cannot be completely discarded.

### 4.3.2 Refined hypotheses

In the light of the evidence discussed above, I may now be able to make more precise hypotheses regarding the validity of the Position of Antecedent Strategy in Spanish and possible cross-linguistic differences with Italian. The pragmatic constraints encoded by the Position of Antecedent Strategy (Carminati, 2002) were stated in section 3.4 and are repeated below:

- (4.5) THE POSITION OF ANTECEDENT STRATEGY
- a. The null pronoun prefers an antecedent which is in the SpecIP position;
  - b. the overt pronoun prefers an antecedent which is not in the SpecIP position.

Given the considerations about the universality of the Accessibility Markers scale and the evidence discussed in the previous section, I would expect clause (4.5a), to be valid both in Italian and Spanish.

Clause (4.5b) captures the fact that Italian overt subject pronouns incur a penalty when they retrieve a prominent antecedent *and* facilitate processing in

the context of a shift of reference. Taking into account the data from [Alonso-Ovalle & D’Introno \(1999\)](#), the considerations about contact with English, and the results of [Sorace et al. \(2009\)](#), I would expect that these pragmatic restrictions may not to be valid for Spanish.

The experiments presented in the next part of this chapter and in the next chapter have the aim of testing these hypotheses.

## 4.4 Experiment 1

### 4.4.1 Participants

Two groups of participants, 32 monolingual speakers of Spanish and 32 monolingual speakers of Italian, were recruited among Spanish and Italian adults taking English summer courses in Edinburgh and Erasmus students at Edinburgh University. Participants had been living in Edinburgh (or in another English speaking country) only for a brief period at the time of the experiment (for the Italian group the mean number of months spent abroad was 2.4,  $SD = 4.3$ ; for the Spanish group the mean was 3,  $SD = 4.9$ ); the likelihood of attrition with English was therefore minimal. Spanish speakers were asked about their origin and only speakers from Spain were included in the study to control for dialectal variation.

### 4.4.2 Materials and Design

The materials were the same as those used by [Carminati \(2002\)](#) in Experiment 1; the Italian version was adapted and translated into Spanish so that two equivalent sets of 16 items were created, one for each language. [Appendix A](#) contains the complete list of the experimental materials. The filler sentences ( $n = 86$ ) tested different types of anaphora resolution, and were taken from Experiment 6 and 8 of [Carminati \(2002\)](#).

The experimental sentences were formed by a subordinate clause and a main clause. The subordinate clause introduced two antecedents of the same gender one

in the preverbal subject position and the other one in the object position.<sup>4</sup> The subordinate clause was followed by a main clause containing the anaphoric subject, which could be either null (NS) or an overt pronoun (OPS). The antecedent of the anaphoric subject was temporarily ambiguous and was disambiguated semantically later on in the sentence so that it corresponded to either the preceding subject or the preceding object.

To summarise, the experiment included three variables, one between subjects and two within subjects, with two levels each: *Language* (Italian or Spanish), *Anaphora* (NS or OPS) and *Antecedent* (the preceding Subject or the preceding Object).

The crossing of the two within subjects variables, *Anaphora* and *Antecedent*, produced four experimental conditions shown below with two examples, one in Italian, (4.6), and one in Spanish, (4.7):

- (4.6) a. Dopo che Giovanni<sub>i</sub> ha criticato Franco<sub>j</sub> così ingiustamente, lui<sub>i(/j)</sub> si è scusato ripetutamente.  
 b. Dopo che Giovanni<sub>i</sub> ha criticato Franco<sub>j</sub> così ingiustamente,  $\emptyset$ <sub>i(/j)</sub> si è scusato ripetutamente.  
 ‘After that John<sub>i</sub> has criticised Franco<sub>j</sub> so unjustly, he<sub>i(/j)</sub> apologised repeatedly.’  
 c. Dopo che Giovanni<sub>i</sub> ha criticato Franco<sub>j</sub> così ingiustamente, lui<sub>(i/j)</sub> si è sentito offeso.  
 d. Dopo che Giovanni<sub>i</sub> ha criticato Franco<sub>j</sub> così ingiustamente,  $\emptyset$ <sub>(i/j)</sub> si è sentito offeso.  
 ‘After that John<sub>i</sub> has criticised Franco<sub>j</sub> so unjustly, he<sub>(i/j)</sub> felt offended.’
- (4.7) a. Cuando Ana<sub>i</sub> visitó a María<sub>j</sub> en el hospital, ella<sub>i(/j)</sub> le llevó un ramo de rosas.

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<sup>4</sup>The object could be either direct or indirect; in Spanish the direct object was always introduced by the dative preposition *a*. Torrego (1998) argues that these objects occupy a particular structural position (see Chapter 3, footnote 8), which is not reached by Italian direct or indirect objects. The crucial assumption here is that the preverbal subject both in Italian and in Spanish occupies a relatively more prominent position than any of the verb complements.

- b. Cuando Ana<sub>i</sub> visitó a María<sub>j</sub> en el hospital,  $\emptyset_{i(/j)}$  le llevó un ramo de rosas.  
*‘When Ana<sub>i</sub> visited Mary<sub>j</sub> in the hospital, she<sub>i/j</sub> brought her a bunch of roses.’*
- c. Cuando Ana<sub>i</sub> visitó a María<sub>j</sub> en el hospital, ella<sub>(i/j)</sub> ya estaba fuera de peligro.
- d. Cuando Ana<sub>i</sub> visitó a María<sub>j</sub> en el hospital,  $\emptyset_{(i/j)}$  ya estaba fuera de peligro.  
*‘When Ana<sub>i</sub> visited Mary<sub>j</sub> in the hospital, she<sub>i/j</sub> was already out of danger.’*

Four experimental lists were created for each language, each containing one version of each item. The items were randomised at every run.

In order to make sure that the participants were reading the sentences trying to understand the meaning and resolve the anaphor, rather than shallow processing them, the instructions told them that some sentences would be followed by comprehension questions. Half of the items were followed by comprehension questions asking to identify the referent of the anaphora.

#### 4.4.3 Procedure

The experiment consisted in a clause by clause self-paced reading task. Each trial started with a series of dashes appearing in the middle of the screen of a 13” MacBook. At the press of the space bar the first clause appeared instead of the corresponding dashes, black characters on a white background. When the space bar was pressed again the first clause disappeared, substituted by the dashes, and the second clause appeared until the space bar was pressed again.

Half of the experimental items were followed by comprehension questions asking to identify the antecedent of the anaphoric subject. The two possible answers (corresponding to the names of the two antecedents) appeared on the screen together with the question, at the bottom of the screen, one on the left and one on the right. Participants were instructed to chose the correct answer by pressing either the ‘F’ key, for the left-hand side answer, or the ‘J’ key, for the right-hand

side answer. Each antecedent (subject or object) appeared half of the times on the left-hand side of the screen and half of the times on the right-hand side.

The experiment was run using Psyscope X software (Cohen et al. 1993). The reading times and the answers to the comprehension questions were collected through the computer keyboard. The instructions were presented in written form, at the beginning of the experiment, in the native language of the participant (see Appendix A).

#### 4.4.4 Predictions

If the refined hypotheses stated in section 4.3.2 are correct, I expect the present experiment to produce the following results:

1. NSs will prefer the most prominent antecedent both in Italian and in Spanish therefore:
  - (a) sentences in the NS condition should be read significantly faster when the NS refers to the most prominent (subject) antecedent;
  - (b) subject antecedents should be processed faster in NS sentences than in OPS sentences;
  - (c) no cross-linguistic differences should arise in the NS condition (i.e. no effects or interactions with the Language variable).
2. OPSs will have different antecedent preferences in Italian and in Spanish:
  - (a) in Italian significantly longer reading times are expected when the OPS retrieves a prominent subject antecedent than a non-prominent object antecedent;
  - (b) in Spanish this effect should not obtain, that is, RTs should not be significantly different when the OPS retrieves a subject or object antecedent.
  - (c) in the OPS condition there should be a significant effect or interaction involving the Language variable.

In the next section, I will present first two separate analyses, one for the Italian raw data and one for the Spanish. In the subsequent section I will analyse all the data together adding *Language* as a between subjects variable.

#### 4.4.5 Results: main clause RTs in Italian

Table 4.1 shows the descriptive statistics for the RTs of the main clause in Italian. Times below 200 msec. and above 6000 msec. were excluded from the analysis (about 4% of the data), the remaining data were submitted to a 2 x 2 ANOVA with *Anaphora* (Null vs. Overt) and *Antecedent* (Subject vs. Object) as within subject factors.

Table 4.1: Descriptive statistics: raw RTs for the second clause of Experiment 1 (Italian).

		N	Mean	Std. Deviation	Minimum	Maximum
NULL	Object Antecedent	32	2569	798	1222	4303
ANAPHORA	Subject Antecedent	32	1941	636	1022	4031
OVERT	Object Antecedent	32	2266	698	961	4364
ANAPHORA	Subject Antecedent	32	2750	777	1435	4265

The results replicate those obtained by Carminati (2002). The overall analysis shows a significant main effect for Anaphora ( $F_1(1, 31) = 10.54; p = .003; F_2(1, 15) = 6.73; p = .020$ ) indicating that overall sentences containing a NS are read significantly faster than sentences containing an OPS (2255 msec. vs. 2508 msec.), and a significant interaction Anaphora by Antecedent ( $F_1(1, 31) = 35.73; p < .001; F_2(1, 15) = 30.36; p < .001$ ).

In order to explore the interaction, I analysed separately the two Anaphora conditions. In the NS condition there is a significant penalty when the NS anaphora is semantically forced to corefer against its bias with the object antecedent (2569 msec. vs. 1941 msec.;  $F_1(1, 31) = 18.83; p < .001; F_2(1, 15) = 12.74; p = .003$ ); in the OPS condition there is a significant penalty when the OPS is forced to corefer with a prominent subject antecedent (2750 msec. vs. 2266 msec.;  $F_1(1, 31) = 18.12; p < .001; F_2(1, 15) = 8.98; p = .009$ ).

Furthermore, when the anaphora retrieves a subject antecedent, NS sentences are read significantly faster than OPS sentences (1941 ms vs. 2750 ms;  $F_1(1, 31) = 33.51; p < .001; F_2(1, 15) = 58.77; p < .001$ ), whereas when the antecedent is

in the object position, OPS sentences are read significantly faster than NS ones (2266 msec. vs. 2569 msec;  $F_1(1, 31) = 9.27$ ;  $p = .005$ ; non significant by items ( $p > .15$ )).

#### 4.4.5.1 Discussion

These results replicate Carminati's (2002) results and confirm that in Italian there is a division of labour between NS and OPS, as stated by the Position of Antecedent Strategy. Sentences containing a NS are read significantly faster when they refer to the preceding subject and sentences containing an OPS are read significantly faster when they refer to a non-prominent object antecedent, confirming predictions 1a and 2a. Furthermore NSs are significantly better than OPSs at retrieving prominent subject antecedents, whereas OPSs are significantly better than NSs at shifting reference from the previous subject to a different antecedent (this effect is highly significant, but only by subjects) confirming hypothesis 1b, in accordance with the predictions of Accessibility Theory.

#### 4.4.6 Results: main clause RTs in Spanish

Table 4.2 shows the descriptive statistics for the RTs of the main clause in Spanish. Raw times below 200 msec. and above 6000 msec. were excluded from the analysis (about 3% of the data), the remaining data were submitted to a 2 x 2 ANOVA with *Anaphora* and *Antecedent* as within subject variables.

Table 4.2: Descriptive statistics: raw RTs for the second clause of Experiment 1 (Spanish).

		N	Mean	Std. Deviation	Minimum	Maximum
NULL	Object Antecedent	32	2319	916	1131	4145
ANAPHORA	Subject Antecedent	32	1998	587	1044	3748
OVERT	Object Antecedent	32	2389	784	1302	4354
ANAPHORA	Subject Antecedent	32	2507	880	1352	4214

The overall analysis of the Spanish data reveals a main effect for Anaphora marginally significant by items ( $F_1(1, 31) = 13.11$ ;  $p = .001$ ;  $F_2(1, 15) = 4.42$ ;  $p = .051$ ) with NS Anaphora sentences read overall faster than OPS ones

(2159 msec. vs. 2448 msec.); and an interaction Anaphora by Antecedent, fully significant by subjects and marginally significant by items ( $F_1(1, 31) = 4.95$ ;  $p = .034$ ;  $F_2(1, 15) = 3.45$ ;  $p = .08$ ).

Similarly to Italian, when the NS is forced to corefer with an object rather than a subject antecedent there is a penalty, fully significant by subjects and marginally significant by items (2319 msec. vs. 1998 msec.;  $F_1(1, 31) = 5.03$ ;  $p = .032$ ;  $F_2(1, 15) = 4.39$ ;  $p = .054$ ), but crucially we find no significant difference in the OPS condition for the pronoun retrieving its antecedent in subject or object position (2389 msec. vs. 2507 msec.;  $p > .43$  and  $p > .6$ ).

If we look at the two antecedent conditions separately, we find that when the antecedent is the preceding subject, sentences containing a NS are read significantly faster than those containing an OPS (1998 msec. vs. 2508 msec.;  $F_1(1, 31) = 15.28$ ;  $p < .001$ ;  $F_2(1, 15) = 9.20$ ;  $p = .008$ ); when there is a shift of reference from a subject antecedent to a less prominent object antecedent though, there is no significant difference between the RTs for NS and OPS sentences (2319 msec. vs. 2389 msec.;  $p > .57$  and  $p > .64$ ).

#### 4.4.6.1 Discussion

The data above suggest that, as predicted in the refined hypotheses in section 4.3.2, OPSs in Spanish may behave differently compared to their Italian counterparts. The NS bias seems to apply to Spanish as predicted (see prediction 1a), and this is suggested by the fact that NS sentences are read significantly faster when the antecedent is the previous subject. In addition, when the referent of the anaphora is the previous subject, NS sentences are read significantly faster than OPS sentences. On the other hand when OPS sentences are analysed, it looks like the resolution of the pronoun is not constrained by any bias, since there is no significant difference between RTs when the pronoun retrieves a subject or an object antecedent. Finally when the reference of an anaphoric subject is shifted to the object antecedent, the presence of an overt pronoun does not seem to facilitate the shift of reference any more than the NS does, as it is indicated by a lack of significant difference between the two conditions.



The above results seem to suggest indeed that OPSs are processed differently in Italian and Spanish; in order to confirm this hypothesis I have analysed the data presented above together, using Language as a *between subjects* variable. The results of this analysis are presented in the next section.

#### 4.4.7 Combined results

In order to take into account the systematic differences in the length of the stimuli between the two languages, the raw reading times were adjusted by computing the linear equation correlating length of the stimuli (in number of characters) and reading times for each participant, and then calculating the difference between the observed and expected times (residuals) for each data point. In all the analyses comparing directly the two languages, where the RTs were adjusted for the length of the stimuli, a value of 0 means that, the observed RTs were equal to the expected RTs, negative values indicate observed RTs faster than expected and positive values indicate observed RTs slower than expected.

The data points with Cook's distances larger than 1 were excluded from the analysis (< 1% of the data). The residuals of the RTs for the second clause were submitted to a 2 x 2 x 2 ANOVA with *Anaphora* and *Antecedent* as within subjects factors and *Language* as between subjects factor. The RTs for the comprehension questions and the error rates of the answers were also analysed.

##### 4.4.7.1 Main Clause Reading Times

The bar charts in figure 4.1 show for each condition the mean RTs and the 95% confidence intervals. In the NS condition (figure 4.1(a)), the pattern of the RTs appears to be the same in both languages, with a somewhat larger effect in Italian. In the OPS condition, the difference between the two languages becomes apparent.

The overall ANOVA for these data shows a significant main effect for Anaphora ( $F_1(1, 62) = 6.22$ ;  $p = .015$ ;  $F_2(1, 30) = 8.72$ ;  $p = .006$ ) with NS sentences read faster than OPS sentences (-60.05 msec. vs. 76.99); a significant two-way interaction Anaphora by Antecedent ( $F_1(1, 62) = 37.81$ ;  $p < .000$ ;  $F_2(1, 30)$

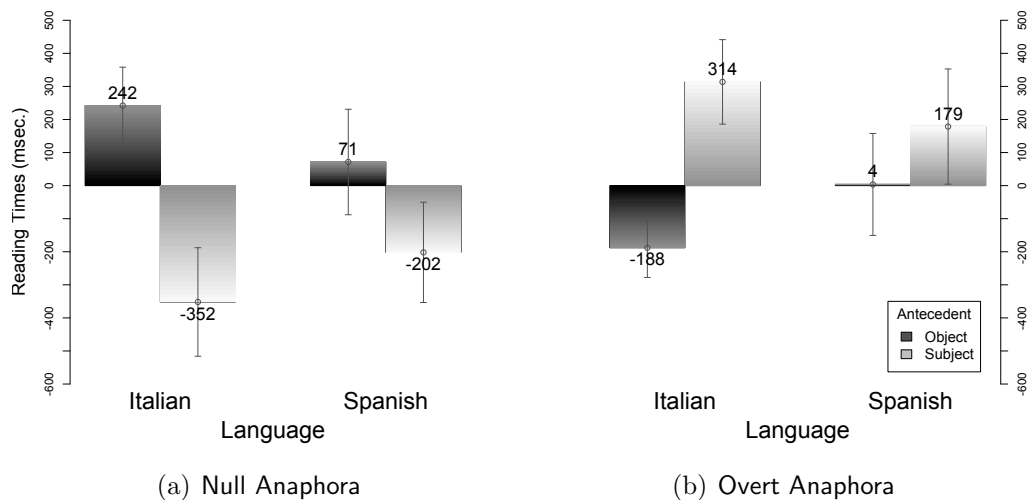


Figure 4.1: Adjusted RTs for the main clause of Experiment 1 in Italian and Spanish.

= 42.85;  $p < .000$ ); and a significant three-way interaction between Language, Anaphora and Antecedent ( $F_1(1, 62) = 6.64$ ;  $p = .012$ ;  $F_2(1, 30) = 7.77$ ;  $p = .009$ ).

In order to understand the interactions, I analysed the two Anaphora conditions (NS and OPS) separately. In the NS condition there is a significant effect for Antecedent ( $F_1(1, 62) = 21.91$ ;  $p < .000$ ;  $F_2(1, 30) = 21.47$ ;  $p < .000$ ) but no effect for Language. This result confirms prediction (1c), that in both languages the RTs should be faster for sentences in which the NS retrieves a subject antecedent (-276 ms) rather than an object antecedent (156 ms).

In the OPS Anaphora condition, on the other hand, there is a significant effect for Antecedent ( $F_1(1, 62) = 16.12$ ;  $p < .000$ ;  $F_2(1, 30) = 20.21$ ;  $p < .000$ ), with overall faster reading times for object than for subject antecedents (-92 msec. vs. 246 msec.), together with an interaction between Language and Antecedent that is marginally significant in the analysis by subjects and fully significant by items ( $F_1(1, 62) = 3.76$ ;  $p = .057$ ;  $F_2(1, 30) = 4.83$ ;  $p = .036$ ).

This interaction suggests that the antecedent preferences of OPS sentences vary depending on the language. More precisely, when OPS sentences retrieve an

object antecedent, they are processed faster in Italian than in Spanish (-187 msec. vs. 3 msec.) although this effect is significant only in the analysis by subjects ( $F_1(1, 62) = 4.42; p = .039$ ). There is no significant difference between the two languages when the OPS sentences retrieve a subject antecedent.

When OPS sentences are analysed separately in the two languages they yield the same results as in the analyses of the unadjusted RTs carried out in the previous sections. In Italian OPS sentences referring to an object antecedent are read significantly faster than those referring to a subject antecedent ( $F_1(1, 31) = 34.82; p < .000; F_2(1, 15) = 18.77; p < .000$ ), whereas this effect is not significant in Spanish.

Finally, if we consider the sentences with a subject antecedent, we find that they are read significantly faster when they contain a NS, (-277 msec. vs. 246 msec.;  $F_1(1, 62) = 31.78; p < .000; F_2(1, 30) = 56.92; p < .000$ ); an interaction Anaphora by Language is only significant by items ( $F_2(1, 30) = 4.37; p = .045$ ). Also sentences with an object antecedent yield a significant main effect for Anaphora, suggesting that they are read significantly faster when they contain an OPS (-92 msec. vs. 157 msec.;  $F_1(1, 62) = 11.68; p = .001; F_2(1, 30) = 10.07; p = .003$ ); but they also yield a fully significant interaction Anaphora by Language ( $F_1(1, 62) = 6.18; p = .016; F_2(1, 30) = 5.40; p = .027$ ).

When this Anaphora by Language interaction is analysed further, it reveals that in the NSs condition there is no effect for Language, that is both Italian and Spanish speakers encounter the same penalty when an object antecedent is retrieved by a NS; but when the object antecedent is retrieved by an OPS, as we have seen in the previous paragraph, Italian participants read the sentences faster than Spanish participants, although the effect is significant only in the analysis by subjects.

#### 4.4.7.2 Discussion: Main clause RTs

The general analysis of the main clause RTs in the experimental sentences confirms overall the presence of cross-linguistic differences between Italian and Spanish regarding the interpretation of OPSs in intra-sentential anaphora contexts.

Prediction 1c and 2c seem to be at least partly born out by the data, since the overall analyses revealed a significant interaction with the Language variable. A closer inspection confirmed that the Language variable played no part in the NS anaphora condition (as predicted) and that in both languages NSs are better than OPS for retrieving subject antecedents (although an interaction, only significant in the analysis by items, between Anaphora and Language was found in this condition). The OPS condition, on the other hand revealed the presence of an interaction between Antecedent and Language suggesting that, although overall OPSs are better at retrieving object antecedents, in Spanish, in this condition, they are read significantly more slowly than in Italian. In other words OPSs seem to help a shift in subject reference in Italian whereas in Spanish this facilitation does not seem to be so dramatic. At the same time Spanish OPSs, like in Italian, are not better than NSs for retrieving a prominent antecedent, as is suggested by the significant effect of the Anaphora variable when only sentences with subject antecedents are considered.

In the next section I analyse (jointly for both languages) the RTs for the comprehension questions (these include both the reading times and the reaction times for the answers), and the error rates of the answers.

#### 4.4.7.3 Comprehension Questions

Half of the experimental items were followed by comprehension questions. The charts in Figure 4.2 show the mean RTs and the 95% confidence intervals for the comprehension questions for the NS condition (Fig. 4.2(a)) and for the OPS condition (Fig. 4.2(b)); Table 4.3 shows the error rates in each condition.

Overall these data confirm the pattern found in the main clauses, that is, in both languages, there are faster RTs and lower error rates for NSs retrieving an antecedent in the subject position rather than in the object position. On the other hand, the analyses reveal opposite trends across the two languages in the OPS condition. Like in the previous section the effects seem to be somewhat larger in Italian than in Spanish.

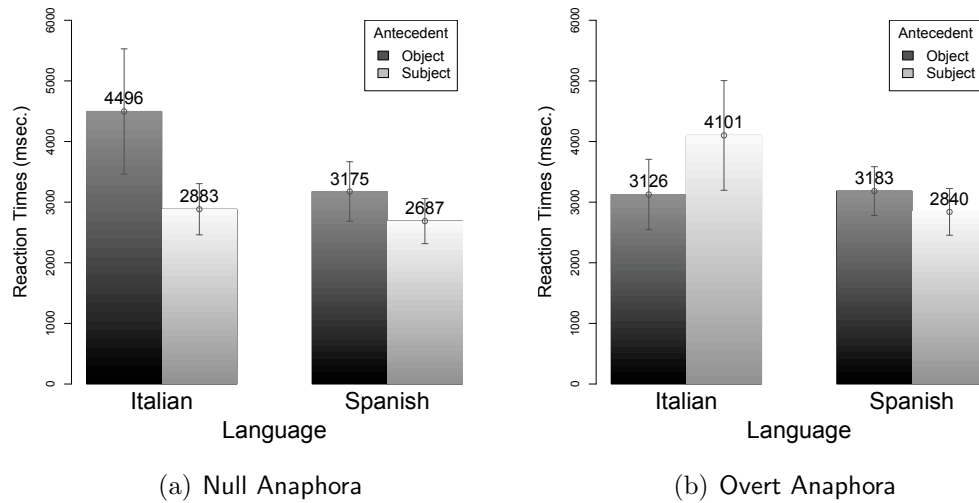


Figure 4.2: RTs for the comprehension questions of Experiment 1.

A 2 x 2 x 2 ANOVA confirms the preliminary observations, revealing an unexpected main effect for Language ( $F_1(1, 62) = 6.08$ ;  $p = .016$ ;  $F_2(1,14) = 9.74$ ;  $p = .007$ ), with overall shorter RTs in Spanish than in Italian (2971 msec. vs. 3652 msec.); but also a significant interaction Anaphora by Antecedent ( $F_1(1, 62) = 10.01$ ;  $p = .002$ ;  $F_2(1, 14) = 17.06$ ;  $p = .001$ ) and, most importantly, a significant three-way interaction Anaphora by Antecedent by Language ( $F_1(1, 62) = 8.01$ ;  $p = .006$ ;  $F_2(1, 14) = 12.86$ ;  $p = .003$ ).

In the NS condition the analyses reveal a significant effect for Language ( $F_1(1, 62) = 4.80$ ;  $p = .032$ ;  $F_2(1, 14) = 6.75$ ;  $p = .021$ ), suggesting that questions following NS sentences are answered significantly faster in Spanish than in Italian (2931 msec. in Spanish and 3690 msec. in Italian). There is also a significant effect for Antecedent ( $F_1(1, 62) = 12.05$ ;  $p < .000$ ;  $F_2(1, 14) = 13.91$ ;  $p = .002$ ), with questions following NS clauses retrieving a subject antecedent answered significantly faster than those following an object antecedent (2785 msec. vs. 3835 msec.), both in Italian and in Spanish.

In the OPS condition on the other hand, the analyses reveal a significant interaction Antecedent by Language ( $F_1(1, 62) = 4.92$ ;  $p = .030$ ;  $F_2(1, 14) = 7.22$ ;  $p = .017$ ): when the questions follow a sentence where an OPS retrieves a subject

antecedent, they are answered significantly faster in Spanish than in Italian and the effect is fully significant (2840 msec. in Spanish and 4101 msec. in Italian;  $F_1(1, 62) = 6.31$ ;  $p = .014$ ;  $F_2(1, 14) = 9.29$ ;  $p = .009$ ). No significant difference is found between the two languages when the question follows a sentence where the OPS retrieves an object antecedent. Furthermore, if we analyse the OPS condition separately in the two languages, it appears that in Italian questions following an OPS sentence are answered faster if the antecedent is in the object position ( $F_1(1, 31) = 3.41$ ;  $p = .074$ ;  $F_2(1, 7) = 5.70$ ;  $p = .048$ ), but no significant difference between the two Antecedent conditions is found in Spanish.

Table 4.3: Percentages of errors for the comprehension questions of Experiment 1.

		Italian (%)	Spanish (%)
NULL	Object Antecedent	27	33
ANAPHORA	Subject Antecedent	5	16
OVERT	Object Antecedent	11	27
ANAPHORA	Subject Antecedent	27	13

As for the rates of accuracy of the answers, the data was analysed using logistic regression, as is suitable for the analysis of categorical data. An answer was coded as correct when it corresponded to the antecedent that was plausible given the semantics of the sentence. Table 4.3 shows the error rates to the comprehension questions. Once again, the trend seems to be the same across languages in the NS condition, whereas with overt pronouns the error rates vary depending on the language.

The predictors in the logit model were: Anaphora, Antecedent and Language. For each significant effect the following paragraph will report the coefficient  $\beta$ , its level of significance, and the odds ratio ( $e^\beta$ ) between the pair of levels the effect refers to. Overall the model yielded a significant main effect for Antecedent, with significantly more correct answers to questions following a sentence with a subject rather than an object antecedent ( $\beta = 1.99$ ;  $p = .002$ ,  $e^\beta = 7.35$ ); a significant main effect for Anaphora, with significantly more correct answers in the OPS condition ( $\beta = 1.08$ ;  $p = .028$ ,  $e^\beta = 2.94$ ); a significant interaction Anaphora by

Antecedent ( $\beta = -3.07$ ;  $p < .000$ ,  $e^\beta = .005$ ) and finally a significant three-way interaction between Antecedent, Anaphora and Language ( $\beta = 3.03$ ;  $p = .003$ ,  $e^\beta = 20.8$ ). The likelihood ratio test for the model indicates that overall the model is explanatory ( $\chi^2(7) = 30.29$ ;  $p < .000$ ), on the other hand the residual deviance is larger than expected ( $\chi^2(248) = 342.31$ ;  $p < .000$ ) indicating a lack of goodness of fit.

Two more models were fitted to part of the data, namely to the NS and the OPS conditions separately, to explore the three-way interaction. In the NS anaphora condition the chances of a correct answer increase significantly for both languages when the antecedent of the NS anaphora is a subject ( $\beta = 1.99$ ;  $p = .002$ ,  $e^\beta = 7.35$ ). In the OPS condition, on the other hand, there are slightly less chances to get a correct answer when the antecedent is a subject ( $\beta = -1.08$ ;  $p = .028$ ,  $e^\beta = 0.339$ ); there are also less chances to get a correct answer in Spanish than in Italian ( $\beta = -1.08$ ;  $p = .028$ ,  $e^\beta = 0.339$ ); and the interaction between the Antecedent and Language variables is significant ( $\beta = 2.01$ ;  $p = .003$ ,  $e^\beta = 7.45$ ) indicating that there are significantly more chances to get a correct answer in Spanish rather than Italian but only in the subject Antecedent condition ( $\beta = 0.93$ ;  $p = .049$ ,  $e^\beta = 2.5$ ), whereas the opposite is true ( $\beta = -1.08$ ;  $p = .028$ ,  $e^\beta = 2.9$ ) in the object Antecedent condition.

#### 4.4.7.4 Discussion: Comprehension questions

The analysis of the reaction times to the comprehension questions and of the accuracy rate of the answers confirm the existence of cross-linguistic differences between Italian and Spanish along the lines already suggested by the RTs of the main clauses. The reaction times show that questions are answered slightly faster in Spanish than in Italian; in the null subject condition Spanish participants tend to answer faster than Italian participants and, in both languages, answers are faster and more accurate when the null anaphora retrieves a subject antecedent.

In the overt subject condition, the picture is more complex: when the overt pronoun retrieves a subject antecedent, Spanish speakers tend to answer faster and more accurately than Italian speakers. When the questions follow sentences where the pronoun retrieves an object antecedent, on the contrary, there is no

difference between the two languages regarding the speed of the answers, but Italian participants correctly identify the referent of the anaphor significantly more often than Spanish ones.

#### 4.5 General discussion: summary

To summarise, overall the data from Experiment 1 confirm the validity of the Position of Antecedent Strategy for intra-sentential anaphora in Italian, replicating Carminati's results. The validity of first clause of the Position of Antecedent Strategy, encoding the null subject bias, is confirmed by the fact that null subject sentences are read significantly faster when they refer to a prominent preverbal subject antecedent. The validity of the second clause of the Position of Antecedent Strategy is also confirmed, since overt subject sentences are read significantly faster when they refer to a non-prominent object antecedent. Prediction 1a and 2a are therefore born out by the data.

As for the cross-linguistic validity of the Position of Antecedent Strategy, the analysis of the Spanish data suggests that, while the null subject bias seems to apply to Spanish, as indicated by the significant processing penalty incurred when null subject sentences refer to an object antecedent, the lack of a significant penalty for any antecedent condition with overt subject sentences suggests that the overt pronoun may not be subject to the kind of bias described by the second clause of the Position of Antecedent Strategy. This preliminary evidence supports both prediction 1a and 2b, that, considering the evidence available on subject realisation in Spanish, at least one of the biases encoded by the Position of Antecedent Strategy should be valid in this language, and that on the basis of Accessibility Theory assumptions about the structure and universality of the Accessibility Markers scale, the null subject bias should be universally valid (this is also confirmed by the fact that, both in Italian and in Spanish, subject antecedents are processed significantly faster when they are followed by null subject sentences).

The existence of cross-linguistic differences between Italian and Spanish is confirmed when the data are analysed together, using Language as a between subjects



variable. This analysis confirms that in both languages null subject sentences are processed significantly faster and understood more easily when they refer to a subject antecedent. The overall analysis for overt pronouns shows that they are processed significantly faster when they refer to an object antecedent and that this generalisation is valid for both languages, but overt subject sentences referring to an object antecedent are processed faster and understood better by Italian speakers, whereas overt subject sentences referring to a subject antecedent produce the same processing penalty in both languages but are understood more accurately by Spanish speakers.

A further analysis of the data, looking at the sentences with antecedents in the subject position, showed that in such contexts, in both languages, null subject clauses are processed significantly faster than overt subject ones (an interaction with Language was only significant by items). This main effect provides further evidence that in both languages null subjects are specialised for reference to prominent antecedents, as predicted by Accessibility Theory, whereas overt pronouns tend to be excluded from it, incurring a processing penalty, although, as the comprehension data suggest, only in Italian does the use of an overt pronoun to retrieve a subject antecedent significantly *hinder* comprehension producing slower and significantly more inaccurate answers. When sentences with object antecedents are analysed, cross-linguistic differences appear. Overall such sentences are processed significantly faster in both languages when the anaphoric subject is overt, but the facilitation is significantly higher in Italian, with faster reading times and significantly more accurate answers than in Spanish.

Although these results point to a cross-linguistic difference between Italian and Spanish regarding the processing of OPS sentences, it should be noted that they present some weaknesses. First of all, one of the crucial interactions in support of the cross-linguistic difference argument, the Antecedent by Language interaction in the OPS condition, is only marginally significant in the analysis by subjects ( $p. = .057$ ); secondly, the difference between Italian and Spanish regarding the RTs of OPS sentences referring to object antecedents is only significant in the analysis by subjects. These partial results may be due to a lack of power of the

test and should be investigated further. This question will be addressed by the experiment presented in the next chapter.

#### 4.5.1 The present results and previous research

The cross-linguistic differences suggested by the results of the present experiment are compatible with the variationist data on subject expression in Spanish, since they reveal the presence of at least one pragmatic bias, restricting the occurrence of null subjects to *Same Reference* contexts (Cameron 1992), or *coreferentiality* contexts, following the terminology of Silva-Corvalán (1994). The pattern of distribution of the overt pronouns attested by these studies can be explained if we assume that overt subjects tend to be used whenever the null subject is ruled out because of its pragmatic bias, without the need to postulate a pragmatic bias for the overt pronoun. The present results are also compatible with Alonso-Ovalle & D’Introno’s data, showing a preference for subject antecedents with anaphoric null subjects, but a chance level performance with overt pronominal subjects in extra-sentential anaphora contexts.

The possible presence of cross-linguistic differences between Italian and Spanish at the level of the pragmatic restrictions on overt subjects may also help interpret the unexpected results of Sorace et al. (2009)’s study on English–Italian and Spanish–Italian bilingual children. Spanish–Italian bilinguals may be accepting significantly more redundant overt subjects, when compared to their monolingual peers, due to the cross-linguistic influence of the pragmatically *unrestricted* Spanish overt pronoun over the pragmatically *restricted* Italian pronoun. If this explanation is correct, it would also make sense of the fact that the divergence between Spanish–Italian bilinguals and Italian monolinguals tends to increase among the older children, who may start to be relatively more exposed to Spanish (due to them leaving the Italian primary school to attend Spanish secondary school). As a side effect, these results may weaken the evidence for a possible effect of bilingualism per se on linguistic development. If overt pronouns in Spanish are not constrained by *exactly* the same pragmatic restrictions as in Italian, cross-linguistic influence cannot be ruled out as a possible source of variation on the acquisition of the relevant restrictions in Italian.

The absence of a pragmatic bias on the overt pronoun in Spanish could also help explain the lack of evidence for cross-linguistic influence in this specific area of grammar, in contexts of contact with English. Such influence has been attested in several contexts of contact between English and Italian, and the lack of evidence for it in Spanish may be accounted for if we assume that the occurrence of Spanish overt pronouns is not directly constrained by pragmatic restrictions. If such restrictions are absent, they cannot be subject to *erosion* or *weakening* due to contact with English.

#### 4.5.2 Italian and Spanish pronouns

Finally, I should discuss briefly the implications of the results presented here for a cross-linguistic classification of Spanish and Italian pronouns. We have seen that, according to Accessibility Theory, referring expressions are used to provide an indication of the relative accessibility of their antecedents. They are therefore considered *Accessibility Markers* and can be ranked along a scale, from high to low accessibility marker. The ranking is assumed to be universal, but the relative distance among expressions along the scale may vary across languages. One possible way to look at the cross-linguistic difference between Italian and Spanish would be to say that Italian pronouns mark a *lower accessibility* level than their Spanish counterparts, since they facilitate the retrieval of an object antecedent and seem, at the same time, to *hinder* reference to a prominent (subject) antecedent. Spanish pronouns on the other hand, do not seem to be *specialised* for retrieving an object antecedent, at least not as dramatically as Italian pronouns, and do not seem to hinder comprehension when they are used to refer to a prominent antecedent. So, one way to conceptualise this state of affairs would be to imagine Spanish pronouns as relatively *closer* to the null subject along the Accessibility Markers scale compared to their Italian counterparts.

Another way to think of this cross-linguistic difference could be in terms of [Cardinaletti & Starke](#)'s cross-linguistic typology of pronouns. According to these authors one of the characteristics of strong pronouns is that they are barred from taking their reference from a discourse-prominent antecedent. This clearly applies to Italian *lui* and *lei*, but not to the weak *pro*, nor to the weak series of

overt Italian pronouns *egli* and *ella*. Now, the data suggest that Spanish overt pronouns are *not equivalent* to *pro*, since they do incur a processing penalty compared to the null subject when they co-refer with a subject antecedent (see sections 4.4.6 and 4.4.7.1), but co-reference with a prominent antecedent seems to be less problematic for Spanish speakers than Italian speakers (as suggested by the comprehension questions results). This may indicate that Spanish pronouns are *weaker* than their Italian counterparts, although certainly other tests for *weakness* should be applied in order to decide if *él* and *ella* are really comparable to their weak cognates *egli* and *ella*.

Also Bresnan's idea of a strong pronoun, *unmarked* for topic anaphoricity may seem to apply to the Spanish situation, in the sense that, if Spanish overt pronouns can refer to both prominent and non-prominent antecedents, this may simply mean that they are *unmarked* in this respect. The problem with this analysis is that, according to Bresnan, when a language has both strong and reduced pronominal forms (which in Spanish could correspond to either  $\emptyset$ , or the verbal morphology, depending on the analysis), the latter are specialised (or *marked*) for topic-anaphoricity, and the strong form can *only* be used to refer to topics under *neutralisation of opposition*, that is only in contexts where the weaker form cannot be used for independent reasons. In Spanish and Italian the person-marking verbal morphology is obligatory, so if that is analysed as a reduced pronominal form, it is impossible to say that it may be ruled out from certain contexts. If we assume, on the other hand, that  $\emptyset$  is the pronominal form, the same problem arises, that is, it is not clear why this form should be optionally barred from the syntactic context analysed.

A rather different way to look at the question would be to assume that Spanish overt pronouns do not mark a *higher* accessibility level than Italian pronouns, but a *lower* one, and are in fact placed lower along the Accessibility Markers scale. If Spanish pronouns marked a lower level of accessibility, that is, if they were specialised to retrieve antecedents that are even less accessible than the previous object, this would explain why the facilitation for the retrieval of object antecedents is not as dramatic as in Italian, or why subjects and objects are roughly equally good (or bad) antecedents for a Spanish pronouns. The idea

of an explanation along these lines comes from some data presented by *Silva-Corvalán* (1994, p. 157) and reported in table 4.4 below.

*Table 4.4: Percentage of subject expression by syntactic function of the coreferential argument in the preceding sentence (Silva-Corvalán 1994, p. 157).*

	N	%
'Sentential subject'	30/42	63
Switch reference with all arguments	624/1080	57
Coreference with oblique argument	18/36	50
Coreference with direct object	28/86	33
Coreference with indirect object	14/48	29
Coreference with subject	176/873	20

This table shows that the use of overt subjects (including *all* types of overt subjects), in this group of bilingual and heritage speakers of Mexican Spanish, increases gradually depending on the syntactic role of the antecedent, from the highly accessible previous syntactic subject, to the less accessible 'Sentential subject', with a remarkable jump of seventeen percentage points from direct object to oblique argument and then switch reference with all arguments. Instead, reference to direct and indirect objects (the human object introduced by the preposition *a*) is accompanied by a relatively low percentage of overt subject expression, quite close to the percentage of the subject antecedent. Of course, this table includes also nouns, not only pronouns, and the speakers in this sample are bilingual and heritage speakers who may not be representative of a monolingual population, moreover this explanation would open a whole new set of questions, but this remains a direction that could be explored by future research.

## 4.6 Summary

In this chapter I have summarised the analyses of Italian and Spanish pronominal systems and my assumptions about the nature of the Position of Antecedent Strategy and its cross-linguistic validity; I have also provided a review of the research on subject expression in Spanish, followed by my predictions about the validity of the Position of Antecedent Strategy in Spanish. Finally, I have provided some

preliminary evidence that there may be some cross-linguistic differences in the interpretation of OPS subjects in Italian and Spanish.

Two questions that have been left open in this chapter will be dealt with in the next chapter through the next experiment. First of all, there is the question of the time-course of the anaphora resolution. Now that some cross-linguistic differences between Italian and Spanish have been attested, I will try to see if, using a more fine grained procedure, it is possible to further investigate their nature. Secondly, there is the issue of the power of the test. As I mentioned above, some crucial results in this experiment were only marginally significant, the other aim of the experiment in the next chapter is to see if, with a more powerful test, the crucial interactions reach full significance.

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## CHAPTER 5

# The time-course of anaphora resolution

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### 5.1 Introduction

This chapter presents the results of a second experiment investigating intra-sentential anaphora resolution in Italian and Spanish. The purpose of this experiment was twofold. First, it was aimed at finding out if the cross-linguistic differences attested by the previous experiment could be confirmed, and the marginally significant trends could reach significance using a more stringent methodology. Second, it was designed to get an insight on the time-course of the anaphora resolution and compare it across languages.

In Chapter 3, I mentioned that the literature has identified different factors influencing the resolution of pronominal anaphors, and I have argued that the effect of these factors consists in bringing an antecedent within the focus of the comprehender's attention, increasing its activation in memory. Some of the factors that have been the focus of current research include: the lexical frequency of the antecedent, its recency of mention, its discourse status and structural position, the implicit causality of the verb and the coherence relations within the discourse.

Several questions arise at this point, for example, which is the relative weight of different factors during the resolution of an anaphor? How soon is each factor taken into account, and how soon is the interpretation of the anaphor completed? These questions have been investigated using several on-line techniques.

The first section of this chapter provides a background and a brief review of the literature on the time-course of anaphora resolution. The following section describes the design and methodology of the second experiment of my study; this is followed by an analysis and discussion of the results, and by some conclusions.

## 5.2 General issues in language processing

A great deal of psycholinguistic research has focused on what inferences we make when resolving an anaphor as well as on the type of evidence that guides the parser during such resolution process. These questions have raised particular interest in relation to the more general question of the incrementality of language comprehension.

As [Sanford & Garrod \(1989\)](#), [Garrod & Sanford \(1999\)](#) argue, the idea that discourse processing may proceed in an incremental fashion is psychologically plausible and functionally justified given the limitations of our working memory. We know that the memory for the surface form of a linguistic expression is short-lived, if incoming material is processed as soon as it becomes available, then it can be integrated sooner to the discourse representation, allowing the system to free working memory space for computation and for taking in new material. Furthermore, with an incremental parser, the information drawn from the interpreted material can be used immediately to facilitate the comprehension of the incoming material.

On the other hand, the functional argument can also be used against incrementality, in the sense that, if the parser reaches a decision too early, committing itself to an interpretation without having access to all the evidence, it will run the risk to make mistakes, which will require it to backtrack and compute new analyses whenever the incoming evidence does not fit with the chosen interpretation. This process is clearly costly in terms of processing load. A prominent proponent of the *clausal processing* hypothesis is [Fodor et al. \(1974\)](#), who argued for a strictly modular view of language processing. According to this view, language processing occurs within informationally encapsulated modules, clauses function as perceptual units, and integration between the information processed within the



modules can only take place at the end of the units. So, according to this view, a substantial amount of processing must be delayed until the clause boundaries are reached. This view is supported by the presence of end of clause wrap up effects during reading (Just & Carpenter 1980, Rayner et al. 2000), which have been traditionally interpreted as evidence that at least some processing, possibly related to drawing inferences and discourse integration, is delayed until the end of a clause or sentence (but see Warren et al. 2009, for a different account).

The question of incrementality and immediacy of language processing is complicated by the fact, stressed by Sanford & Garrod (1989), that two different aspects should be considered, although the empirical data do not always allow for a clear separation between them. On the one hand, the parser may immediately *initiate* the resolution process, but on the other hand, such process will necessarily take time and may only be *completed* at a later stage. In the case of anaphor resolution *immediate initiation* would mean that the process of resolution begins as soon as the anaphoric expression is encountered. Evidence for incrementality and immediate onset of resolution has been found both at the syntactic and at the semantic level of processing (see Garrod & Sanford 1999, for a review), whereas evidence for immediate completion has been more controversial and is empirically more difficult to gather. A strong version of the immediate completion hypothesis would argue that resolution processes are completed quickly and the parser does not move on to new material until it has computed the material under examination to the deepest possible level. A weaker version would claim that decisions are not delayed, even if the input is ambiguous, so that multiple computations do not have to be kept in memory for longer than is necessary. However, when an ambiguity is encountered, the parser will have to make *guesses* that may turn out to be wrong, in which case they will need to be subject to reanalysis, requiring more computation, at some later stage (see Ferreira et al. 2001).

The concept of reanalysis is itself controversial and researches have proposed different mechanisms to explain the increased costs associated with the processing of syntactically ambiguous discourses. These theories can be divided broadly into two groups: serial reanalysis models and constraint-based competition models. The former type of models, are based on the idea that alternative analyses of

incoming (syntactically ambiguous) material are carried out serially, one at the time. When incoming material does not fit the analysis that is currently being adopted, the parser will backtrack and start to compute a new one. Serial models also assume that, during a first stage of processing, morpho-syntactic information alone is taken into account, with conceptual information only accessed later. The alternative view, represented by competition models, is that all sources of information, syntactic and conceptual, are taken into account at the same time and alternative structures are computed in parallel. The interpretation that satisfies better multiple constraints (syntactic, morphological, semantic, pragmatic) is assigned a higher *evaluation score* and wins the competition (see [Vosse & Kempen 2009](#)).

There are also serial models that allow for both mechanisms (serial analyses and competition) to take place at different stages of processing. For example, [van Gompel et al. \(2005\)](#)'s Unrestricted Race Model, allows for several analyses to be carried out in parallel during a first stage of processing but only one analysis, most supported by evidence from the previous text, is brought to completion and adopted.

### 5.2.1 Discourse comprehension and mental models

Another question related to the reanalysis issue, and to the need for reanalysis itself, is what it means to bring the process of discourse comprehension to completion. Several theories have been proposed, which try to model language comprehension ([Kintsch 1988](#), [McKoon & Ratcliff 1992](#), [Garrod & Sanford 1999](#), [Almor 1999](#)), in broad terms they agree on the idea that the process must consist of multiple stages: a first stage involves the activation of relevant information (lexical, syntactic and semantic) about an expression and the creation of a representation within the working memory, which is initially independent from the previous discourse. Subsequently, this representation needs to be integrated to the rest of the discourse to create a coherent whole. In order to achieve this integration, semantic relations need to be established, and inferences need to be drawn, involving the general knowledge of the comprehender as well as the previous discourse.

Almor & Nair (2007) argue that, in the investigation of NP anaphors, different methodologies, that have yielded sometimes contradictory results, tap in fact at different stages of processing. So, for example, probe recognition and lexical decision tasks, where participants are asked to recognise or make lexical decisions about a target word related to the antecedent, are likely to tap at the first *activation* stage. More global measures, like reading times, are instead likely to give an indication of the processing load related to later discourse *integration* processes.

As I mentioned before, anaphor resolution has been often used as a testing ground for hypotheses regarding discourse comprehension and to investigate issues of immediacy and incrementality in the time-course of language processing, because it appeared to be a necessary step to establish the coherence of a text. However, recent research has shown that this may not be the case, and comprehenders may *shallow process* a text (see Ferreira & Patson 2007), without necessarily drawing all the inferences that are required for anaphors to be fully and correctly resolved. Evidence in this respect has been found not only for less specified anaphors like pronouns (McKoon & Ratcliff 1992), but also for definite NPs (Levine et al. 2000).

### 5.2.2 NP anaphors and pronominal anaphors

We have seen in the previous section that, according to most language comprehension models, anaphora resolution must involve at least two stages: during the first one relevant information is activated, subsequently this information is integrated into discourse. Since most psycholinguistic research has focused on English, the anaphoric expressions that have received more attention have been definite NPs and personal pronouns.

Some researchers have assumed NP anaphors and pronouns perform different discourse functions (Gordon et al. 1993), pronouns being used to establish coherence in the discourse. This claim implies that their resolution may involve fundamentally different processes. The Informational Load hypothesis (Almor 1999), discussed in Chapter 3, takes a different approach and argues that the processes involved in the resolution of pronouns and more explicit anaphors are

equivalent, and the concept of *informational load* is used to account for differences in the use and interpretation of different types of anaphor. According to the Informational Load hypothesis, pronominal anaphors, with their limited informational content, produce poor semantic representations, that cannot function as effective cues for the activation of antecedents outwith the focus of attention, but represent an optimal solution for reference to antecedents that are already highly activated and accessible.

The Informational Load Hypothesis accounts for the repeated name penalty (Gordon & Hendrick 1998), the fact that longer reading times are found for repeated name anaphors when their antecedent is highly prominent. It also accounts for inverse typicality effects, that is, for the fact that longer reading times are associated with category name anaphors (e.g. *bird*) if their antecedent is highly prominent *and* a typical member of the category (e.g. *robin*), rather than an atypical one (e.g. *ostrich*), assuming that there is greater semantic overlap between a category name and a typical member of the category (Almor 1999, Almor & Nair 2007, Almor & Eimas 2008).

The idea that semantically overlapping anaphors are better cues for the activation of antecedents is supported by findings like those of Gernsbacher (1989), who observed that repeated name anaphors immediately *enhance* their antecedents, boosting their activation, and immediately *suppress* their non-antecedents, reducing their level of activation. According to Gernsbacher, higher levels of activation facilitate subsequent referential access. Using a probe verification task, she showed that responses to antecedent probe names were significantly faster immediately after an NP anaphor than before it, showing *enhancement* of their activation. In contrast, responses to non-antecedent probes immediately after an NP anaphor were significantly slower.

The study by Gernsbacher also investigated whether *enhancement* and *suppression* are triggered by pronominal anaphors. Because these anaphors are informationally poorer, they could match several discourse antecedents, so they were disambiguated by contextual information making only one antecedent plausible. The results showed that contextually disambiguated pronouns did not *enhance*

the activation of their antecedents. Pronouns produced *suppression* of their non-antecedents, but more slowly than NP anaphors, only at the end of the sentence. When the disambiguating context was presented early in the sentence, before the pronoun, suppression was not triggered any earlier, and a further manipulation showed that gender disambiguated pronouns triggered suppression more powerfully than gender ambiguous ones, but still did not enhance the activation of their antecedent.

### 5.2.2.1 The identification of an antecedent by a pronoun

An important difference between pronominal anaphors and informationally richer anaphors is that, in a given stretch of discourse, a pronoun may match several antecedents. The disambiguation of pronouns can be carried out in different ways; some of them, like gender and number features, or contextual information may identify uniquely a discourse antecedent, others like the implicit causality of the verb, or the relative accessibility of an antecedent may bias interpretation favouring an antecedent over its competitors. The study by Gernsbacher described above suggests that pronouns that are disambiguated by gender cueing or by (early) contextual information are more powerful at suppression, but the process is not triggered any earlier than by more ambiguous pronouns.

In keeping with these findings, [Greene et al. \(1992\)](#) suggest that pronoun resolution may not be an automatic process, and unlike the resolution of NP anaphors, it may not be carried out as soon as the necessary information becomes available, but may be delayed until the end of a sentence. These ideas are in line with minimalist assumptions [McKoon & Ratcliff \(1992\)](#) that, during discourse comprehension, only inferences drawing on information that is readily available and that are necessary to compute the local coherence of a text are performed automatically. Strategic processing may occur, later on, if the goals of the comprehender require it, otherwise only a *minimal* discourse representation is built.

Greene et al. argued that the antecedent of a pronoun is identified automatically by a comprehender only if its morpho-syntactic features (gender and number), and its level of accessibility make it a unique candidate for a match with the pronoun. If a unique antecedent is identified, the content of the proposition containing

the pronoun is integrated with the content of the proposition containing the antecedent. But “[i]f more than one entity matches sufficiently, [...] selection is postponed to wait for more content from the discourse, or strategic problem solving can be attempted” (Greene et al. 1992, p. 267). Furthermore, if the goals of the comprehenders do not require a unique antecedent to be identified, they may not even engage in strategic processing, with the result that the pronoun reference will remain unidentified, or it will be attached to all the discourse entities that match the pronoun sufficiently. As a result the level of activation of all the possible antecedents will remain unaltered at the end of the sentence containing the anaphor. The evidence in support of these claims was provided by a series of experiments using a methodology similar to Gernsbacher’s (1989), but with a speeded up presentation of the materials, so as to avoid strategic reading, and no comprehension questions. The results showed no facilitation for antecedent vs. non-antecedent probes for pronominal anaphors.

Another interesting study, by Garrod et al. (1994) (reported in Garrod & Sanford 1999), used an eye-tracking during reading methodology to investigate the resolution of pronominal anaphors. Participants were presented with a short narrative text, which introduced two characters: a main character, mentioned by name at the beginning of the text, on which the narrative focused, and a secondary character. The two characters could have the same gender or different gender. The last sentence of the narrative contained a pronominal anaphor, which could be gender disambiguated (when the two potential antecedents had different gender) or gender ambiguous (in the same-gender condition); the anaphor was followed by a verb that, given the context, could plausibly refer to only one of the characters. Below is an example of the experimental materials:

- (5.1)     CONTEXT: A dangerous incident in the pool  
           Elizabeth<sub>1</sub>/Alexander<sub>2</sub> was an inexperienced swimmer and wouldn’t  
           have gone in if the male lifeguard<sub>3</sub> hadn’t been standing by the pool.  
           But as soon as she<sub>1</sub>/he<sub>2</sub> got out of her<sub>1</sub>/his<sub>2</sub> depth she<sub>1</sub>/he<sub>2</sub> started to

panic and wave her<sub>1</sub>/his<sub>2</sub> hands about in frenzy.

TARGET SENTENCES:

- a. Within seconds she<sub>1</sub> sank into the pool. (consistent)
- b. Within seconds she<sub>1</sub> jumped into the pool. (inconsistent)
- c. Within seconds he<sub>3</sub> jumped into the pool. (consistent)
- d. Within seconds he<sub>3</sub> sank into the pool. (inconsistent)
- e. Within seconds he<sub>2</sub> sank into the pool. (consistent - gender ambiguous)
- f. Within seconds he<sub>2</sub> jumped into the pool. (inconsistent - gender ambiguous)

In order to establish when the inconsistency of the verb was detected, the researchers compared the reading patterns between consistent and inconsistent verbs for each condition. The first-pass gaze durations revealed that the inconsistency was detected early (at the verb), only when the antecedent was the focus of the narrative *and* it was gender-disambiguated; in all conditions there were significant effects in the second-pass fixations. The researchers interpreted these results as showing that the parser only commits itself early to an interpretation if both morpho-syntactic information and salience information contribute in identifying one antecedent. If this is not the case, the decision is delayed until more information comes in. Notice that [Garrod et al.](#) were not testing the minimalist hypothesis that anaphoric dependencies may not be resolved at all, as [Greene et al.](#) claimed. Their task did not impose time constraints on the readers and it included yes/no comprehension questions, so participants had the time to carry out strategic processing and were encouraged to do so.

### 5.2.2.2 The rapid use of information

If these experiments show that the resolution of pronominal dependencies can be delayed until the end of the sentence, or that indeed it may not occur, there is also evidence suggesting that morphological information (gender cues), semantic information (implicit verb causality and contextual plausibility information) and the relative accessibility of the antecedent, can be used early by the parser, if

not to complete the resolution of the pronoun, at least to facilitate access to the correct antecedent.

Arnold et al. (2000), looked at the time-course of the use of gender cues and accessibility information during anaphor resolution, using a visual world paradigm. The procedure involves monitoring the eye movements of the participants, while presenting spoken stimulus sentences accompanied by pictures representing the scenes described by the stimuli. This procedure allows the researcher to monitor comprehension moment by moment in real time, without interfering with the processing, by tracking participants' anticipatory gazes to the entities mentioned in the stimuli. The stimulus sentences contained two characters that could be the same or different gender. Accessibility was manipulated through the syntactic position of the antecedent (subject vs. object) and, in a second experiment, through the recency of mention (subject antecedents were also re-mentioned in a subsequent clause). The results showed that both gender cues and accessibility information were used to identify the correct antecedent as soon as 200 milliseconds after the onset of the pronoun, as shown by the higher rate of looks to the target referent than the competitor. Only in the condition in which both characters were the same gender and the correct antecedent was the least accessible one (i.e. the syntactic object and not mentioned in the clause immediately preceding the anaphor) was there an early advantage for the competitor (the more accessible antecedent), but even in this condition, by the end of the sentence participants were able to decide with an 88% accuracy whether the stimulus sentence matched the picture or not.

In English, the language in which all the experiments described above were carried out a masculine or feminine anaphor identifies antecedents that refer to male and female referents, in other words, gender cues are related to a semantic feature of the referent. In Romance languages, nouns are always morphologically marked as either masculine or feminine, but often this morpho-syntactic mark has no relation with whether the referent is male or female. That is to say, the morpho-syntactic feature of gender does not necessarily match a semantic gender feature of the referent. The question investigated by Cacciari et al. (1997) is whether gender cues are used only when they provide *deep* conceptual information



related to the semantic gender of the referent, like in English, or also when they simply convey *superficial* morpho-syntactic information.

The study by Cacciari et al. (1997) compared the resolution of pronominal anaphors with *epicene* and *ungendered* antecedents in Italian. *Epicenes* are nouns that can present a mismatch between morphological and semantic gender (e.g. the Italian word *la vittima* ‘the victim’ is morphologically marked as feminine, but can be used to refer to either male or female referents), *ungendered* nouns (e.g. *l’erede* ‘the heir’) are not morphologically marked for gender, but can be either masculine or feminine, depending on the gender of the referent. The study, using a self-paced reading methodology, revealed significantly faster reading times for clauses with pronouns matching the morphological gender of their *epicene* antecedent than for clauses with gender mismatching pronouns, which were in turn statistically indistinguishable from the reading times of clauses with pronouns retrieving *ungendered* antecedents. The authors interpret these results as evidence that morphological gender information is used to resolve pronominal reference. Moreover, they claim that morphological gender helped the processing of the anaphors even if the information was not necessary for the correct resolution of the pronoun, since the test sentences only provided one antecedent as shown by the following examples:

(5.2) La vittima dell’incidente stradale sbatté violentemente la testa contro il finestrino. Lei/lui, perciò perse molto sangue e svenne.

“The victim of the car accident violently slammed the head against the window. She/he, therefore, lost a lot of blood and fainted.”

(5.3) L’erede decise di andare in vacanza con i soldi ricevuti dalla zia. Lei/lui, perciò, progettò un lungo viaggio negli USA.

“The heir decided to go on vacation with the money received from the aunt. She/he, therefore, planned a long trip to the USA.”

(from Cacciari et al. 1997, p. 521 )

On the other hand, if we take into account the fact that overt pronouns in Italian signal a shift in subject reference, the sentences above are pragmatically infelicitous, because they force the pronoun to refer to a highly prominent subject

antecedent against its bias. Therefore, we cannot exclude the hypothesis that, in this experiment, gender information was used systematically in order to resolve a mismatch between the antecedent bias of the pronoun and the contextual information. If this is the case, we may not be able to generalise the use of morpho-syntactic gender information attested by these data to cases in which the anaphoric expression is used in a pragmatically felicitous way.

Also Carreiras et al. (1996) looked at the use of gender cues in English and Spanish and argued against the idea that only minimal inferences, necessary to establish local coherence and dependent on readily available information, are drawn automatically. Carreiras and colleagues looked at the effect of stereotyped gender on the resolution of pronominal anaphors in English and Spanish, and tried to determine if this information is taken into account early by the parser and encoded into the mental model. The results suggest that stereotypical gender information is taken into account and integrated into the discourse model early. The Spanish data showed longer reading times for an NP when the morphosyntactic evidence (the article or the word ending) pointed to a gender different from the stereotype (e.g. *la futbolista* the (female) football player). This was interpreted as evidence that the parser immediately takes into consideration stereotyped gender information and upon encountering morphosyntactic evidence pointing to a different gender, needs to update the mental model incurring a processing cost when the gender-stereotyped NP is read. Later on, after the morphological gender information has been integrated into the model, a pronoun matching the morphosyntactic gender of the antecedent, against the stereotype, produced no penalty. According to the authors the fact that information about stereotyped gender is integrated into the discourse model as soon as the NP is read provides evidence that inferences that are not strictly necessary for local coherence are drawn early and automatically, against the idea of a minimal discourse representation.

On the other hand, it should be noted that the study just described used a self-paced reading methodology and included comprehension questions after the experimental sentences (experiment one and three), or after the filler sentences (experiment two and four). Greene et al. claim that comprehenders only draw

minimal inferences when processing is not driven by particular goals leading comprehenders to engage in strategic processing. Carreiras et al. did not discourage strategic processing in their experiments, and may in fact have encouraged it in experiment one and three, by asking comprehension questions.

A last relevant study worth mentioning here is McDonald & MacWhinney (1995), which looked at the effects of implicit verb causality and gender information during anaphor resolution. Using a series of cross-modal probe verification tasks, where stimulus sentences were presented orally and probe names in a written form, at different times during the presentation of the sentences, McDonald & MacWhinney found some evidence for immediate use of gender information in English. The data showed that a general advantage (that is higher accessibility throughout the discourse) for first mentioned antecedents could be nullified, when the implicit verb causality redirected readers' attention to the second antecedent. The effect was detected at the pronominal anaphor referring to the antecedent favoured by the verb causality bias. If the pronominal anaphor was gender disambiguated, the effect of the implicit verb causality was magnified, but no reliable main effect for gender was detected and no interactions were found between gender and the position of the probe along the sentence (which could be at the pronoun, 200 milliseconds after the pronoun and at the end of the sentence). Gender cues produced slightly different effects in a third experiment, where sentence structure was manipulated placing antecedent and anaphor in two adjacent main clauses rather than a main clause followed by a subordinate clause introduced by *because*.

The authors conclude that anaphor resolution can be initiated immediately upon encountering the pronoun, but various cues and specific types of information are used differently, depending on the availability of the information, on the goals and strategies adopted by the comprehender and on the sentence structure. So, for example, implicit verb causality provides information that is already available when the pronoun is encountered, which means that it can be used immediately and reliably. By contrast, other types of contextual information may require extra inferences to be made, which means that the cues they provide are available only after the inferences have been completed. As for gender cues, the authors

argue that they may be useful in some particular contexts, but not always, so comprehenders may use them strategically, and this is why their effect was not as reliable as the effect of the verb causality.

### 5.2.2.3 Wrap up effects

End of clause wrap up effects have been traditionally considered as evidence that a measurable amount of processing is delayed until the clause boundaries are reached. [Just & Carpenter \(1980\)](#) noticed that, in self-paced reading experiments and eye-tracking studies, participants tended to pause for longer at the word or phrase at the end of a text. They argued that:

“The processes that occur during sentence wrap-up involve a search for referents that have not been assigned, the construction of inter-clause relations (with the aid of inferences, if necessary), and an attempt to handle any inconsistencies that could not be resolved within the sentence.”

([Just & Carpenter 1980](#), p. 345)

Similarly, [Mitchell & Green \(1978\)](#) and [Green et al. \(1981\)](#) (both cited in [Oakhill et al. 1989](#)) found that readers tend to pause at the end of a text, during self-paced reading. They interpreted this result as indicating that, when clause boundaries are signalled explicitly by a full stop *coherence processes* take place, aimed at evaluating and increasing the coherence of the text.

More recently [Hirotsu et al. \(2006\)](#) proposed and tested the *dwell time* hypothesis, suggesting that delays at punctuation marks may be strategic and motivated by the fact that comprehenders are taking some extra time to *detect any infelicities* within a processing unit, before they move the focus of processing attention on to new material. The authors further argue that the relation between punctuation and prosody may be tighter than is currently assumed, and that end of clause and end of sentence delays may be related to intonational pauses rather than correlate with the processing demands of the sentence. [Hirotsu et al.](#) argue that their results support the hypothesis that longer fixations before punctuation may be due to the presence of intonational phrase breaks. In particular they claim

that the traditional account of wrap up effects is not in keeping with their data from an experiment manipulating punctuation and sentence complexity, which yielded a significant effect for punctuation but no effects for sentence complexity. On the other hand, their manipulation of complexity consisted of slightly longer sentences in the complex condition, which may not have been enough to produce significantly higher processing costs.

This problem was addressed by Warren et al. (2009), who tested the same hypotheses as Hirotsani et al., but tried to make the complexity manipulation stronger by using object cleft constructions. With an eye-tracking during reading experiment, the authors found significant main effects for both clause complexity (with longer durations and more regressions for complex sentences) and punctuation (with longer durations and more regressions when the critical word was followed by a full stop than a comma). But because, unlike in other studies, the effects of punctuation were detected early, in the first fixation times, Warren et al. conclude that wrap up effects cannot be due *uniquely* to increased integrative processing. If this were the case, they claim, we would expect the punctuation effects to appear only in later measures, after the normal integrative processes have taken place. They suggest that the early effects of punctuation are due to a quick and low-level oculomotor response mechanism allowing for extra processing to take place, but they are not driven by it and they are possibly related to implicit prosody.

### 5.2.3 Summary

To summarise, in this section I have briefly introduced some current ideas about language comprehension providing the background for the psycholinguistic investigation of anaphor resolution, and in particular the issues concerning the immediacy and incrementality of language comprehension. Moreover, I have discussed some differences that characterise the resolution of NP anaphors and pronominal anaphors, and I have suggested that such differences may be accounted for in a unitary manner by the Informational Load hypothesis.

Pronouns are optimal expressions for reference to antecedents that are highly activated in memory, and given their poor informational content additional cues

may be needed for the correct antecedent to be identified. Researchers have looked at the contribution of several factors which either affect the relative accessibility of the antecedent, or single out the antecedent that is morphologically, semantically or pragmatically compatible with the anaphor. I have summarised the results of a few studies that looked at the role of contextual information, semantic and morpho-syntactic gender features and implicit verb causality. In general the evidence seems to point at the fact that the process of resolution *can* be initiated early, if the information necessary to the identification of the antecedent is easily available when the pronoun is encountered. If the evidence is strong enough, it even seems that the process can be brought to completion early (Arnold et al. 2000), but if the necessary information is available late, or requires extra inferences to be drawn, then it may be used only strategically at a later stage as the parser may be reluctant to commit early to an interpretation.

Finally, I have discussed briefly the nature of sentence wrap up effects. Traditionally these effects have been accounted for in terms of processing load and related to the complexity of a sentence and to the need for extra inferencing and integration at the end of a processing unit. Recently this explanation has been questioned, and if the evidence does not rule out that wrap up delays may reflect processing demands, it also suggests that they may not be driven by such demands and there may be additional elements to them.

#### 5.2.4 Hypotheses

From a cross-linguistic point of view, I expect this experiment to replicate the results of Experiment 1. That is to say:

- no cross-linguistic differences in the resolution of the null subject;
- different biases should guide the resolution of overt pronouns, yielding a penalty for co-reference with a prominent antecedent in Italian but not in Spanish.

As for the time-course of the process, I do not expect to find differences across the two languages in the null subject condition. In the overt subject condition, the point in time when the cross-linguistic difference arises will depend on when

the disambiguating information (i.e. the relative accessibility of the antecedent and the plausibility of the sentence) are taken into account by the parser. While the relative accessibility of the antecedents should be already encoded when the anaphor is encountered, information about the plausibility of the sentence is only provided at the level of the VP following the anaphoric subject and may require some amount of inferences in order to be integrated to the model, so I would expect its effect to become significant slightly later.

## 5.3 Experiment 2

### 5.3.1 Participants

Two groups of participants took part in this experiment: 32 adult monolingual speakers of Spanish, and 32 adult monolingual speakers of Italian. They were recruited among undergraduate and postgraduate students at the University of La Laguna (Spain) and at the University of Padua (Italy).

### 5.3.2 Materials and Design

The design was the same as for Experiment 1. Two variables were manipulated within subjects: the *Anaphora* (null subject (NS) or overt pronominal subject (OPS)) and its *Antecedent* (the previous preverbal subject vs. the previous syntactic object). The experimental sentences consisted of a subordinate clause, introducing the two antecedents, followed by a main clause, containing the null or overt anaphoric subject. The antecedent was temporarily ambiguous and the disambiguating information was provided by the VP, which could plausibly refer to only one of the antecedents. The same items ( $n = 48$ ) were translated into Italian and Spanish to obtain two equivalent sets of materials, introducing *Language* as a between subjects variable. Below is an example of an item in the four experimental conditions in Italian (5.4) followed by the corresponding translation in Spanish (5.5) a full list of the experimental materials is provided in Appendix B:

- (5.4) a. Quando Carlo<sub>i</sub> ha chiesto aiuto a Diego<sub>j</sub> per preparare l'esame, lui<sub>i</sub> lo ha superato con voti eccellenti.

- b. Quando Carlo<sub>i</sub> ha chiesto aiuto a Diego<sub>j</sub> per preparare l'esame,  $\emptyset_i$  lo ha superato con voti eccellenti.  
*'When Carlo<sub>i</sub> has asked help to Diego<sub>j</sub> to prepare for the exam, he<sub>i</sub> passed it with excellent marks.'*
- c. Quando Carlo<sub>i</sub> ha prestato aiuto a Diego<sub>j</sub> per preparare l'esame, lui<sub>j</sub> lo ha superato con voti eccellenti.
- d. Quando Carlo<sub>i</sub> ha prestato aiuto a Diego<sub>j</sub> per preparare l'esame,  $\emptyset_j$  lo ha superato con voti eccellenti.  
*'When Carlo<sub>i</sub> has given help to Diego<sub>j</sub> to prepare for the exam, he<sub>j</sub> passed it with excellent marks.'*
- (5.5) a. Cuando Carlos<sub>i</sub> pidió ayuda a Diego<sub>j</sub> para preparar el examen, él<sub>i</sub> aprobó con notas excelentes.
- b. Cuando Carlos<sub>i</sub> pidió ayuda a Diego<sub>j</sub> para preparar el examen,  $\emptyset_i$  aprobó con notas excelentes.  
*'When Carlo<sub>i</sub> has asked help to Diego<sub>j</sub> to prepare for the exam, he<sub>i</sub> passed it with excellent marks.'*
- c. Cuando Carlos<sub>i</sub> ayudó a Diego<sub>j</sub> a preparar el examen, él<sub>j</sub> aprobó con notas excelentes.
- d. Cuando Carlos<sub>i</sub> ayudó a Diego<sub>j</sub> a preparar el examen,  $\emptyset_j$  aprobó con notas excelentes.  
*'When Carlo<sub>i</sub> has given help to Diego<sub>j</sub> to prepare for the exam, he<sub>j</sub> passed it with excellent marks.'*

Four experimental lists were created for each language and 40 filler sentences were included in each list. The items were randomised at every run. In order to ensure that participants were engaging in the resolution of the anaphors, half of the experimental items were followed by a comprehension question, asking to identify the antecedent of the anaphoric subject.

### 5.3.3 Procedure

The experiment consisted in a phrase by phrase self-paced reading task. Initially a series of dashes appeared on the screen of a 13" MacBook, where the sentence would be displayed. Each phrase appeared at the press of a button on a USB



button box, in a moving window. Half of the sentences were followed by comprehension questions asking to identify the antecedent of the anaphor. The two possible answers appeared at the bottom of the screen, one to the left and one to the right, at a press of the same button on the button box. The participant was instructed to choose the correct answer by pressing one of two other buttons, one on the right and one on the left of the button box. Each answer (subject or object antecedent) appeared half of the times on the left hand side of the screen and half of the times on the right hand side. The experiment was run using Psyscope X software (Cohen et al. 1993). The responses were collected through a USB button box. The instructions were presented in written form, at the beginning of the experiment, in the native language of the participant (see Appendix B).

#### 5.3.4 Predictions

In order to replicate the findings of Experiment 1 this experiment should produce:

1. in the NS condition:
  - (a) a processing penalty for null subjects semantically forced to retrieve non-prominent antecedents;
  - (b) no significant cross-linguistic differences at any point in the sentence.
2. in the OPS condition:
  - (a) a significant interaction between the *Language* and the *Antecedent* variables, with a larger bias towards non-prominent (object) antecedents for Italian overt pronouns.
  - (b) if the accessibility information is taken into account immediately by the parser, the effect due to the position of the antecedent and the cross-linguistic differences related to it should be visible already at the VP (the region providing the semantic disambiguation), and maybe spill over to the next region; if this information is integrated later, the effect should be found at the wrap up region.

### 5.3.5 Results

The regions analysed, shown in the example below, were: the VP of the main clause (i.e. the VP following the anaphoric subject), which provided the contextual semantic information necessary to disambiguate the anaphora; the region following the VP (VP+1); and the wrap up region. The forward slashes in the example below indicate how the item was divided into chunks:

- (5.6) Cuando / Antonio / pidió ayuda /a Diego /para preparar /el examen,/ /  
 (él ) // aprobó / con notas / excelentes.  
 Anaphor VP VP+1 WRAP UP

### 5.3.6 Italian Results

The Italian data was submitted to a 2 x 2 ANOVA, with *Anaphora* (NS vs. OPS) and *Antecedent* (Subject vs. Object) as within subject factors. RTs shorter than 200 msec. and longer than 6000 msec. were excluded from the analysis (< 1% of the data).

#### 5.3.6.1 VP region

Table 5.1 shows the descriptive statistics for the VP region in the Italian part of the experiment. The means for each condition suggest that VPs were read faster in the overt subject condition. The ANOVA confirmed this observation and

Table 5.1: Descriptive statistics: reading times for the VP region of Experiment 2 (Italian).

		N	Mean	Std. Deviation	Minimum	Maximum
NULL	Object Antecedent	32	876	282	413	1550
ANAPHORA	Subject Antecedent	32	814	198	422	1205
OVERT	Object Antecedent	32	776	348	384	2065
ANAPHORA	Subject Antecedent	32	735	206	354	1184

revealed a significant main effect for *Anaphora* with significantly faster reading times for VPs that were preceded by an overt pronoun ( $F_1(1, 31) = 11.17$ ;  $p$

= .002;  $F_2(1, 47) = 16.53$ ;  $p < .000$ ; 755 msec. vs. 845 msec.). A main effect for *Antecedent* was only significant in the analysis by items ( $F_1(1, 31) = 1.67$ ;  $p = .20$ ;  $F_2(1, 47) = 6.11$ ;  $p = .017$ ), suggesting that reading times were faster for VPs following subjects referring to a subject antecedent (774 msec. vs. 826 msec.).

### 5.3.6.2 VP+1 region

Table 5.2 shows the descriptive statistics for the reading times of the region following the VP in the Italian data set. The means suggest that this region may be read faster in OPS sentences than in NS ones, and there seems to be a penalty for sentences with a NS retrieving an Object antecedent, and to a lesser extent, for an OPS retrieving a Subject antecedent.

Table 5.2: Descriptive statistics: reading times for the VP+1 region of Experiment 2 (Italian).

		N	Mean	Std. Deviation	Minimum	Maximum
NULL	Object Antecedent	32	880	378	459	2170
ANAPHORA	Subject Antecedent	32	723	179	411	1098
OVERT	Object Antecedent	32	733	194	357	1178
ANAPHORA	Subject Antecedent	32	768	244	425	1512

The ANOVA confirms that there is a significant effect for *Anaphora* ( $F_1(1, 31) = 4.98$ ;  $p = .033$ ;  $F_2(1, 47) = 5.39$ ;  $p = .024$ ) with overall faster reading times in OPS sentences than in NS ones (751 msec. vs. 802 msec.), a significant main effect for *Antecedent* ( $F_1(1, 31) = 5.67$ ;  $p = .023$ ;  $F_2(1, 47) = 4.27$ ;  $p = .044$ ), with faster RTs for sentences referring to subject antecedents (746 msec. vs. 807 msec.), and a significant interaction *Anaphora* by *Antecedent* ( $F_1(1, 31) = 12.23$ ;  $p = .001$ ;  $F_2(1, 47) = 14.28$ ;  $p < .000$ ).

The interaction shows that in the NS condition there is a significant main effect for *Antecedent*, with faster RTs when the antecedent is the preceding syntactic subject ( $F_1(1, 31) = 10.86$ ;  $p = .002$ ;  $F_2(1, 47) = 11.20$ ;  $p = .002$ ), but no significant effect was found in the OPS condition.

If we look at sentences with subject antecedents, we find an effect for *Anaphora* that is fully significant by subjects and marginally significant by items ( $F_1(1, 31) = 4.48$ ;  $p = .042$ ;  $F_2(1, 47) = 2.86$ ;  $p = .097$ ), with faster RTs if the subject antecedent is retrieved by a NS. The sentences with object antecedents also reveal a significant effect for *Anaphora*, but in the opposite direction ( $F_1(1, 31) = 10.33$ ;  $p = .003$ ;  $F_2(1, 47) = 2.86$ ;  $p < .000$ ), with significantly faster RTs if the sentence contains an OPS.

### 5.3.6.3 Wrap up region

Table 5.3 shows the descriptive statistics for the RTs of the wrap up region in the Italian data. This table seems to confirm the results of Experiment 1, since it shows that RTs tend to be slower for sentences in which the NS is forced to retrieve an object antecedent, against its bias, and where an OPS is forced to co-refer with a prominent subject antecedent.

Table 5.3: Descriptive statistics: reading times for the wrap up region of Experiment 2 (Italian).

		N	Mean	Std. Deviation	Minimum	Maximum
NULL	Object Antecedent	32	1199	598	440	2678
ANAPHORA	Subject Antecedent	32	916	406	427	2289
OVERT	Object Antecedent	32	935	416	414	2005
ANAPHORA	Subject Antecedent	32	1007	509	385	2266

The 2 x 2 ANOVA for this region revealed a significant effect of *Antecedent* ( $F_1(1, 31) = 6.85$ ;  $p = .014$ ;  $F_2(1, 47) = 7.50$ ;  $p = .009$ ), with faster RTs for sentences with a subject antecedent (962 msec. vs. 1067 msec.), and a significant interaction *Anaphora* by *Antecedent* ( $F_1(1, 31) = 12.95$ ;  $p = .001$ ;  $F_2(1, 47) = 29.14$ ;  $p < .000$ ).

The interaction indicates that, in the NS condition, sentences are read significantly faster if the antecedent is a subject, ( $F_1(1, 31) = 16.31$ ;  $p < .000$ ;  $F_2(1, 47) = 23.10$ ;  $p < .000$ ); in contrast, no significant difference is found between the two antecedents in OPS condition. Looking at the other side of the interaction,

sentences with a subject antecedent yield a main effect for *Anaphora*, only significant in the analysis by items ( $F_1(1, 31) = 1.72$ ;  $p = .199$ ;  $F_2(1, 47) = 8.94$ ;  $p = .004$ ), suggesting that sentences with a subject antecedent are wrapped up faster if the sentence contained a NS rather than an OPS. In the object antecedent condition, the effect of *Antecedent* is highly significant in both analyses ( $F_1(1, 31) = 13.83$ ;  $p < .000$ ;  $F_2(1, 47) = 20.30$ ;  $p < .000$ ), showing that sentences with an object antecedent are wrapped up significantly faster if the sentence contains an OPS.

#### 5.3.6.4 Discussion: Italian

The Italian data show an immediate effect for the *Anaphora* variable, which is significant at the VP and spills over to the next region. VPs preceded by an overt pronoun are read significantly faster than VPs which are the first word of the clause. This can probably be explained as an effect of the predictability that a subject pronoun will be followed by a verb.

A main effect for *Antecedent* is only significant by items at the VP, but becomes fully significant in the following region. This effect, showing faster RTs when the clause refers back to the previous subject, remains significant also in the final wrap up region, and it may be interpreted as an effect of the expectation for *topic continuation* across clauses, which is normally considered the default expectation and therefore easier to process. This effect also shows that the semantic information about the plausibility of the antecedent provided by the VP is used by the parser at this point to discriminate between the two possible antecedents.

An interaction between *Anaphora* and *Antecedent* starts to be significant at the region following the VP. Further analyses reveal that the simple effects underlying the interaction replicate only in part the previous findings. In the NS condition, like in Experiment 1, there is a significant penalty when the sentence refers to the antecedent in the object position, while in the OPS condition, no significant effects are detected. If we consider the sentences with a subject antecedent, we find that they are read significantly faster when they contain a NS, but this effect is not completely reliable, while sentences with an object antecedent are read significantly faster if they contain an OPS and this effect is highly significant in

both the VP+1 and in the wrap up region. Overall these results replicate those of Experiment 1, the fact that the difference between null and overt subjects retrieving a subject antecedent was less reliable here, and that overt subjects referring to a subject antecedent did not incur a significant penalty may be an artefact of the task, interfering with the normal reading process, and maybe with the encoding of the prominence relations. If the relative level of prominence, or activation, associated with preverbal subjects had been lowered as a side effect of the task, then we would expect the null subject not to be so reliably better at accessing them, and the penalty for an overt subject referring to them to result reduced.

### 5.3.7 Spanish Results

The Spanish data for each region was submitted to a 2 x 2 ANOVA with *Anaphora* (NS vs. OPS) and *Antecedent* (Subject vs. Object) as within subject factors. RTs shorter than 200 msec. and longer than 6000 msec. were excluded from the analysis (< 1% of the data).

#### 5.3.7.1 VP region

The descriptive statistics in table 5.4 suggest that, like in Italian, the VP region in Spanish is read faster when it follows an overt pronoun, regardless of the structural position of the antecedent.

Table 5.4: Descriptive statistics: reading times for the VP region of Experiment 2 (Spanish).

		N	Mean	Std. Deviation	Minimum	Maximum
NULL	Object Antecedent	32	794	183	448	1071
ANAPHORA	Subject Antecedent	32	778	194	414	1197
OVERT	Object Antecedent	32	675	154	442	949
ANAPHORA	Subject Antecedent	32	663	153	384	992

This impression is confirmed by the 2 x 2 ANOVA carried out on the data, revealing a significant main effect for *Anaphora* ( $F_1(1, 31) = 46.65; p < .000$ ;

$F_2(1, 47) = 55.45; p < .000$ ), with VPs preceded by an overt pronoun read overall faster (669 msec.) than VPs that are not (786 msec.). The analysis produced no significant main effect for the *Antecedent* variable and no significant interaction.

### 5.3.7.2 VP+1 region

The descriptive statistics for the region following the VP, shown in table 5.5, suggest that penalties are starting to arise for NSs retrieving an object antecedent and, to a lesser extent, for OPSs retrieving a subject antecedent.

Table 5.5: Descriptive statistics: reading times for the VP+1 region of Experiment 2 (Spanish).

		N	Mean	Std. Deviation	Minimum	Maximum
NULL	Object Antecedent	32	767	194	446	1237
ANAPHORA	Subject Antecedent	32	703	144	417	1004
OVERT	Object Antecedent	32	719	178	435	1121
ANAPHORA	Subject Antecedent	32	727	182	397	1097

The 2 x 2 ANOVA showed that a main effect of *Antecedent* is only marginally significant by subjects and not significant by items ( $F_1(1, 31) = 4.03; p = .053; F_2(1, 47) = 2.80; p = .10$ ; 743 msec. for object antecedents vs. 715 msec. for subjects), whereas an interaction *Anaphora* by *Antecedent* is fully significant by subjects and marginally by items ( $F_1(1, 31) = 4.69; p = .038; F_2(1, 47) = 3.57; p = .065$ ).

The interaction indicates that in this region there is a significant effect for *Antecedent*, but only in the NS condition ( $F_1(1, 31) = 7.97; p = .008; F_2(1, 47) = 5; p = .03$ ), with significantly faster RTs when the antecedent is in the subject position; no significant effect for *Antecedent* is found in the OPS condition ( $F_1(1, 31) = 0.15; p = .702; F_2(1, 47) = 0.14; p = .71$ ).

If we look at the other side of the interaction, sentences with subject antecedents show no significant effects of *Anaphora*. When the antecedent occupies

the object position, the effect of *Anaphora* is marginally significant both by subjects and by items ( $F_1(1, 31) = 2.1; p = .093; F_2(1, 47) = 3.11; p = .084$ ), with marginally faster RTs for OPS sentences.

### 5.3.7.3 Wrap up region

The last region analysed was the final phrase of the sentence. The descriptive statistics in table 5.6 show slower RTs when a NS anaphora co-refers with an object antecedent and they suggest a similar trend for the OPS condition.

Table 5.6: Descriptive statistics: reading times for the wrap up region of Experiment 2 (Spanish).

		N	Mean	Std. Deviation	Minimum	Maximum
NULL	Object Antecedent	32	1039	492	482	2333
ANAPHORA	Subject Antecedent	32	835	273	477	1407
OVERT	Object Antecedent	32	934	342	485	1865
ANAPHORA	Subject Antecedent	32	863	294	483	1678

The 2 x 2 ANOVA showed a highly significant effect for *Antecedent* ( $F_1(1, 31) = 17.18; p < .000; F_2(1,47) = 18.62; p < .000$ ), suggesting that sentences are wrapped up overall significantly faster when the anaphor refers to the previous subject; no significant effect for *Anaphora* was found but there was a significant interaction *Antecedent* by *Anaphora* ( $F_1(1, 31) = 7.20; p < .012; F_2(1,47) = 8.23; p = .006$ ).

Two one-way ANOVAs were performed in order to investigate the interaction. In the NS condition the analysis revealed a highly significant difference between the RTs of sentences retrieving a subject or an object antecedent ( $F_1(1, 31) = 16.18; p < .000; F_2(1, 47) = 24.67; p < .000$ ), with significantly faster RTs when the NS retrieved a prominent subject antecedent. Unexpectedly, in the OPS condition sentences are wrapped up faster when the OPS co-refers with a prominent subject antecedent, although the effect is fully significant by subjects but only marginally significant by items ( $F_1(1, 31) = 5.75; p = .023; F_2(1, 47)$



= 3.54;  $p = .066$ ) and smaller in magnitude compared to the effect for the NS condition.

If we analyse separately the two *Antecedent* conditions, when subject reference is maintained across clauses, we find no significant difference between NS and OPS sentences; when the antecedent is in the object position, sentences are wrapped up significantly faster if they contain an overt pronoun ( $F_1 (1, 31) = 6.19$ ;  $p = .018$ ;  $F_2 (1, 47) = 5.94$ ;  $p = .019$ ).

#### 5.3.7.4 Discussion: Spanish

Like in Italian, the Spanish data show an early effect for *Anaphora*, with faster RTs after an overt pronoun. This confirms the idea that after encountering a subject pronoun, the reader may be more prepared to expect a verb, reading this region faster than when the verb is clause initial. This main effect is short lived and in the region following the VP it cannot be detected anymore.

The main effect for *Antecedent* in the Spanish data appears to be delayed compared to the Italian data; the main effect for this variable is not significant at the VP and only marginally significant in the region following it, but it becomes fully significant in the wrap up region, indicating a processing penalty when there is a shift in subject reference between two consecutive clauses.

Like in Italian, the interaction between *Anaphora* and *Antecedent* reaches significance at the region following the VP, although only by subjects, and full significance for both analyses is reached at the wrap up region. This interaction shows that, in the NS condition, there is a main effect for *Antecedent*, with a highly significant and reliable processing penalty for NSs referring to a non-prominent object antecedent. The OPS condition seems to be the one where the cross-linguistic differences with Italian will emerge, since it shows faster wrap up reading times for pronouns referring to a subject antecedent. This result is unexpected, similarly to the lack of bias found in the same condition in Italian, and together with the fact that also in Spanish sentences maintaining subject reference across clauses do not incur any processing penalties related to the type

of anaphoric expression used, it seems to confirm the hypothesis that the nature of the task may have interfered with the encoding of prominence relations.

These analyses suggest that there may be some differences between Italian and Spanish in the time-course of the resolution of anaphoric dependencies. In the next section the data will be analysed together using *Language* as a between subjects variable.

### 5.3.8 Combined results

The data were submitted to a 2 x 2 x 2 ANOVA with *Antecedent* (Subject vs. Object) and *Anaphora* (NS vs. OPS) as within subjects factors, and *Language* (Spanish vs. Italian) as between subjects factor. In order to take into account the systematic differences in the length of the stimuli across languages, the raw reading times were adjusted for the length of the stimuli, in number of characters (see section 4.4.7). The data points with Cook's distances larger than 1 were excluded from the analysis (< 1% of the data).

The reaction times to the comprehension questions and the accuracy rate of the answers were also analysed.

#### 5.3.8.1 VP region RTs

The barcharts in Figure 5.1 show the means of the residual reading times and the 95% confidence intervals for the VP region in Italian and Spanish. The region shows an overall main effect of *Anaphora* ( $F_1(1, 62) = 44.24; p < .000; F_2(1, 94) = 63.76; p < .000$ ), with VPs read significantly faster in both languages when they are preceded by an OPS (51 msec. vs. -51 msec.).

A main effect for *Antecedent* is marginally significant by subjects ( $F_1(1, 62) = 2.99; p = .089$ ) and fully significant by items ( $F_2(1, 94) = 8.41; p = .004$ ) showing that, overall, VPs tend to be read faster when the subject reference is maintained across clauses (-17 msec. vs. 17 msec.). No effects were found involving the *Language* variable.

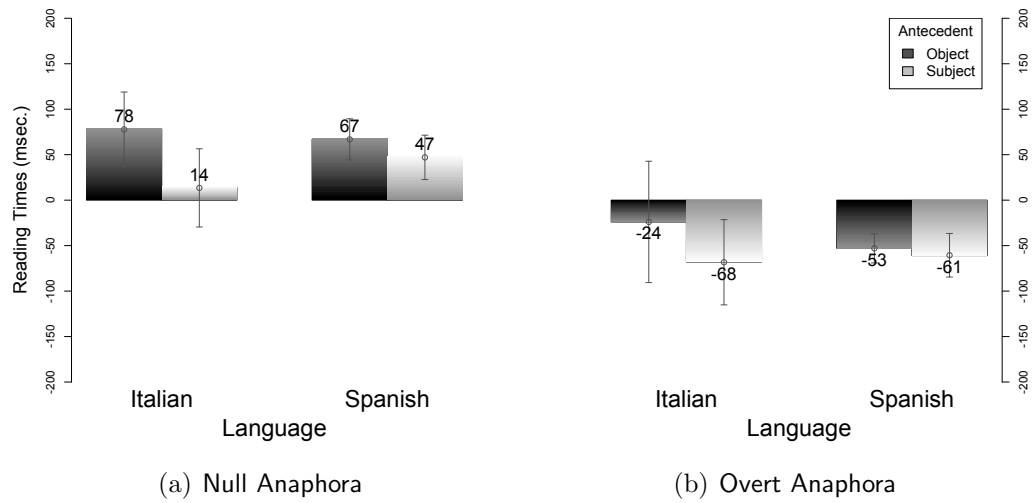


Figure 5.1: Adjusted RTs for the VP region.

### 5.3.8.2 VP+1 region RTs

The barcharts in Figure 5.2 show the adjusted RTs and the 95% confidence intervals for the region following the verb in Italian and Spanish.

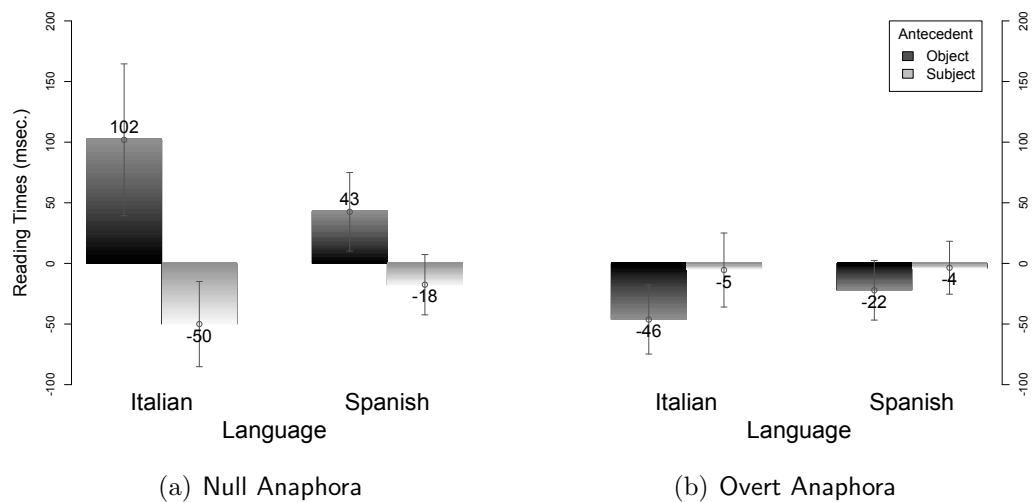


Figure 5.2: Adjusted RTs for the region following the VP.

This region revealed the following main effects: a fully significant effect for *Anaphora* ( $F_1(1, 62) = 7.34; p = .008; F_2(1, 94) = 9.55; p = .003$ ), with significantly faster RTs for sentences beginning with an OPS, spilling over from the VP region; a fully significant main effect for *Antecedent* ( $F_1(1, 62) = 19.85; p < .000; F_2(1, 94) = 5.34; p = .023$ ), with overall faster RTs for sentences maintaining the subject reference across clauses.

The analyses for this region also revealed a fully significant interaction *Anaphora* by *Antecedent* ( $F_1(1, 62) = 19.85; p < .000; F_2(1, 94) = 21.10; p < .000$ ), and a marginally significant three-way interaction *Antecedent* by *Anaphora* by *Language* ( $F_1(1, 62) = 3.50; p = .066; F_2(1, 94) = 3.76; p = .056$ ).

In order to understand the interactions I analysed separately the two anaphor conditions. In the NS condition the ANOVAs revealed a highly significant main effect for *Antecedent* ( $F_1(1, 62) = 16.42; p = .0001; F_2(1, 94) = 16.99; p < .000$ ), with significantly faster RTs when a NS refers to a subject antecedent (72 msec. vs. -34 msec.). In the OPS condition there is a main effect for *Antecedent* only significant by subjects ( $F_1(1, 62) = 5.38; p = .023; F_2(1, 94) = 2.72; p = .102$ ) suggesting that sentences with an overt pronoun tend to be read faster when they refer to an object antecedent (-34 msec. vs. -4 msec.).

The same interaction shows that, when subject reference is maintained across clauses, there is a marginally significant effect of *Anaphora* ( $F_1(1, 62) = 3.69; p = .059; F_2(1, 94) = 3.34; p = .07$ ), with marginally faster reading times in both languages for sentences with NSs (-34 msec. vs. -4 msec.). When there is a shift in subject reference across the two clauses (that is, in the Object antecedent condition), RTs are significantly faster for sentences with an OPS ( $F_1(1, 62) = 17.76; p < .000; F_2(1, 94) = 22.97; p < .000; -22$  msec. vs. 43 msec.).

### 5.3.8.3 Wrap up region RTs

The barcharts presented in Figure 5.3 show the mean adjusted RTs for the wrap up region in Italian and Spanish and their 95% confidence intervals.

The ANOVA for this region shows a main effect of *Anaphora*, that is marginally significant by subjects and fully significant by items ( $F_1(1, 62) = 3.36; p = .072$ ;

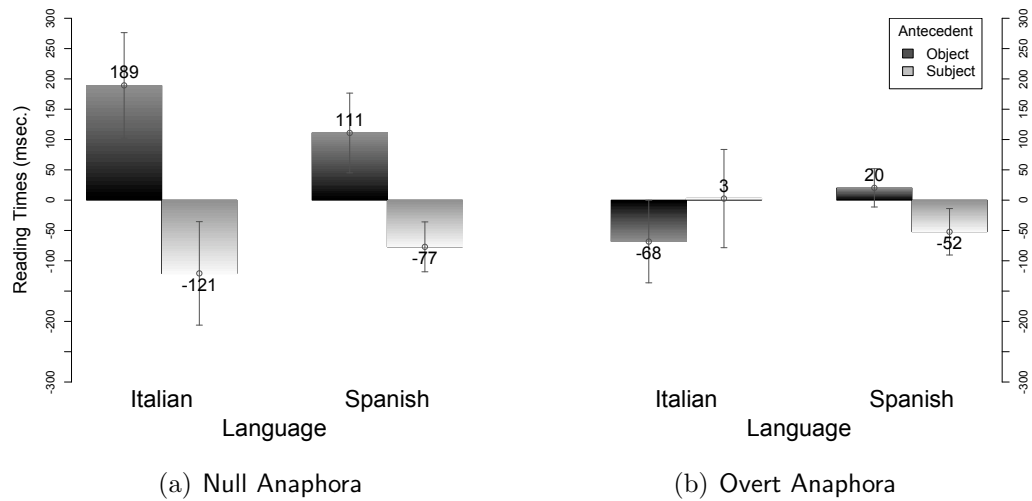


Figure 5.3: Adjusted RTs for the wrap up region.

$F_2(1, 94) = 5.93$ ;  $p = .017$ ), with overall faster reading times for OPS sentences than NS sentences (-49 msec. vs. 51 msec.); a highly significant main effect for *Antecedent* ( $F_1(1, 62) = 22.62$ ;  $p < .000$ ;  $F_2(1, 94) = 27.48$ ;  $p < .000$ ), with faster reading times for sentences retrieving a subject antecedent (-123 msec. vs. 126 msec.); a significant interaction *Anaphora* by *Antecedent* ( $F_1(1, 62) = 18.89$ ;  $p < .000$ ;  $F_2(1, 94) = 50.95$ ;  $p < .000$ ); and finally a significant three-way interaction between *Anaphora*, *Antecedent* and *Language* ( $F_1(1, 62) = 5.41$ ;  $p = .023$ ;  $F_2(1, 94) = 14.78$ ;  $p < .001$ ).

The NS sentences yielded a highly significant effect for *Antecedent* ( $F_1(1, 62) = 31.46$ ;  $p < .000$ ;  $F_2(1, 94) = 66.80$ ;  $p < .000$ ), indicating that sentences containing NSs are wrapped up significantly faster when the anaphora retrieves a prominent (subject) antecedent (-99 msec. vs. 151 msec.). An interaction *Antecedent* by *Language* is only significant in the analysis by items ( $F_1(1, 62) = 1.9$ ;  $p = .173$ ;  $F_2(1, 94) = 4.04$ ;  $p < .047$ ).

With OPS anaphors, we find no main effects, but a fully significant interaction *Antecedent* by *Language* ( $F_1(1, 62) = 4.95$ ;  $p = .030$ ;  $F_2(1, 94) = 6.46$ ;  $p = .013$ ). This interaction indicates that, with OPSs, the processing penalties encountered at the wrap up segment vary between Italian and Spanish depending on the

antecedent. More precisely, when an OPS retrieves an object antecedent, the wrap up segment is read significantly faster in Italian than in Spanish ( $F_1(1, 62) = 5.35$ ;  $p = .024$ ;  $F_2(1, 94) = 4.12$ ;  $p = .045$ ), whereas no significant difference between the two languages was found for an OPS retrieving a subject antecedent.

Looking at this interaction from the other side, when subject reference is maintained across clauses, NS sentences are read faster than OPS sentences, and this effect is marginally significant by subjects and fully significant by items ( $F_1(1, 62) = 3.54$ ;  $p = .064$ ;  $F_2(1, 94) = 9.48$ ;  $p = .003$ ). The subject antecedent condition also reveals an interaction between *Anaphora* and *Language* only significant in the analysis by items ( $F_1(1, 62) = 1.57$ ;  $p = .215$ ;  $F_2(1, 94) = 4.21$ ;  $p = .043$ ), indicating that when subject reference is maintained across clauses, NS sentences tend to be read faster than OPS sentences in Italian ( $F_1(1, 31) = 2.69$ ;  $p = .111$ ;  $F_2(1, 47) = 8.95$ ;  $p = .004$ ) but not in Spanish.

If we turn our attention to sentences referring to the object antecedent, we find a significant main effect for *Anaphora* ( $F_1(1, 62) = 19.35$ ;  $p < .000$ ;  $F_2(1, 94) = 35.05$ ;  $p < .000$ ), with significantly faster RTs for overt anaphors (-24 msec. vs. 150 msec.). The analysis also reveals a significant interaction *Anaphora* by *Language* ( $F_1(1, 62) = 4.46$ ;  $p = .039$ ;  $F_2(1, 94) = 8.21$ ;  $p = .005$ ), confirming that, when there is a shift in subject reference, OPS sentences are wrapped up significantly faster in Italian than in Spanish ( $F_1(1, 62) = 5.35$ ;  $p = .024$ ;  $F_2(1, 94) = 4.12$ ;  $p = .045$ ), but wrap up times for NS sentences are statistically indistinguishable across the two languages ( $F_1(1, 62) = 1.99$ ;  $p = .16$ ;  $F_2(1, 94) = 1.71$ ;  $p = .19$ ).

#### 5.3.8.4 Comprehension Questions

Half of the experimental items were followed by comprehension questions. The bar charts in Figure 5.4 show the mean reaction times and 95% confidence intervals for the comprehension questions and Table 5.7 the error rates.

Starting with the reaction times, as it can be seen from the bar charts, the data seem to confirm the cross-linguistic patterns found in the wrap up region. An ANOVA confirmed the presence of an overall main effect for *Antecedent* ( $F_1(1,$

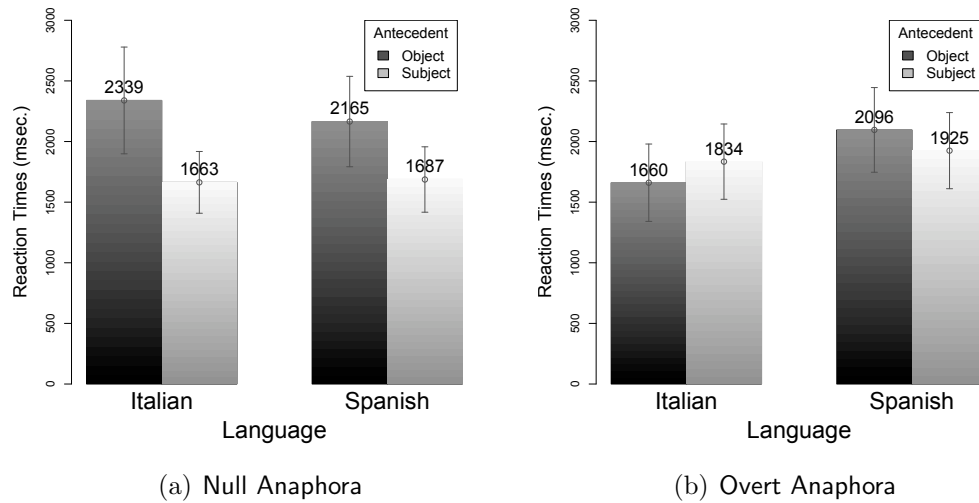


Figure 5.4: Reaction times for the comprehension questions (Experiment 2).

Table 5.7: Percentages of wrong answers to comprehension questions (Experiment 2).

		Italian (%)	Spanish (%)
NULL	Object Antecedent	37	40
ANAPHORA	Subject Antecedent	13	20
OVERT	Object Antecedent	21	30
ANAPHORA	Subject Antecedent	29	19

62) = 14.72;  $p < .000$ ;  $F_2(1, 46) = 12.87$ ;  $p < .000$ ), with questions answered overall significantly faster if they follow a sentence where the anaphora retrieves a subject antecedent. The analysis also revealed a significant interaction *Anaphora* by *Antecedent* ( $F_1(1, 62) = 12.68$ ;  $p < .000$ ;  $F_2(1, 46) = 14.1$ ;  $p < .000$ ), and a significant interaction *Anaphora* by *Language* ( $F_1(1, 62) = 8.22$ ;  $p = .006$ ;  $F_2(1, 46) = 4.94$ ;  $p = .031$ ).

The *Anaphora* by *Antecedent* interaction shows that questions following a NS sentence are answered significantly faster when the anaphor refers to a subject antecedent ( $F_1(1, 62) = 19.35$ ;  $p < .000$ ;  $F_2(1, 46) = 26.87$ ;  $p < .000$ ), compatibly with the results for the wrap up region. With OPS sentences, no main effect for *Antecedent* is found, a main effect for *Language* is only significant in the analysis

by items ( $F_1(1, 62) = 1.46; p = .23; F_2(1, 46) = 4.77; p = .03$ ) indicating that RTs tend to be overall faster in Italian (1874 msec. vs. 1968 msec.), and an interaction *Antecedent* by *Language* is only significant in the analysis by subjects ( $F_1(1, 62) = 4.11; p = .047; F_2(1, 46) = 2.74; p = .10$ ).

Looking at the effects of the *Anaphora* variable, when subject reference is maintained across clauses, questions are answered significantly faster in both languages after a null anaphora ( $F_1(1, 62) = 5.02; p = .029; F_2(1, 46) = 4.63; p = .036$ ). When the antecedent is an object, the reverse happens, and questions are answered faster if they follow an OPS sentence ( $F_1(1, 62) = 11.83; p = .001; F_2(1, 46) = 9.82; p = .003$ ). The object antecedent condition also yields a significant interaction *Language* by *Anaphora* ( $F_1(1, 62) = 7.86; p = .006; F_2(1, 46) = 6.20; p = .016$ ), showing that in Italian the questions are answered significantly faster when they follow a sentence where the object antecedent is retrieved by an OPS ( $F_1(1, 62) = 12.879; p = .001; F_2(1, 46) = 11.727; p = .002$ ) whereas in Spanish there is no significant difference between the two *Anaphora* conditions. Comparing the two languages, after an OPS sentence referring to an object antecedent questions are answered significantly faster by Italian participants than by Spanish ones, although this result is only marginally significant in the analysis by subjects ( $F_1(1, 62) = 3.26; p = .076; F_2(1, 46) = 7.12; p = .010$ ), whereas no significant difference is found between the two languages after a NS sentence referring to an object antecedent.

Error rates (in Table 5.7) tend to increase in both languages when a NS retrieves an object antecedent, whereas the pattern differs across languages in the OPS condition.

The data was analysed using logistic regression, as is suitable for categorical data. An answer was coded as correct when it corresponded to the antecedent that was plausible given the meaning of the sentence. The predictors were: *Anaphora*, *Antecedent* and *Language*. The model shows that overall there are more correct answers when the antecedent is a subject ( $\beta = 1.34; p < .000, e^\beta = 3.83$ ). There are also significantly more correct answers in the OPS condition than in the NS



condition ( $\beta = 0.82$ ;  $p < .000$ ,  $e^\beta = 2.28$ ). The results further show a significant interaction *Antecedent* by *Anaphora* ( $\beta = -1.76$ ;  $p < .000$ ,  $e^\beta = 0.17$ ) and a significant three-way interaction *Antecedent* by *Anaphora* by *Language*. The overall model can be considered explanatory, as revealed by the likelihood ratio test ( $\chi^2(7) = 60.59$ ;  $p < .000$ ); on the other hand the model residual deviance is larger than expected, ( $\chi^2(248) = 464.21$ ;  $p < .000$ ), suggesting that the model does not fit the data very well.

If we fit two separate models to the two *Anaphora* conditions, we see that after NS sentences there are significantly more correct answers with subject rather than with object antecedents ( $\beta = 1.34$ ;  $p < .000$ ,  $e^\beta = 3.83$ ); after OPS sentences there are slightly less correct answers in Spanish than in Italian ( $\beta = -0.47$ ;  $p = .047$ ,  $e^\beta = 0.62$ ) and a significant interaction *Antecedent* by *Language* ( $\beta = 1.03$ ;  $p = .002$ ,  $e^\beta = 2.79$ ). This last interaction shows that when the antecedent of an OPS is a subject, Spanish participants give significantly more accurate answers than Italians ( $\beta = 0.55$ ;  $p = .023$ ,  $e^\beta = 1.74$ ), whereas when the antecedent of the OPS is an object, they provide significantly less accurate answers than Italians ( $\beta = -0.47$ ;  $p = .047$ ,  $e^\beta = 0.62$ ).

### 5.3.8.5 Discussion

The combined analysis of the Italian and Spanish data confirms the presence of cross-linguistic differences between them, that are consistent and reliable only in the overt pronoun condition, similarly to what was suggested by the results of Experiment 1. The cross-linguistic differences appear late, at the wrap up region, and are also visible in later measures as the reaction times and accuracy rates of the comprehension questions. This time, the relevant interactions, in the wrap up region, appear to be fully significant strengthening the findings of Experiment 1.

The joint analysis also confirms that both languages show an early processing advantage for verbs preceded by an overt subject. As I suggested above, this effect may be explained by the fact that the presence of an overt nominative pronoun makes the appearance of a verb in the following display highly predictable. In Experiment 1, a main effect for *Anaphora* showed the reverse pattern, with

significantly faster RTs for sentences starting with a NS even after the reading times were adjusted for the length of the sentences. If the effect in Experiment 2 is due to the fact that the verb was rendered highly predictable by the overt pronoun, then the discrepancy can probably be attributed to the different demands of the tasks. That is to say, when the entire clause was presented together and read naturally, as in Experiment 1, the effect of the predictability of the next phrase may have only exercised a negligible influence.

The main effect for *Antecedent*, becoming fully significant after the VP and showing faster RTs when the subject reference is maintained across clauses, is in keeping with the idea that *topic continuation* across contiguous clauses is easier to process than a shift in subject reference. This effect also shows that the semantic information provided by the plausibility of the verb is being taken into account at this point, immediately after the VP. Also the relative accessibility of the antecedents starts to show an effect in this region, as suggested by the significant interaction between *Antecedent* and *Anaphora*.

### 5.3.9 General discussion

As I stated in the introduction, this experiment had two aims: confirming the existence of the cross-linguistic differences between Italian and Spanish, highlighted by Experiment 1, and exploring the time course of anaphoric resolution in the two languages.

The presence of cross-linguistic differences limited to the scope of the overt subject was confirmed. The data revealed that such differences appear late, becoming reliable only at the wrap up region and in the answers to the comprehension questions. This suggests that the difference must depend on later stages of processing, associated with the integration of information between clauses and with (strategic) inference drawing. This experiment also confirmed that NSs are processed significantly faster when they retrieve a prominent antecedent, with no reliable cross-linguistic differences.

In particular, this experiment confirmed that the cross-linguistic differences between Italian and Spanish are related to the ability of overt pronouns to signal

a shift in subject reference, a bias that appears to be stronger in Italian than in Spanish. On the other hand, when the two languages were analysed separately a discrepancy emerged between the data of Experiment 1 and 2. While in Experiment 1 Italian OPSs were processed significantly faster if they referred to a non-prominent antecedent, in Experiment 2 they were statistically indistinguishable from OPSs referring to the most prominent antecedent. Spanish OPSs showed the same discrepancy, and while they were processed at the same speed regardless of the antecedent in Experiment 1, now they are processed significantly faster if they refer to a prominent subject antecedent.

It is not clear what may have provoked this discrepancy, Carminati (2002) already provided some evidence that the OPS bias may be less stable than the NS bias, in the sense that it can be overridden more easily on the basis of contextual information, but the syntactic context of Experiment 1 and 2 was the same, so what exactly affected the bias remains unclear. My hypothesis is that the discrepancy may be due to the demands of the task. Phrase by phrase self-paced reading is an unnatural task, disrupting the normal reading process, and it may therefore interfere with the normal comprehension and integration processes. If the disruption affects the encoding of the antecedents in memory and their relative accessibility, it may have made subject antecedents relatively less activated and therefore more easily accessible by the OPS without incurring a penalty.

Regarding the time-course of the anaphor resolution, the data revealed an immediate effect of *Anaphora*, whereas the effect of *Antecedent* appears only in the region following the VP, where it reaches full significance in Italian, but not in Spanish, where significance is reached only later, at the wrap up region. The reason why this effect appears only later in the sentence, rather than straight at the VP, is likely to be that the semantic content of the verb needs to be processed and integrated to the discourse model and subsequently checked against the comprehender's world knowledge before it can be used to identify the most plausible antecedent in the given context. The delay in the use of the contextual plausibility information to identify the correct antecedent may reflect the duration of these processes.

Of course a more banal explanation would be that the VP itself did not provide enough information to disambiguate the antecedent, so the reader needed to wait for more material before they could carry out the disambiguation. In order to rule out this hypothesis I checked the reliability of the experimental materials.

### 5.3.9.1 Testing the reliability of the experimental materials

Two groups of 32 participants each were recruited, one of adult native speakers of Italian and one of adult native speakers of Spanish. These people took part in one of the experiments presented in the next chapter (Experiment 4), but were not otherwise involved in Experiment 2.

The experimental sentences used in Experiment 2 were printed on a sheet of paper, in random order, only up to and including the VP of the second clause. The participants were told they needed to read a list of unfinished sentences always ending with a verb, and were asked to try and decide, as spontaneously and quickly as possible, to whom that final verb could plausibly refer, between the characters mentioned in the sentence. They were told not to spend too much time on each sentence and that if they could not decide spontaneously and quickly, they should just strike through the entire sentence. Each participant saw all the experimental items once, in only one version (either with or without overt pronoun and either in the subject or in the object antecedent condition).

The answers did confirm that at least for some items there was disagreement regarding the identification of the intended antecedent. Since the effect of *Antecedent* appeared later and seemed to be weaker in Spanish I analysed further the Spanish data.

The data from two participants had to be thrown away because they did not do what they had been asked (they only stroke through some sentences but did not indicate the antecedent in the non-ambiguous sentences). From the original 48 experimental items I selected 20 items that were not indicated as ambiguous and were consistently interpreted correctly by most of the participants. The 20 items were chosen so that the data set would provide the same number of observations in each experimental condition.

The analyses of the selected Spanish data produced results compatible with the complete analyses; in particular, at the VP, there was a significant effect for *Anaphora* ( $F_1(1, 31) = 10.26$ ;  $p = .003$ ;  $F_2(1, 19) = 18.09$ ;  $p < .000$ ) and still no main effect for *Antecedent* ( $F_1(1, 31) = 0.48$ ;  $p = .49$ ;  $F_2(1, 19) = 0.47$ ;  $p = .50$ ); the following region showed no main effect for either variable and no significant interactions; the wrap up region showed a significant effect for *Antecedent* ( $F_1(1, 31) = 21.09$ ;  $p < .000$ ;  $F_2(1, 19) = 14.64$ ;  $p = .001$ ), an effect for *Anaphora* significant by subjects ( $F_1(1, 31) = 6.75$ ;  $p = .014$ ;  $F_2(1, 19) = 1.86$ ;  $p = .19$ ) and a marginally significant interaction *Anaphora* by *Antecedent* ( $F_1(1, 31) = 3.53$ ;  $p = .069$ ;  $F_2(1, 19) = 3.62$ ;  $p = .072$ ).

These results indicate that the late effect for *Antecedent* is not due to lack of relevant information at the VP, but is likely to be due to the fact that this information becomes available only at a later stage.

## 5.4 Summary and Conclusions

In this chapter I presented the results of an experiment that looked at the time course of anaphora resolution in the same experimental conditions analysed with Experiment 1. At the beginning of the chapter, I have provided a brief background about the relevant psycholinguistic research, focusing on the questions of the incrementality of language processing, on the construction of mental models, and on the differences between the resolution of anaphoric NPs and pronouns. In section 5.2.2.1 and 5.2.2.2 I have reviewed some of the relevant studies on the use of various sources of information to identify the correct antecedent of a pronoun.

The data from the experiment presented in this chapter confirmed the presence of cross-linguistic differences between Italian and Spanish, limited to the overt subject bias. The reading data as well as the answers to the comprehension questions, confirmed that in Italian the use of overt pronouns helps the processing of a shift in subject reference to a larger extent than the Spanish pronoun does. Unlike the Italian OPS, the Spanish pronoun seems to be able to refer to the most prominent antecedent available with little or no extra processing cost and

without hindering the comprehension process, as shown by the pattern of answers to the comprehension questions.

The cross-linguistic differences arise late, becoming significant only during the final wrap up of the sentence, suggesting that they may be related to late integration processes. It should be pointed out, though, that, as discussed in section 5.2.2.3, not much is known about the processes occurring during clause final wrap up. The traditional account is that they reflect an increased processing load due to integration processes and inferences drawn at the end of a clause or sentence to achieve local coherence. More recently, it has been suggested that they may include delays associated with low-level oculomotor response mechanisms and implicit prosody. Maybe longer sentences, with two phrases between the VP and the final phrase, could be more informative and help separate further the processes that occur late and the final wrap up.

As for the discrepancy in the OPS bias between Experiment 1 and 2, I have suggested that it may be due to the demands of the task, interfering with the normal reading and encoding of accessibility information. The use of a less disruptive task, like for example a visual world paradigm, may help shed light on this issue. This methodology does not interfere with the processing of the stimuli, since it simply involves monitoring the eye movements of the participants looking at a picture representing a scene described orally in the stimulus sentences. Because of the lack of extra demands on the participant, this task was used successfully even with second language learners at different levels of proficiency (Wilson 2009), but this question will have to be left open for further investigation.

In the next chapter I will present the last two experiments of this study, which investigate a possible cause for the different properties of overt subjects in Italian and Spanish, the relative ambiguity of the verbal morphology.

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## CHAPTER 6

# The Morphological Ambiguity Hypothesis

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### 6.1 Introduction

In this chapter I will present the Morphological Ambiguity hypothesis, which tries to relate the cross-linguistic differences between the processing of subject pronouns in Italian and Spanish to a morphological characteristic of their verbal systems: the relative amount of homophony among different forms in the verbal paradigm.

In the next section I will introduce the Morphological Ambiguity hypothesis, explain its motivation and illustrate the predictions that the hypothesis makes. Subsequently, I will present a self-paced reading experiment (Experiment 3) aimed at testing some predictions based on the hypothesis. The results of this experiment do not provide support for the Morphological Ambiguity hypothesis, but highlight some processing differences, in both Italian and Spanish, between the resolution of anaphors in the syntactic context analysed in Experiment 1 and 2 (involving the subordinate-main order) and Experiment 3 (involving the main-subordinate order). The last section describes a control experiment run to investigate further the syntactic contexts used in Experiment 3.

### 6.2 Subject expression and verbal morphology

We have seen in Chapter 2 that linguists have long tried to find a relation, across languages, between the possibility of dropping subjects and the richness of their verbal agreement morphology. If we assume, following Rohrbacher (1999),

that argument drop in languages with no agreement at all, such as Chinese and Japanese, is altogether a different phenomenon from *pro*-drop, and is related to the possibility of dropping topics recoverable through discourse, we can actually see that, across several languages, there is a correlation between the relative morphological richness of verbal agreement systems and the availability of null subjects. But it still remains difficult to capture formally the correlation between morphological and syntactic properties of the verb, and different proposals have been put forward.

With the Morphological Uniformity hypothesis, Jaeggli & Safir (1989) suggested that null subjects are available in languages in which the verbal paradigm is either uniformly inflected or uniformly uninflected, but excluded from languages in which some forms are inflected and others correspond to the bare verb stem. Apart from the lack of explanatory power of such hypothesis, the predictions it makes turn out to be incorrect (but see also Speas (1994), cited in Rohrbacher (1999) for a more theoretically motivated version of the hypothesis).

It also appeared important to capture the distinction between those languages that simply meet the requirements for licensing null subjects, but only allow them in non-referential contexts, and the subset of null subject languages that meet some further requirements and allow for the occurrence of referential *pro*. Rizzi's (1986) formulation of the null subject parameter as consisting of two separate requirements, a formal licensing condition and an identification condition, provides a step in this direction. Languages that fulfil the licensing requirement are predicted to allow non-referential null subjects, whereas those languages that also fulfil the identification requirement are predicted to be *full* null subject languages, allowing for both referential and non-referential occurrences of *pro*.

Rizzi's formulation of the parameter also addresses the problem that the relationship between the richness of the verbal morphology and the availability of null subjects across languages only seems to be indirect. However, part of the solution just involved dissociating the licensing requirement from any formal aspect of the verbal morphology, without providing a new independent basis for the fulfilment of the licensing condition. According to Rizzi, the licensing requirement is met iff



a head in the language is a licenser, which depends on the *strength* of its features, a property that is independent from any overt morphological manifestation of such features and does not appear to be predictive of other morpho-syntactic properties. The morphological richness of the verb comes into play, according to Rizzi, to fulfil the identification requirement, allowing for the recovery of the content of referential null subjects.

Rohrbacher (1999) makes a different proposal, and while maintaining the idea of two separate requirements, he suggests that also the licensing requirement is related to the richness of the verbal morphology, but to a very specific aspect of it, namely to whether first and second person are morphologically different from all other forms, in either the singular or the plural of at least one tense of the regular paradigm. This differentiation enables inflectional affixes to be *referential* elements, in the sense of being able to refer to entities in the discourse (i.e. speaker and hearer) rather than bearing only *abstract* grammatical meaning relevant at the functional level alone.

This proposal seems to make correct predictions about the occurrence of non-referential *pro*-drop across several languages. A further identification requirement is added by Rohrbacher to distinguish between these languages and full null subject languages. Rohrbacher's identification condition establishes that both the function and the content of referential null subjects need to be identified by the licensing head. Function identification is achieved through Case assignment. Content identification is again related to the morphology of the verbal system and seems to rely on mechanisms that are at least in part language-specific, depending on factors such as the amount of overt morphology realised on different forms and the relative amount of homophony between forms in the paradigm.

Yiddish and Italian are both discussed by Rohrbacher to illustrate this point. In Yiddish *pro*-drop in the indicative present only appears to be available with the second person singular, the only person that contains a phonologically overt morphological affix and is not homophonous with any other person (see example 2.5 in Chapter 2). In Italian, the lack of overt person marking on the third person singular of the Indicative Present (formed by verb root plus the thematic

vowel) does not seem to affect the availability of null subjects, so the *overtness* constraint operative in Yiddish probably does not apply to Italian. On the other hand, the three singular persons of the Subjunctive Present are homophonous in Italian and *pro*-drop seems to be impossible with the second person (Cardinaletti 1997), while in the Subjunctive Past, first and second person are homophonous, and null subjects are more felicitous with the first person (ibid.).

What is relevant here about Rohrbacher's hypotheses is that they not only capture the relationship between the richness of the verbal morphology and the availability of null subjects across languages, but they also predict that, within a language, the distribution of referential null subjects may be affected, in a language-specific way, by aspects of the verbal morphology such as the overtness of the person marking and the homophony among forms in the paradigm. In other words, they predict that the distribution of null subjects within a language should vary across persons and tenses, depending on the relative explicitness or ambiguity of the verbal morphology. It seems then plausible to assume that, when the use of null subjects is barred or dispreferred for reasons related to the recovery of their content, pragmatic restrictions on the use of overt pronouns should change accordingly.

As a matter of fact, Ariel (1990) makes a suggestion along these lines within the framework of Accessibility Theory, and explains the different rates of null subject occurrence across tenses and persons in modern Hebrew in terms of the amount of *informativity* of the agreement inflection. According to Ariel, there is a crucial distinction between *poor* agreement markers and *informative* agreement markers, in that the former are overtly marked only for gender and number features, whereas the latter are overtly marked for person features as well. *Poor* agreement markers, because of their limited *informativity* can only access extremely salient antecedents so their occurrence without an overt pronoun will be extremely rare, whereas relatively more informative agreement markers can access relatively less salient antecedents and can therefore occur without an overt pronoun in more contexts.

These considerations may lead us to predict that in Italian, where the overt subject is normally preferred in the pragmatic context of a shift in subject reference, this pragmatic restriction should relax, or not apply, when a null form is independently unavailable because the verbal morphology cannot recover its content. The prediction would be that, if we compare the processing penalties incurred by Italian overt subject pronouns when used in conjunction with morphologically ambiguous or unambiguous verbal forms (i.e. with or without homophones), we should find a difference between the two. More precisely, a pragmatically motivated processing penalty should be significantly smaller in the context of a morphologically *ambiguous* verbal form.

Furthermore, in the last two chapters I have suggested that overt subject pronouns are processed and interpreted differently in Italian and Spanish, in the sense that in Spanish they do not seem to facilitate reference shift to a non-prominent antecedent as much as they do in Italian. If the presence of processing biases guiding the resolution of overt subjects depend in part on the availability of null subjects in the same contexts, it may be that the cross-linguistic difference between Italian and Spanish depend on the fact that null subjects are less freely available in Spanish than they are in Italian, due to the inability of relatively more verbal forms to identify the content of *pro*.

These are the hypotheses that I will explore with the next experiment.

### 6.2.1 The Verbal Morphology in Italian and Spanish

The idea that in Spanish there may be restrictions on the availability of null subjects due to the inability of some verbal forms to identify their content rests on the assumption that the morphology of the regular verbal paradigm of this language is relatively ambiguous in its expression of person features and that, because of language-specific constraints, such ambiguity hinders the identification of the null subject.

Table 6.1 shows the whole regular paradigm for verbs belonging to the first conjugation in Italian (6.1(a)) and Spanish (6.1(b)). The Italian paradigm shows the three-way ambiguity of the Subjunctive Present and the two-way ambiguity

Table 6.1: Italian and Spanish verb morphology.

				(a) Italian				(b) Spanish			
INDICATIVE PRESENT	INDICATIVE IMPERFECT	INDICATIVE FUTURE SIMPLE	INDICATIVE FUTURE SIMPLE PAST	SIMPLE PRESENT PAST	SUBJUNCTIVE PRESENT	SUBJUNCTIVE IMPERFECT	SUBJUNCTIVE IMPERFECT	SUBJUNCTIVE FUTURE	CONDITIONAL	CONDITIONAL	
parlo	parlo	parlavo	parlerò	parlai	parli	parlassi	parlassi	parlerei	parlerei	parlerei	
parli	parli	parlavi	parlerai	parlasti	parli	parlassi	parlassi	parleresti	parleresti	parleresti	
parla	parla	parlava	parlerà	parlò	parli	parlassi	parlassi	parlerebbe	parlerebbe	parlerebbe	
parliamo	parliamo	parlavamo	parleremo	parlammo	parliamo	parlassimo	parlassimo	parleremmo	parleremmo	parleremmo	
parlate	parlate	parlavate	parlerete	parlaste	parlate	parlaste	parlaste	parlereste	parlereste	parlereste	
parlano	parlano	parlavano	parleranno	parlarono	parlino	parlassero	parlassero	parlerebbero	parlerebbero	parlerebbero	
hablo	<b>hablaba</b>	hablaré	hablé	<b>hable</b>	<b>hable</b>	<b>hablara/hablase</b>	<b>hablara/hablase</b>	<b>hablare</b>	<b>hablara</b>	<b>hablara</b>	
<i>hablas</i>	<i>hablabas</i>	<i>hablarás</i>	hablaste	<i>hables</i>	<i>hablara/hablase</i>	<i>hablara/hablase</i>	<i>hablara/hablase</i>	<i>hablaren</i>	<i>hablaren</i>	<i>hablaren</i>	
<i>hablamos</i>	<b>hablábamos</b>	hablaremos	hablamos	hablemos	habláramos/hablásemos	habláramos/hablásemos	habláramos/hablásemos	hablaríamos	hablaríamos	hablaríamos	
habláis	hablabais	hablaréis	hablasteis	habléis	hablárais/habláseis	hablárais/habláseis	hablárais/habláseis	hablaríais	hablaríais	hablaríais	
hablan	hablaban	hablarán	hablaron	hablen	habláran/hablásen	habláran/hablásen	habláran/hablásen	hablarían	hablarían	hablarían	

of the Subjunctive Past discussed in section 6.2. The Spanish paradigm shows that in this language too there are homophonous forms, more specifically there is a two-way ambiguity between first and third person singular, which extends to several tenses, namely the Indicative Imperfect, the Subjunctive Present, Past and Future and the Conditional. I will argue that the weakness of the overt subject bias in Spanish, when compared to Italian, may have to do with the more widespread presence of verbal forms that are not uniquely marked for person, which gives rise to an ambiguity in the overt expression of this feature.

As I suggested earlier, the Morphological Ambiguity hypothesis also predicts that the distribution of (null and) overt subjects within a language will vary depending on the relative ambiguity of the verbal morphology. In Spanish, this hypothesis was tested by [Enríquez \(1984\)](#), discussed in section 4.3, who analysed the use of null and overt subject pronouns in a corpus of Spanish spoken in Madrid. One of the analyses carried out by Enríquez tested whether people tended to use significantly more overt pronouns with ambiguous tenses than with unambiguous ones. The results showed that significantly more pronouns were used with verbs in the Conditional (a tense with ambiguous morphology), but overall, when all the tenses with ambiguous morphology were pooled together and compared with the unambiguous tenses, no significant difference emerged between the two.

[Enríquez's](#) data suggest that the relative ambiguity of the person marking on the verb may not actually affect the rate of subject expression in Spanish, on the other hand, Experiment 1 and 2 in the present study have already revealed a pattern of processing biases in the interpretation of Spanish null and overt pronouns that had not been captured by corpus analysis, so subtle differences may still exist between the processing of subjects in the context of morphologically ambiguous and unambiguous verbs, that may not have been captured by different methodologies.

Finally I should mention another hypothesis that I discussed in section 4.3, which tried to associate the use of overt subjects Spanish with the relative ambiguity of the verbal morphology: the Functional Compensation hypothesis. This

hypothesis was formulated to account for the increased use of overt pronouns in certain varieties of Spanish spoken in the Caribbean (e.g. Cuban, Puerto Rican). These varieties are also characterised by the lenition or deletion of /s/ at the end of the words. As can be seen from table 6.1(b), the deletion of the final /s/ on second person singular verbs, creates a two-way ambiguity in the Indicative Present and a three-way ambiguity in the Indicative Imperfect, Subjunctive Present, Imperfect and Future, and in the Conditional. The hypothesis is that, in order to *compensate* for the loss of information caused by the deletion of the second person singular /s/, speakers will tend to use more overt subjects in the context of ambiguous verbal morphology. The evidence for functional compensation has been controversial, and even if overall counts show that more overt subjects are used in Caribbean varieties, the relative ambiguity of the verbal morphology does not seem to be a good predictor for the appearance of overt subject pronouns in Puerto Rican Spanish according to Cameron (1992), contra Hochberg (1986) (see also Morales (1997) for arguments against functional compensation).

### 6.2.2 Summary and hypotheses

To summarise, in the last section we have seen that, in a full null subject language, the actual occurrence of null and overt subjects may be influenced by factors such as the overtness of the person marking on the verbal morphology or the homophony among different forms in the verbal paradigm. Rohrbacher (1999) provides examples from Yiddish and Italian and discusses them within a generative perspective, while Ariel (1990) explains modern Hebrew facts from the point of view of Accessibility theory.

Based on these ideas, I want to explore in this chapter the two following hypotheses:

- that the relative weakness of the overt subject bias in Spanish may be related to the fact that more verbal forms are homophonous compared to Italian;
- that in Italian and Spanish the distribution of, and the processing biases associated with, null and overt subjects vary across tenses, depending on whether the morphological marking for each person is unique or not.

The idea is that when the verbal morphology is ambiguous, overt subjects will be used to indicate explicitly person features that are not recoverable otherwise, with the result that they should lose their structural bias (if they have one).

My intuition for null subjects is that they should not be completely ruled out with any tenses in Italian or Spanish, they should just become harder to process and therefore less acceptable in the context of ambiguous morphology. As a result, I expect that the NS should keep its structural bias when used with ambiguous verb morphology. If person features are not overtly marked on the verb, when the NS is used it should be used to refer to the most prominent antecedent, and this bias may become even stronger, because the lack of cues to re-activate potential antecedents should leave only the most accessible antecedent available in memory.

## 6.3 Experiment 3

### 6.3.1 Participants

The participants for this experiment were 48 adult monolingual speakers of Spanish and 48 adult monolingual speakers of Italian, recruited among undergraduate and postgraduate students at the University of La Laguna (Spain) and at the University of Padua (Italy).

### 6.3.2 Materials and Design

The experiment included 80 experimental sentences and 80 filler sentences. Three variables were manipulated within subjects: *Anaphora*, *Antecedent* and verb *Tense*. The *Anaphora* could be a null subject or an overt pronoun (NS vs. OPS); the *Antecedent* of the anaphor could be either the Subject or the Object of the previous clause; the *Tense* could be either the Indicative Present (with unambiguous verbal morphology), or the Subjunctive Present (with ambiguous verbal morphology). In addition, to make sure that any differences between the levels of the *Tense* variable were due to the ambiguity of the verbal morphology rather than other processing differences between Indicative and Subjunctive, a third *Tense* condition was added: the Indicative Imperfect, which is ambiguous in Spanish but unambiguous in Italian (see table 6.1 for the verbal morphology

of the tenses used). The (partial) crossing of the three variables produced eight experimental conditions:

	ANTECEDENT		ANAPHORA		TENSE (MORPHOLOGY)
1.	Subject	–	OPS	–	Subjunctive Present ( <i>Ambiguous</i> )
2.	Object	–	OPS	–	Subjunctive Present ( <i>Ambiguous</i> )
3.	Subject	–	OPS	–	Indicative Present ( <i>Unambiguous</i> )
4.	Object	–	OPS	–	Indicative Present ( <i>Unambiguous</i> )
5.	Subject	–	NS	–	Subjunctive Present ( <i>Ambiguous</i> )
6.	Object	–	NS	–	Subjunctive Present ( <i>Ambiguous</i> )
7.	Subject	–	OPS	–	Indicative Imperfect (*)
8.	Object	–	OPS	–	Indicative Imperfect (*)

*\*Ambiguous in Spanish, unambiguous in Italian.*

Below are two examples of an experimental sentence in the eight conditions in Italian (6.1) and Spanish (6.2):

- (6.1) a. Beatrice<sub>i</sub> ha ottenuto una promozione da Carmen<sub>j</sub>, nonostante lei<sub>i</sub> sia inesperta per il nuovo lavoro.  
*‘Beatrice<sub>i</sub> has obtained a promotion from Carmen<sub>j</sub>, although she<sub>i</sub> is inexperienced for the new job.’*
- b. Beatrice<sub>i</sub> ha dato una promozione a Carmen<sub>j</sub>, nonostante lei<sub>j</sub> sia inesperta per il nuovo lavoro.  
*‘Beatrice<sub>i</sub> has given a promotion to Carmen<sub>j</sub>, although she<sub>j</sub> is inexperienced for the new job.’*
- c. Beatrice<sub>i</sub> ha ottenuto una promozione da Carmen<sub>j</sub>, anche se lei<sub>i</sub> è inesperta per il nuovo lavoro.
- d. Beatrice<sub>i</sub> ha dato una promozione a Carmen<sub>j</sub>, anche se lei<sub>j</sub> è inesperta per il nuovo lavoro.
- e. Beatrice<sub>i</sub> ha ottenuto una promozione da Carmen<sub>j</sub>, nonostante  $\emptyset_i$  sia inesperta per il nuovo lavoro.
- f. Beatrice<sub>i</sub> ha dato una promozione a Carmen<sub>j</sub>, nonostante  $\emptyset_j$  sia inesperta per il nuovo lavoro.



- g. Beatrice<sub>i</sub> ha ottenuto una promozione da Carmen<sub>j</sub>, anche se lei<sub>i</sub> era inesperta per il nuovo lavoro.
- h. Beatrice<sub>i</sub> ha dato una promozione a Carmen<sub>j</sub>, anche se lei<sub>j</sub> era inesperta per il nuovo lavoro.
- (6.2) a. Beatriz<sub>i</sub> ha obtenido un ascenso de Carmen<sub>j</sub>, aunque ella<sub>i</sub> sea inesperta para el nuevo trabajo.  
*‘Beatrice<sub>i</sub> has obtained a promotion from Carmen<sub>j</sub>, although she<sub>i</sub> is inexperienced for the new job.’*
- b. Beatriz<sub>i</sub> a dado un ascenso a Carmen<sub>j</sub>, aunque ella sea inesperta para el nuevo trabajo.  
*‘Beatrice<sub>i</sub> has given a promotion to Carmen<sub>j</sub>, although she<sub>j</sub> is inexperienced for the new job.’*
- c. Beatriz<sub>i</sub> ha obtenido un ascenso de Carmen<sub>j</sub>, aunque ella<sub>i</sub> es inesperta para el nuevo trabajo.
- d. Beatriz<sub>i</sub> a dado un ascenso a Carmen<sub>j</sub>, aunque ella<sub>j</sub> es inesperta para el nuevo trabajo.
- e. Beatriz<sub>i</sub> ha obtenido un ascenso de Carmen<sub>j</sub>, aunque  $\emptyset$ <sub>i</sub> sea inesperta para el nuevo trabajo.
- f. Beatriz<sub>i</sub> a dado un ascenso a Carmen<sub>j</sub>, aunque  $\emptyset$ <sub>j</sub> sea inesperta para el nuevo trabajo.
- g. Beatriz<sub>i</sub> obtuvo un ascenso de Carmen<sub>j</sub>, aunque ella<sub>i</sub> era inesperta para el nuevo trabajo.
- h. Beatriz<sub>i</sub> dio un ascenso a Carmen<sub>j</sub>, aunque ella<sub>j</sub> era inesperta para el nuevo trabajo.

Eight experimental lists were created for each language, participants were randomly assigned to one list. The items were randomised at every run. A full list of the experimental materials is provided in Appendix C.

In order to insure that participants were reading for understanding, one third of the experimental items and fillers were followed by a comprehension question asking to identify the antecedent of the anaphoric subject.

### 6.3.3 Procedure

The experiment consisted in a phrase by phrase self-paced reading task, displayed in a moving window; it was run using Psyscope X (Cohen et al. 1993) on a 13" MacBook laptop, with a USB button box to collect the responses. The participants received written instructions at the beginning of the experiment, in the language in which the experiment was run. They were instructed to press a purple button on the button box to see the segments of sentence appear on the screen, and to read as naturally as possible, trying to understand the sentences. They were also told that from time to time they would have to answer a comprehension question about the sentence they just read. When a question appeared on screen, participants were instructed to read it and press the purple button again when they were ready to answer it. After the button press, the two possible answers appeared at the bottom of the screen, one to the left and one to the right. People were told to press the button on the left side of the button box, if they thought the correct answer was on the left, or the button on the right side, if they thought the correct answer was on the right. Each antecedent answer (subject or object) appeared half of the times on the left and half of the times on the right.

### 6.3.4 Predictions

Given the hypotheses in section 6.2.2, I can now make the following predictions:

1. When the verbal morphology is ambiguous the OPS will be used to indicate explicitly person features that are not recoverable from the verbal morphology yielding the following effects:
  - (a) the OPS should lose its structural bias (if it has one), we therefore expect the structural bias to be absent or significantly weaker in condition 1. and 2. (sentences (6.1-6.2a) and (6.1-6.2b)), compared to condition 3. and 4. (sentences (6.1-6.2c) and (6.1-6.2d)).
  - (b) in both Italian and Spanish, when the morphology is ambiguous, the OPS should be preferred over the NS regardless of the antecedent position. Therefore we expect overall faster reading times in condition 1. and 2., (sentences (6.1-6.2a) and (6.1-6.2b)) than in 5. and 6. (sentences (6.1-6.2e) and (6.1-6.2f)).

2. The NS should keep its structural bias even with ambiguous morphology: condition 5. and 6. (sentences (6.1-6.2e) and (6.1-6.2f)) should show the same structural bias found in Experiment 1 and 2 (i.e. significantly faster RTs for the Subject Antecedent, that is condition 5., sentence (6.1e)).

Furthermore, if the differences listed above are due to the ambiguity of the verbal morphology rather than to processing differences between Indicative and Subjunctive, then the Indicative Imperfect sentences (6.1-6.2g) and (6.1-6.2h) (condition 7. and 8.) should pattern together with the ambiguous morphology in Spanish (condition 1. and 2.; sentences (6.2a) and (6.2b)), and with the unambiguous morphology in Italian (condition 3. and 4.; sentences (6.1c) and (6.1d)).

### 6.3.5 Results

The analyses that are relevant to confirm the above predictions are the following:

- OPS with ambiguous morphology vs. OPS with unambiguous morphology (condition 1. and 2. vs. 3. and 4.; to test hypothesis (1a)).
- OPS with ambiguous morphology vs. NS with ambiguous morphology (condition 1. and 2. vs. 5. and 6.; to test hypotheses (1b) and (2)).
- The three levels of the *Tense* variable together (Subjunctive Present, condition 1. and 2. vs. Indicative Present, condition 3. and 4. vs. Indicative Imperfect, condition 7. and 8.), to see if the Imperfect patterns in the same way as the unambiguous Indicative Present in Italian but like the Subjunctive present in Spanish.

The regions that I analysed were: the VP region, providing the semantic disambiguation rendering one antecedent plausible, the region immediately following the VP (VP+1), and the final wrap up phrase. The following example shows the regions analysed (the forward slashes indicate the chunks of sentence that were presented at each button press):

(6.3) Beatrice / ha dato / una promozione / a Carmen, / nonostante /  
 (lei) // sia inesperta / per il nuovo / lavoro.  
 Anaphor VP VP+1 WRAP UP

In order to take into account the systematic differences between the two languages in the length of the stimuli, the reading times were adjusted for the number of characters (see section 4.4.7). The data points with Cook's numbers higher than 1 were excluded from the analysis (< 1% of the data). Using the adjusted data I run a series of ANOVAs.

The reaction times to the comprehension questions and the accuracy rates of the answers were also analysed.

### 6.3.6 OPSs with ambiguous and unambiguous morphology

In this section I present the results of the analyses comparing condition 1. and 2. to condition 3. and 4. These analyses were carried out to test hypothesis (1a), that with ambiguous verb morphology, OPSs should be easier to process regardless of the position of the antecedent.

The reading time data was submitted to a 2 x 2 x 2 ANOVA with *Antecedent* (Subject vs. Object) and *Tense* (ambiguous Subjunctive vs. unambiguous Indicative) as within subject factors and *Language* (Spanish or Italian) as a between subjects factor.

#### 6.3.6.1 VP region

Table 6.2 and 6.3 show the descriptive statistics for the VP region while the means for each condition, with the relative 95% confidence intervals, are shown in Figure 6.2.

Table 6.2: Descriptive statistics: adjusted RTs for the VP region (Italian).

		N	Mean	Std. Deviation	Min.	Max.
UNAMBIGUOUS	Object Antecedent	48	-7	94	-185	314
TENSE	Subject Antecedent	48	21	105	-163	418
AMBIGUOUS	Object Antecedent	48	2	96	-326	225
TENSE	Subject Antecedent	48	17	77	-212	188

Table 6.3: Descriptive statistics: adjusted RTs for the VP region (Spanish).

		N	Mean	Std. Deviation	Min.	Max.
UNAMBIGUOUS	Object Antecedent	48	-19	76	-270	126
TENSE	Subject Antecedent	48	9	85	-183	231
AMBIGUOUS	Object Antecedent	48	-18	74	-181	127
TENSE	Subject Antecedent	48	1	102	-237	316

The ANOVA for this region revealed a main effect for *Antecedent*, with VPs referring to object antecedents read significantly faster than those referring to subject antecedents (-11 msec. vs. 12 msec.;  $F_1(1, 94) = 6.48$ ;  $p = .012$ ;  $F_2(1, 158) = 5.09$ ;  $p = .025$ ).

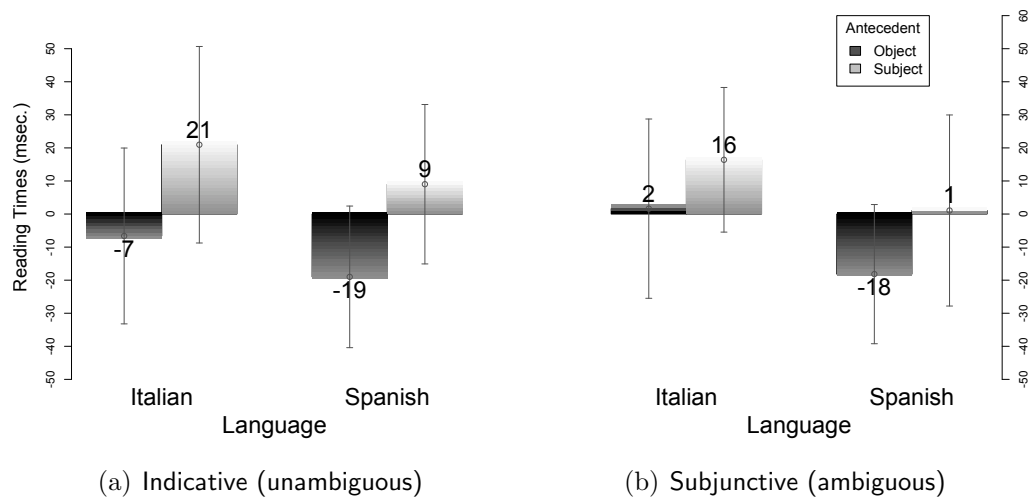


Figure 6.1: Adjusted RTs for the VP.

### 6.3.6.2 VP+1 region

Tables 6.4 and 6.5 show the descriptive statistics for the region following the VP and the bar charts in Figure 6.2 show the mean adjusted RTs and the 95% confidence intervals for each condition.

The ANOVA for this region revealed a significant main effect for *Antecedent* ( $F_1(1, 94) = 13.75$ ;  $p < .001$ ;  $F_2(1, 158) = 11.02$ ;  $p = .001$ ), with faster reading

times for sentences with an object antecedent (-20 msec. vs. 16 msec.), and a significant interaction *Antecedent* by *Language* ( $F_1(1, 94) = 5.39$ ;  $p = .022$ ;  $F_2(1, 158) = 4.33$ ;  $p = .039$ ).

Table 6.4: Descriptive statistics: adjusted RTs for the VP+1 region (Italian).

		N	Mean	Std. Deviation	Min.	Max.
UNAMBIGUOUS	Object Antecedent	48	-36	95	-188	420
TENSE	Subject Antecedent	48	42	136	-354	541
AMBIGUOUS	Object Antecedent	48	-30	109	-374	211
TENSE	Subject Antecedent	48	7	116	-271	389

Table 6.5: Descriptive statistics: adjusted RTs for the VP+1 region (Spanish).

		N	Mean	Std. Deviation	Min.	Max.
UNAMBIGUOUS	Object Antecedent	48	-7	83	-147	305
TENSE	Subject Antecedent	48	16	71	-118	206
AMBIGUOUS	Object Antecedent	48	-4	76	-205	297
TENSE	Subject Antecedent	48	-1	64	-204	152

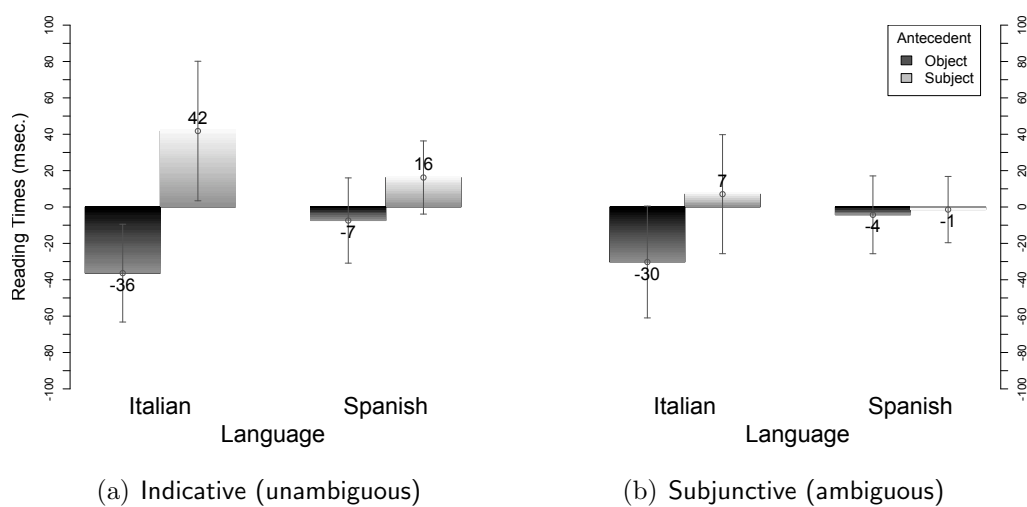


Figure 6.2: Adjusted RTs for the region following the VP.

Further analyses of the interaction revealed that in the subject antecedent condition there are no significant differences between the two languages. With an object antecedent, this region is read significantly faster in Italian than Spanish, although this effect is significant only by subjects ( $F_1(1, 94) = 4.6$ ;  $p = .035$ ;  $F_2(1, 158) = 2.68$ ;  $p = .10$ ; -33 msec. vs. -6 msec.). If we analyse the two languages separately, in Italian we find a significant effect for *Antecedent*, with faster RTs when the antecedent is an object ( $F_1(1, 47) = 13.31$ ;  $p < .001$ ;  $F_2(1, 79) = 12.11$ ;  $p < .001$ ; -33 msec. vs. 24 msec.), whereas the difference between subject and object antecedents is not significant in Spanish ( $F_1(1, 47) = 1.51$ ;  $p = .22$ ;  $F_2(1, 79) = 0.96$ ;  $p < .33$ ; -6 msec. vs. 7 msec.).

### 6.3.6.3 Wrap up region

Table 6.6 and 6.7 show the descriptive statistics for the wrap up region; Figure 6.3, shows the mean adjusted RTs and 95% confidence intervals for each condition.

In this region, the ANOVA confirms that the main effect for *Antecedent* is still present and reliable ( $F_1(1, 94) = 14.24$ ;  $p < .001$ ;  $F_2(1, 158) = 22.3$ ;  $p < .000$ ) with significantly faster RTs for object antecedent sentences (-60 msec. vs. 57 msec.); it also reveals an interaction between *Language* and *Antecedent* that is marginally significant by subjects and fully significant by items ( $F_1(1, 94) = 3.7$ ;  $p = .057$ ;  $F_2(1, 158) = 5.78$ ;  $p = .017$ ). This suggests that, like in the preceding region, the effect of *Antecedent* depends on the *Language* variable. In order to understand this interaction I analysed separately the two *Antecedent* and the two *Language* conditions.

Table 6.6: Descriptive statistics: adjusted RTs for the wrap up region (Italian).

		N	Mean	Std. Deviation	Min.	Max.
UNAMBIGUOUS	Object Antecedent	48	-112	238	-829	448
TENSE	Subject Antecedent	48	68	192	-152	682
AMBIGUOUS	Object Antecedent	48	-87	253	-847	508
TENSE	Subject Antecedent	48	84	356	-347	2064

Table 6.7: Descriptive statistics: adjusted RTs for the wrap up region (Spanish).

		N	Mean	Std. Deviation	Min.	Max.
UNAMBIGUOUS	Object Antecedent	48	-7	166	-523	525
TENSE	Subject Antecedent	48	63	173	-302	752
AMBIGUOUS	Object Antecedent	48	-34	151	-471	349
TENSE	Subject Antecedent	48	11	129	-261	571

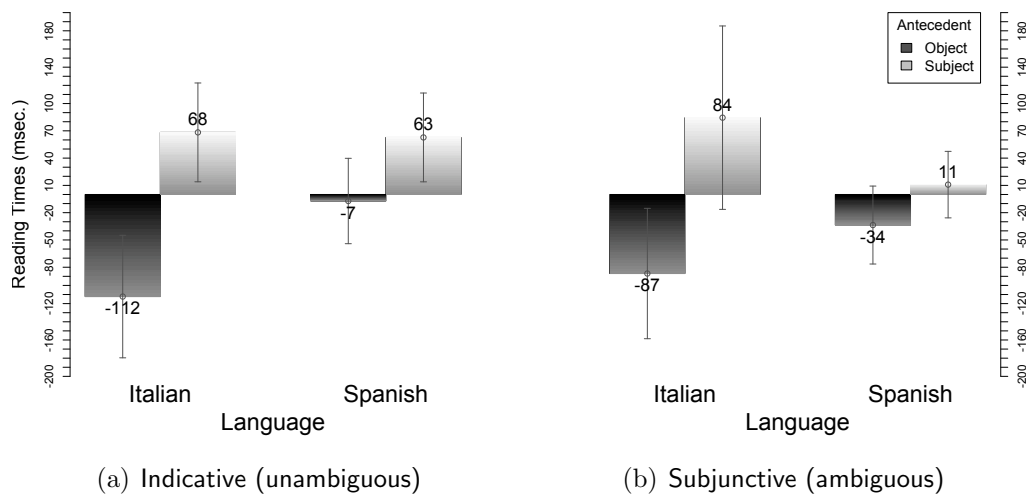


Figure 6.3: Adjusted RTs for the final wrap up region.

In the Subject antecedent condition, like before, there are no significant differences between Italian and Spanish, but we find a main effect for *Language* in the Object antecedent condition, showing that sentences with object antecedents are wrapped up significantly faster in Italian than in Spanish ( $F_1(1, 94) = 5.42$ ;  $p = .022$ ;  $F_2(1, 158) = 4.98$ ;  $p = .027$ , -100 msec. vs. -20 msec.).

Finally, analysing separately Italian and Spanish, both languages show significant main effects for *Antecedent* with faster RTs for object antecedents (in Italian: -100 msec. vs. 76 msec.;  $F_1(1, 47) = 9.92$ ;  $p = .003$ ;  $F_2(1, 79) = 17.70$ ;  $p < .000$ ; in Spanish: -20 msec. vs. 37 msec.;  $F_1(1, 47) = 4.71$ ;  $p = .035$ ;  $F_2(1, 79) = 4.75$ ;  $p < .032$ ).



### 6.3.6.4 Comprehension Questions

One third of the experimental items was followed by comprehension questions. In this section I analyse the reaction times and the error rates of the answers. The bar charts in Figure 6.4 show the mean RTs and 95% confidence intervals for each condition, while Table 6.8 shows the percentage of errors.

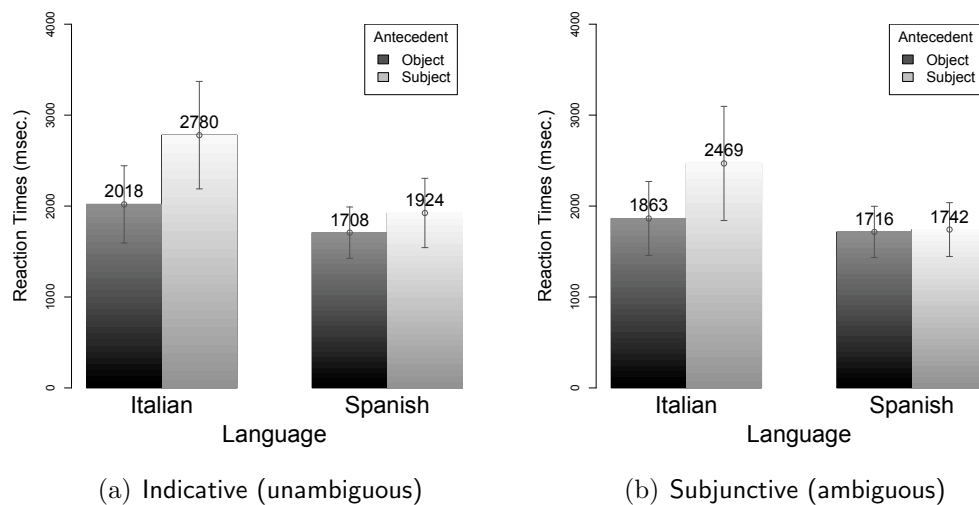


Figure 6.4: Reaction times to the comprehension questions.

The overall ANOVA for the RTs shows a main effect for *Language* ( $F_1(1, 94) = 4.77$ ;  $p = .031$ ;  $F_2(1, 62) = 14.85$ ;  $p < .000$ ) with significantly faster RTs in Spanish (1772 msec. vs. 2283 msec.); a main effect for *Antecedent* ( $F_1(1, 94) = 8.14$ ;  $p = .005$ ;  $F_2(1, 62) = 7.8$ ;  $p = .006$ ), with significantly faster RTs in the Object condition (1826 msec. vs. 2228 msec.); and an interaction *Language* by *Antecedent*, which is fully significant by subjects and marginally significant by items ( $F_1(1, 94) = 3.98$ ;  $p = .049$ ;  $F_2(1, 62) = 3.81$ ;  $p = .055$ ).

If we analyse separately Italian and Spanish, we find a fully significant main effect for *Antecedent* in Italian ( $F_1(1, 47) = 8.48$ ;  $p = .005$ ;  $F_2(1, 31) = 7.04$ ;  $p = .012$ ), where questions following an object antecedent sentence are answered faster than those following a subject antecedent sentence, but no effect in Spanish ( $F_1(1, 47) = 0.6$ ;  $p = .44$ ;  $F_2(1, 31) = 0.88$ ;  $p = .35$ ).

In the Subject antecedent condition, Spanish participants answer significantly faster than Italians ( $F_1(1, 94) = 6.28$ ;  $p = .014$ ;  $F_2(1, 62) = 13.9$ ;  $p < .000$ ), but there is no significant difference between the two languages with object antecedents ( $F_1(1, 94) = 1.07$ ;  $p = .30$ ;  $F_2(1, 62) = 1.67$ ;  $p = .20$ ), confirming that the processing of OPSs referring to a prominent antecedent may be less problematic for Spanish speakers than it is for Italians.

Table 6.8: Percentages of wrong answers to the comprehension questions.

		Italian (%)	Spanish (%)
UNAMBIGUOUS	Object Antecedent	19	13
TENSE	Subject Antecedent	27	32
AMBIGUOUS	Object Antecedent	22	18
TENSE	Subject Antecedent	25	25

The accuracy rates of the answers were analysed using a logistic regression model, as is suitable for categorical data. An answer was coded as correct if the antecedent chosen by the participant was the most plausible in the given context. Table 6.8 shows the error rates for each condition.

The predictors in the model were: *Antecedent*, *Tense* and *Language*. For each significant effect I will report the coefficient  $\beta$ , its level of significance and the odds ratio ( $e^\beta$ ) between the pair of levels compared.

The model revealed a marginally significant effect for *Antecedent* ( $\beta = -0.44$ ;  $p = .07$ ,  $e^\beta = 0.64$ ), indicating that the probability of a correct answer tends to decrease in the Subject condition; a marginally significant effect for *Language* ( $\beta = 0.49$ ;  $p = .086$ ,  $e^\beta = 1.63$ ) indicating that the probability of a correct answer may tend to increase in Spanish; and a fully significant interaction *Antecedent* by *Language* ( $\beta = 0.47$ ;  $p = .034$ ,  $e^\beta = 1.61$ ). The likelihood ratio test for the model indicates that the model is overall explanatory ( $\chi^2(7) = 30.08$ ;  $p < .000$ ), although the residual deviance is larger than expected ( $\chi^2(372) = 717.75$   $p < .000$ ) indicating a lack of goodness of fit.

Two separate models were fitted to the two *Antecedent* conditions to explore the *Antecedent* by *Language* interaction. No significant differences were found in

the Subject condition, while the Object condition yielded a marginally significant effect for *Language* ( $\beta = 0.49$ ;  $p = .086$ ,  $e^\beta = 1.63$ ) showing that the probability of a correct answer after an Object antecedent sentence may tend to be higher in Spanish.

If we look at each language separately, we find that in Italian there is a marginally significant effect for *Antecedent* ( $\beta = -0.44$ ;  $p = .07$ ,  $e^\beta = 0.64$ ), showing that in this language there may be less chances to get a correct answer in the Subject antecedent condition. In Spanish, we find a highly significant effect of *Antecedent* ( $\beta = -1.21$ ;  $p < .000$ ,  $e^\beta = 0.29$ ) showing that the chance of getting a correct answer in this language decreases significantly in the Subject antecedent condition.

#### 6.3.6.5 Discussion

The aim of this analysis was to test hypothesis (1a), that when the verbal morphology is ambiguous in the expression of person features, the pragmatic restrictions on the overt pronoun should be at least weakened. The data provided no support for such hypothesis in either language, as it did not reveal any effects or interactions involving the *Tense* variable, at any point in the sentence.

The data did confirm the existence of cross-linguistic differences in the interpretation of OPSs, as it revealed a significant main effect for *Antecedent*, this time fully significant already at the VP region (in Experiment 2 it only reached significance at the following region) interacting with the *Language* variable from the following region on. The interaction confirms the pattern of cross-linguistic differences highlighted in Experiment 2, showing that in the context of a *shift in subject reference*, sentences containing an overt pronoun are wrapped up significantly faster in Italian than in Spanish. The reaction times to the comprehension questions confirm the pattern of the reading times, showing that Spanish participants respond significantly faster than Italians to questions following a sentence with subject antecedents.

But if we look at the Spanish data alone, we find a slight discrepancy between the present results and those of Experiment 1 and 2, since the present

experiment revealed that sentences with an object antecedent are wrapped up significantly faster than sentences with a subject antecedent (although significantly more slowly than they are in Italian) and answers to the comprehension questions are significantly more accurate after an object antecedent sentence.

In Italian itself, the processing difference between Subject and Object antecedent conditions at sentence wrap up is larger here than it was in Experiment 2 (176 msec. here, as opposed to 71 msec. in Experiment 2). This seems to suggest that some variable may have had the effect of *boosting* the OPS bias in both languages, increasing the difference between subject and object antecedent condition.

A possible explanation could be the difference of syntactic context. While in Experiment 1 and 2 the sentences were formed by a subordinate clause followed by a main clause, in this experiment the order had to be reversed, to allow for the use of subjunctive in the clause containing the anaphoric subject. A second confounding variable could have been the change in the coherence relation between clauses; in Experiment 1 and 2 the subordinates were temporal and reason clauses, while here they were all concessive. This question will be touched upon in the general discussion and in the last part of this chapter.

### 6.3.7 NS and OPS with ambiguous morphology (Subjunctive Present)

In this section I present the results of the analyses comparing conditions 1. and 2. to conditions 5. and 6. These analyses were carried out to test hypotheses (1b) and (2) that, with ambiguous morphology, OPSs should be preferred over NSs regardless of the antecedent position, because they reduce ambiguity, although NSs should maintain their structural bias.

The raw reading times were adjusted by the length of the stimuli and a series of 2 x 2 x 2 ANOVAs were run, using *Anaphora* (NS vs. OPS) and *Antecedent* (Subject vs. Object) as within subject factors and *Language* (Spanish vs. Italian) as a between subjects factor.

Table 6.9: Descriptive statistics: adjusted reading times for the VP region (Italian).

		N	Mean	Std. Deviation	Min.	Max.
NULL	Object Antecedent	48	3	95	-273	323
SUBJECT	Subject Antecedent	48	10	104	-288	300
OVERT	Object Antecedent	48	1	96	-326	226
SUBJECT	Subject Antecedent	48	17	77	-212	188

### 6.3.7.1 VP region

Table 6.10: Descriptive statistics: adjusted reading times for the VP region (Spanish).

		N	Mean	Std. Deviation	Min.	Max.
NULL	Object Antecedent	48	16	124	-155	530
SUBJECT	Subject Antecedent	48	52	113	-169	529
OVERT	Object Antecedent	48	-18	74	-181	127
SUBJECT	Subject Antecedent	48	1	102	-237	316

Table 6.9 and 6.10 show the descriptive statistics for the VP region; the bar-charts in Figure 6.5 show the means and 95% confidence intervals for the adjusted RTs in each condition. The ANOVA for this region reveals a main effect for *Anaphora* only significant in the analysis by items ( $F_1(1, 94) = 2.43$ ;  $p = .123$ ;  $F_2(1, 158) = 4.26$ ;  $p = .041$ ), with verbs following OPS anaphors read faster than those following NS anaphors (0 msec. vs. 20 msec.); a main effect for *Antecedent*, fully significant by subjects and marginally by items ( $F_1(1, 94) = 4.07$ ;  $p = .047$ ;  $F_2(1, 158) = 3.7$ ;  $p = .056$ ) with faster RTs for VPs with and object antecedent (1 msec. vs. 20 msec.), and an interaction *Anaphora* by *Language* that was marginally significant by subjects and fully significant by items ( $F_1(1, 94) = 3.20$ ;  $p = .077$ ;  $F_2(1, 158) = 5.7$ ;  $p = .018$ ).

Looking at the two languages separately, in Italian the ANOVA revealed no significant effects and no interactions. In Spanish, there is a significant main

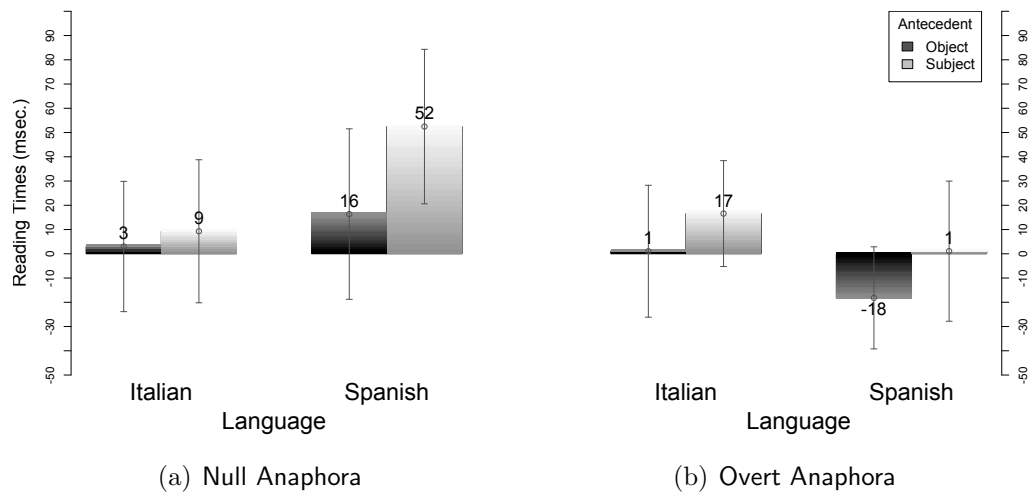


Figure 6.5: Reading times for the VP region.

effect for *Anaphora* ( $F_1(1, 47) = 5.37$ ;  $p = .025$ ;  $F_2(1, 79) = 8.43$ ;  $p = .005$ ) with VPs preceded by OPS anaphors read significantly faster than VPs that are not (-8 msec. vs. 34 msec.); and a main effect for *Antecedent*, fully significant by subjects and marginally significant by items ( $F_1(1, 47) = 4.11$ ;  $p = .048$ ;  $F_2(1, 79) = 3.59$ ;  $p = .062$ ), with Object antecedents read overall faster than Subject antecedents (-1 msec. vs. 27 msec.).

Finally, in the NS and in the OPS conditions analysed separately we find no significant effects or interactions.

### 6.3.7.2 VP+1 region

Tables 6.11 and 6.12 show the descriptive statistics for the region following the VP and Figure 6.6 shows the means and 95% confidence intervals for the adjusted RTs in each condition.

The analyses for this region revealed no significant effects nor interactions.

Table 6.11: Descriptive statistics: adjusted reading times for the region following the VP (Italian).

		N	Mean	Std. Deviation	Min.	Max.
NULL	Object Antecedent	48	14	95	-160	381
SUBJECT	Subject Antecedent	48	8	87	-236	262
OVERT	Object Antecedent	48	-30	109	-374	211
SUBJECT	Subject Antecedent	48	7	116	-271	389

Table 6.12: Descriptive statistics: adjusted reading times for the region following the VP (Spanish).

		N	Mean	Std. Deviation	Min.	Max.
NULL	Object Antecedent	48	-6	73	-163	205
SUBJECT	Subject Antecedent	48	-2	85	-244	180
OVERT	Object Antecedent	48	-4	76	-205	297
SUBJECT	Subject Antecedent	48	-1	64	-204	152

### 6.3.7.3 Wrap Up region

Table 6.13 and 6.14 show the descriptive statistics for the final wrap up region and the barcharts in Figure 6.7 show the mean adjusted reading times and 95% confidence intervals for each condition. The most striking aspect of the barcharts in 6.7 is that the null subject bias seems to have disappeared, contrary to the predictions.

Table 6.13: Descriptive statistics: adjusted reading times for the wrap up region (Italian).

		N	Mean	Std. Deviation	Min.	Max.
NULL	Object Antecedent	48	55	188	-358	653
SUBJECT	Subject Antecedent	48	-22	264	-619	1263
OVERT	Object Antecedent	48	-87	253	-847	508
SUBJECT	Subject Antecedent	48	84	356	-347	2064

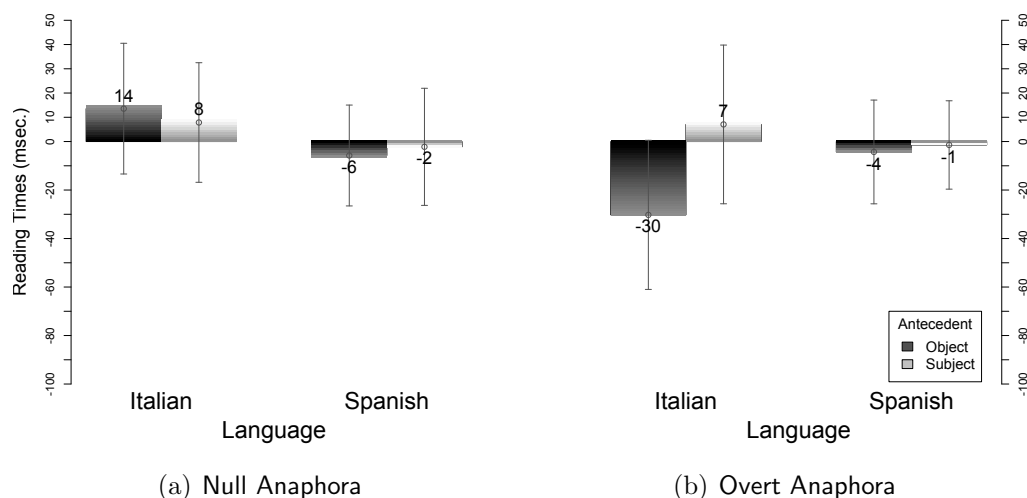


Figure 6.6: Reading times for the region following the VP.

Table 6.14: Descriptive statistics: adjusted reading times for the wrap up region (Spanish).

		N	Mean	Std. Deviation	Min.	Max.
NULL	Object Antecedent	48	-29	144	-337	325
SUBJECT	Subject Antecedent	48	-26	160	-416	449
OVERT	Object Antecedent	48	-33	151	-471	349
SUBJECT	Subject Antecedent	48	11	129	-261	571

The analysis of this region revealed no overall main effects but a significant interaction of *Anaphora* by *Antecedent* ( $F_1(1, 94) = 7.89$ ;  $p = .006$ ;  $F_2(1, 158) = 14.59$ ;  $p < .000$ ); and a significant three-way interaction between *Language*, *Anaphora* and *Antecedent* ( $F_1(1, 94) = 4.02$ ;  $p = .047$ ;  $F_2(1, 158) = 7.43$ ;  $p = .007$ ).

Analysing separately the two anaphors, the NS condition does not yield any significant results. The OPS condition revealed a significant main effect for *Antecedent* ( $F_1(1, 94) = 8.09$ ;  $p = .005$ ;  $F_2(1, 158) = 12.77$ ;  $p < .000$ ), with significantly faster RTs for object antecedents (-60 msec. vs. 48 msec.) and an interaction between *Antecedent* and *Language* that is fully significant by items and marginally significant by subjects ( $F_1(1, 94) = 2.8$ ;  $p = .097$ ;  $F_2(1, 158) =$



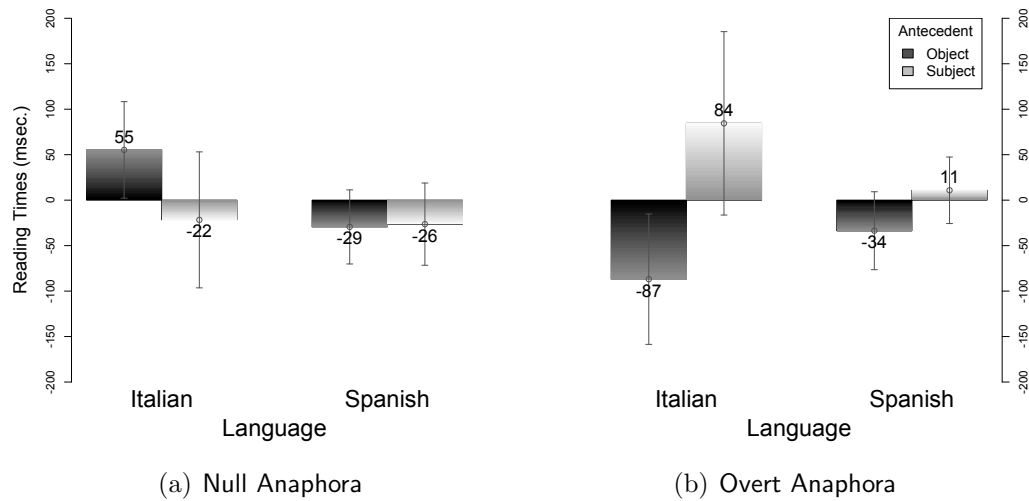


Figure 6.7: Reading times for the wrap up region.

4.41;  $p = .037$ ). Further analyses of the OPS condition confirm that in Italian there is a main effect for *Antecedent* ( $F_1(1, 47) = 5.97$ ;  $p = .018$ ;  $F_2(1, 79) = 10.94$ ;  $p = .001$ ) with faster RTs for object antecedents, but no significant differences in Spanish. On the other hand, there are no significant differences between the two languages when OPS sentences with subject and object antecedents are compared across languages.

As for the two levels of the *Antecedent* variable, subject antecedents show a main effect for *Anaphora* marginally significant by subjects and fully significant by items ( $F_1(1, 94) = 3.43$ ;  $p = .067$ ;  $F_2(1, 158) = 6.05$ ;  $p = .015$ ) suggesting that sentences with subject antecedents are wrapped up significantly faster in both languages when the anaphor is a NS (-24 msec. vs. 48 msec.). In the Object condition, the main effect for *Anaphora* is fully significant ( $F_1(1, 94) = 6.09$ ;  $p = .015$ ;  $F_2(1, 158) = 7.77$ ;  $p = .006$ ), with faster RTs for OPSs (-60 msec. vs. 13 msec.), and an interaction between *Anaphora* and *Language* is also fully significant ( $F_1(1, 94) = 5.42$ ;  $p = .022$ ;  $F_2(1, 158) = 6.9$ ;  $p = .009$ ). In Italian Object antecedent sentences are wrapped up significantly faster in the OPS condition ( $F_1(1, 47) = 7.51$ ;  $p = .008$ ;  $F_2(1, 79) = 9.57$ ;  $p = .002$ ); in Spanish there is no effect of *Anaphora* with object antecedents. As for the cross-linguistic differences,

object antecedent sentences are wrapped up with no significant differences across languages when the anaphora is an OPS, but when the anaphora is null, they are wrapped up significantly faster in Spanish than in Italian ( $F_1(1, 94) = 6.15$ ;  $p = .015$ ;  $F_2(1, 158) = 3.31$ ;  $p = .071$ ).

Finally, analysing the two languages separately, in Italian we find a significant interaction *Anaphora* by *Antecedent*, ( $F_1(1, 47) = 6.66$ ;  $p = .013$ ;  $F_2(1, 79) = 15.08$ ;  $p < .000$ ). We have seen above that in Italian, OPS sentences are wrapped up significantly faster when they have an object antecedent, while no significant difference is found in the wrap up times of NS sentences with subject or object antecedents. Sentences with subject antecedents are wrapped up faster when they are retrieved by a NS, although this effect is only significant by items ( $F_2(1, 79) = 15.08$ ;  $p = .031$ ), object antecedent sentences are wrapped up significantly faster when they are retrieved by an OPS ( $F_1(1, 47) = 7.51$ ;  $p = .008$ ;  $F_2(1, 79) = 9.57$ ;  $p = .002$ ). In Spanish there are no main effects and no interactions.

#### 6.3.7.4 Comprehension Questions

Figure 6.8 shows the mean reaction times with 95% confidence intervals for the comprehension questions to sentences with null and overt subjects and Table 6.15 shows the percentages of wrong answers in each condition.

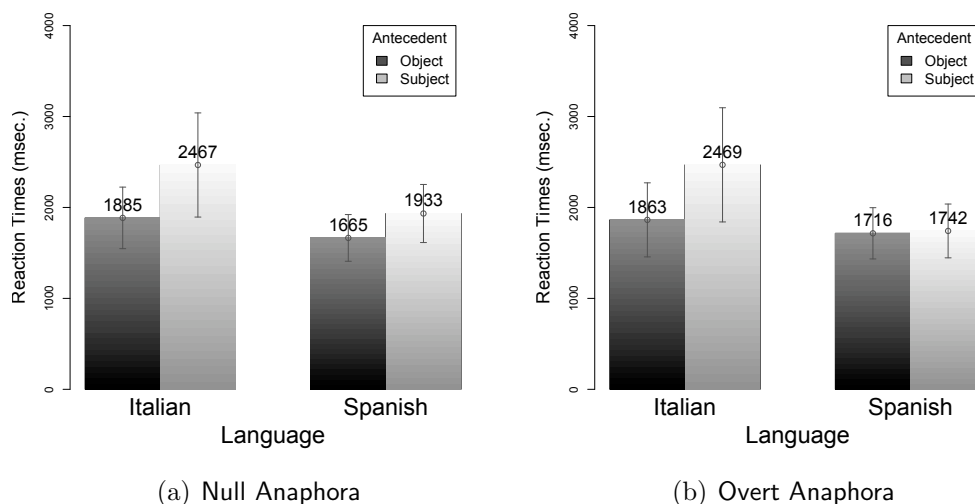


Figure 6.8: Reaction times to the comprehension questions.

The charts show that participants tend to answer faster to questions following sentences with an object antecedent. An ANOVA confirms the presence of a significant main effect for *Antecedent* ( $F_1(1, 94) = 9.69$ ;  $p = .002$ ;  $F_2(1, 62) = 7.37$ ;  $p = .008$ ; 1782 msec. vs. 2153 msec.). Also the *Language* variable gives rise to a main effect that is only marginally significant by subjects but fully significant by items ( $F_1(1, 94) = 3.09$ ;  $p = .082$ ;  $F_2(1, 62) = 9.94$ ;  $p = .002$ ), with faster reaction times for Spanish speakers (1764 msec. vs. 2171 msec.).

Table 6.15: Percentages of wrong answers to the comprehension questions.

		Italian (%)	Spanish (%)
NULL	Object Antecedent	17	17
SUBJECT	Subject Antecedent	28	20
OVERT	Object Antecedent	22	18
SUBJECT	Subject Antecedent	25	25

The accuracy of the answers was analysed using logistic regression. A model was fitted to the data including three predictors: *Anaphora*, *Antecedent* and *Language*. An answer was coded as correct if the antecedent chosen by the participant was the most plausible in the given sentence. In the next paragraph for each significant effect I will report the coefficient  $\beta$ , its level of significance and the odds ratio ( $e^\beta$ ) between the pair of levels that are being compared.

The model shows a main effect for *Antecedent* ( $\beta = -0.645$ ;  $p = 0.01$ ,  $e^\beta = 0.52$ ) indicating that the probability of a correct answer decreases when subject reference is maintained across clauses. The model does not reveal any other main effects or interactions. The likelihood ratio test indicates that the model is overall explanatory ( $\chi^2(7) = 15.94$ ;  $p = .025$ ), although the residual deviance is larger than expected ( $\chi^2(372) = 718.78$   $p < .000$ ) indicating a lack of goodness of fit.

### 6.3.7.5 Discussion

The analyses in this section were performed to test hypotheses (1b) and (2), that with ambiguous morphology OPSs should be preferred over NSs, irrespective of the antecedent, yielding overall faster reading times, and that the NS should keep

its bias with an ambiguous verb morphology, yielding a main effect for *Antecedent* in the NS condition.

As for the first prediction, it was not borne out by the data, which showed an early advantage for OPS anaphors in the VP region, an effect that had already been found in Experiment 2, but the effect was short-lived. The analysis of the following regions revealed that sentences with a subject antecedent are still wrapped up significantly faster in NS anaphor sentences, although this effect was fully significant only by items and was not significant in Spanish. No main effect for *Anaphora* was found in the reaction times to the comprehension questions or in the accuracy of the answers.

A more unexpected finding was that the NS bias appears to be weakened in this experiment compared to the previous ones, as shown by the fact that the NS condition does not display any significant antecedent preference at any point in the clause. In Spanish, null and overt anaphoric subjects seem to have become roughly interchangeable in terms of processing costs. In Italian by contrast, the two expressions do not seem to be exactly interchangeable; in fact, when subject reference is maintained across clauses, NS sentences tend to be wrapped up faster than OPS sentences, and when there is a shift in subject reference, OPS sentences are wrapped up significantly faster than NS sentences. But, unlike what was found in Experiment 1 and 2, this effect here appears to be due almost exclusively to the presence of a strong processing bias on the OPS, while the NS remains relatively insensitive to changes in the position of the antecedent.

We might be tempted to interpret the weakening of antecedent bias on the part of the NS, together with the magnification of the OPS bias, as supporting the hypothesis that the relative ambiguity of the verbal morphology may indeed play a role in the processing of such expressions. However, as pointed out in section 6.3.6.5, another explanation may be that the present experiment, apart from manipulating the ambiguity of the verbal morphology, also manipulated the relative order main-subordinate and the coherence relation between clauses. Experiment 4, presented in the last part of this chapter, was designed to control for these variables.

But before we move on to experiment 4, the analysis of the remaining conditions of Experiment 3 may help us rule out completely the hypothesis that the differences between the results of Experiment 1 and 2 and the present results may be due to the ambiguity of the verbal morphology. The next analysis will compare the resolution of OPSs in sentences in the Indicative Present (unambiguous both in Italian and Spanish), Subjunctive Present (ambiguous both in Italian and in Spanish), and Indicative Imperfect, which is ambiguous in Spanish but unambiguous in Italian.

### 6.3.8 Indicative Imperfect

In this section I compare the data from conditions 1., 2., 3. and 4. to conditions 7. and 8. Originally conditions 7. and 8. were introduced to check that any differences arising between the Indicative and the Subjunctive were actually due to the relative ambiguity of the verbal morphology, rather than to processing differences between the two modes. The analyses in section 6.3.6 did not reveal any effect for the *Tense* variable, therefore sentences with Indicative Imperfect verbs should not produce any significant differences in either language.

The data were submitted to a series of 2 x 3 x 2 ANOVAs with *Antecedent* (Subject vs. Object) and *Tense* (Subjunctive Present vs. Indicative Present vs. Indicative Imperfect) as within subject factors and *Language* (Spanish vs. Italian) as a between subjects factor.

#### 6.3.8.1 VP region

Table 6.16 and 6.17 show the descriptive statistics for the VP region, Figure 6.9 shows the mean adjusted RTs for each condition with the relative 95% confidence intervals.

The ANOVA for this region revealed a significant main effect for *Antecedent* ( $F_1(1, 94) = 8.54; p = .004; F_2(1, 158) = 5.98; p = .015$ ), with faster RTs for sentences with an object antecedent (-17 msec. vs. 4 msec.), confirming the results of section 6.3.6.1. The analysis also revealed a marginally significant main effect

Table 6.16: Descriptive statistics: adjusted RTs for the VP region (Italian).

		N	Mean	Std. Deviation	Min.	Max.
INDICATIVE IMPERFECT	Object Antecedent	48	-31	91	-374	190
INDICATIVE PRESENT	Subject Antecedent	48	-14	72	-160	137
INDICATIVE PRESENT	Object Antecedent	48	-7	94	-185	314
SUBJUNCTIVE PRESENT	Subject Antecedent	48	21	105	-163	418
SUBJUNCTIVE PRESENT	Object Antecedent	48	2	96	-327	225
SUBJUNCTIVE PRESENT	Subject Antecedent	48	16	77	-212	188

Table 6.17: Descriptive statistics: adjusted RTs for the VP region (Spanish).

		N	Mean	Std. Deviation	Min.	Max.
INDICATIVE IMPERFECT	Object Antecedent	48	-31	119	-492	292
INDICATIVE PRESENT	Subject Antecedent	48	-11	109	-252	283
INDICATIVE PRESENT	Object Antecedent	48	-19	76	-270	126
SUBJUNCTIVE PRESENT	Subject Antecedent	48	9	85	-183	231
SUBJUNCTIVE PRESENT	Object Antecedent	48	-18	74	-181	127
SUBJUNCTIVE PRESENT	Subject Antecedent	48	16	77	-212	188

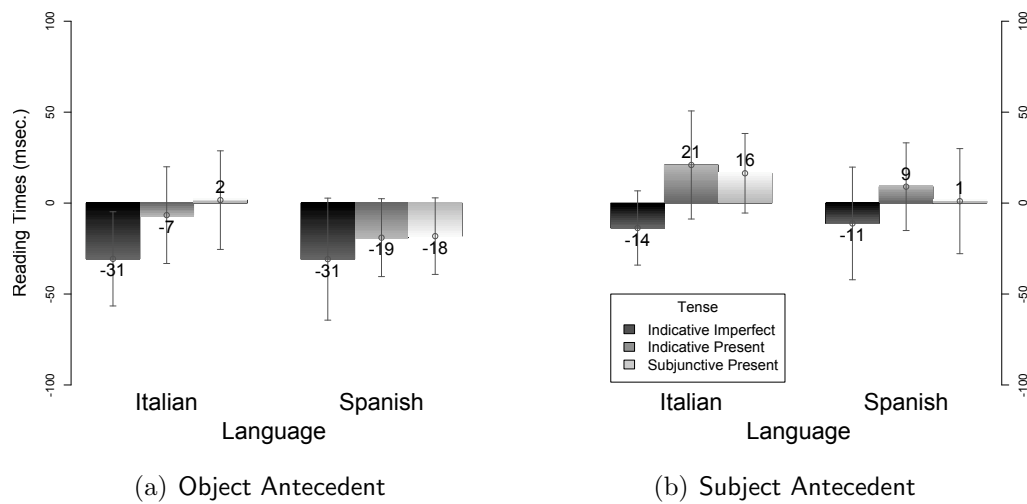


Figure 6.9: Adjusted RTs for the VP region.

for *Tense* ( $F_1(2, 188) = 2.85; p = .06; F_2(2, 316) = 2.53; p = .081$ ), which seems to be due to the fact that Imperfect sentences are read marginally faster than Indicative Present and Subjunctive ones (-22 msec. vs. 1 msec. vs. 0 msec.).

### 6.3.8.2 VP+1 region

Tables 6.18 and 6.19 show the descriptive statistics for the region following the VP, while Figure 6.10 shows the mean adjusted RTs for each condition with the relative 95% confidence intervals.

Table 6.18: Descriptive statistics: adjusted RTs for the region following the VP (Italian).

		N	Mean	Std. Deviation	Min.	Max.
INDICATIVE	Object Antecedent	48	-18	71	-185	248
IMPERFECT	Subject Antecedent	48	15	108	-306	257
INDICATIVE	Object Antecedent	48	-36	95	-188	420
PRESENT	Subject Antecedent	48	42	136	-354	541
SUBJUNCTIVE	Object Antecedent	48	-30	109	-374	211
PRESENT	Subject Antecedent	48	7	116	-271	389

Table 6.19: Descriptive statistics: adjusted RTs for the region following the VP (Spanish).

		N	Mean	Std. Deviation	Min.	Max.
INDICATIVE	Object Antecedent	48	-1	80	-246	235
IMPERFECT	Subject Antecedent	48	6	87	-184	227
INDICATIVE	Object Antecedent	48	-7	83	-147	305
PRESENT	Subject Antecedent	48	16	71	-118	206
SUBJUNCTIVE	Object Antecedent	48	-4	76	-205	297
PRESENT	Subject Antecedent	48	-1	64	-204	152

Also this region confirms the results presented in section 6.3.6.2 and shows a significant main effect for *Antecedent* ( $F_1(1, 94) = 16.7$ ;  $p < .000$ ;  $F_2(1, 158) = 10.49$ ;  $p = .001$ ), with faster RTs for object antecedents (-16 msec. vs. 14 msec.); and a significant interaction *Antecedent* by *Language* ( $F_1(1, 94) = 6.55$ ;  $p = .012$ ;  $F_2(1, 158) = 4.12$ ;  $p = .044$ ).

In the Object antecedent condition there is a main effect for *Language*, only significant in the analysis by subjects ( $F_1(1, 94) = 7.73$ ;  $p < .007$ ;  $F_2(1, 158) = 2.28$ ;  $p = .133$ ), indicating that these sentences tend to be read faster in Italian

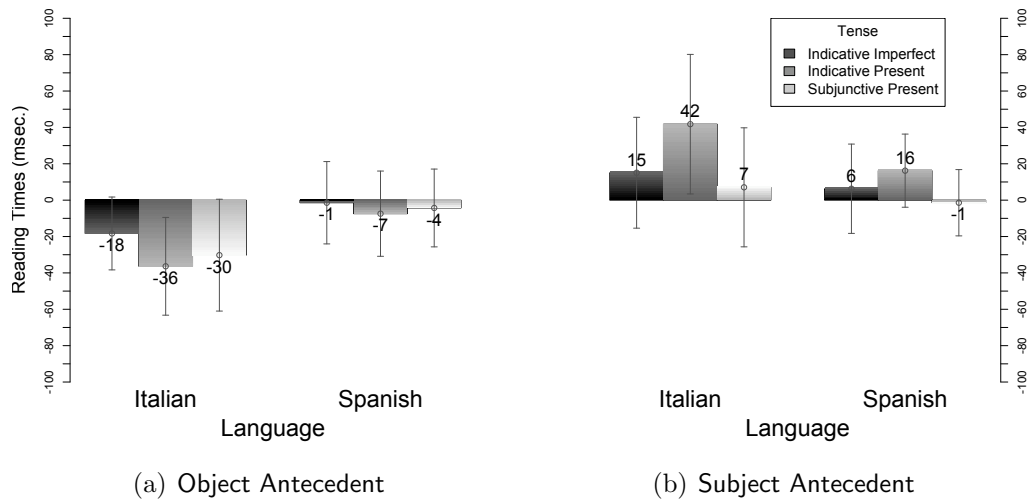


Figure 6.10: Adjusted RTs for the region following the VP.

than in Spanish (-28 msec. vs. -4 msec.); no significant effects are found in the Subject antecedent condition.

If we analyse the two languages separately, the results show a significant effect of *Antecedent* in Italian ( $F_1(1, 47) = 16.1$ ;  $p < .000$ ;  $F_2(1, 79) = 11.32$ ;  $p = .001$ ) with faster RTs for Object antecedents (-28 msec. vs. 21), whereas there are no significant effects or interactions in Spanish.

No significant effects or interactions were found involving the *Tense* variable.

### 6.3.8.3 Wrap up region

Table 6.20 and 6.21 show the descriptive statistics for the final wrap up region and Figure 6.11 shows the means of the adjusted RTs with the 95% confidence intervals for each condition.

Like in section 6.3.6.3, the analysis of this region revealed a main effect for *Antecedent* ( $F_1(1, 94) = 15.55$ ;  $p < .000$ ;  $F_2(1, 158) = 23.08$ ;  $p < .000$ ) with



Table 6.20: Descriptive statistics: adjusted RTs for the wrap up region (Italian).

		N	Mean	Std. Deviation	Min.	Max.
INDICATIVE	Object Antecedent	48	-58	253	-719	841
IMPERFECT	Subject Antecedent	48	71	191	-248	636
INDICATIVE	Object Antecedent	48	-112	238	-829	448
PRESENT	Subject Antecedent	48	68	192	-151	682
SUBJUNCTIVE	Object Antecedent	48	-87	253	-847	508
PRESENT	Subject Antecedent	48	84	356	-347	2064

Table 6.21: Descriptive statistics: adjusted RTs for the wrap up region (Spanish).

		N	Mean	Std. Deviation	Min.	Max.
INDICATIVE	Object Antecedent	48	10	155	-301	528
IMPERFECT	Subject Antecedent	48	13	166	-296	640
INDICATIVE	Object Antecedent	48	-7	166	-523	525
PRESENT	Subject Antecedent	48	63	173	-302	752
SUBJUNCTIVE	Object Antecedent	48	-34	151	-471	349
PRESENT	Subject Antecedent	48	11	129	-261	571

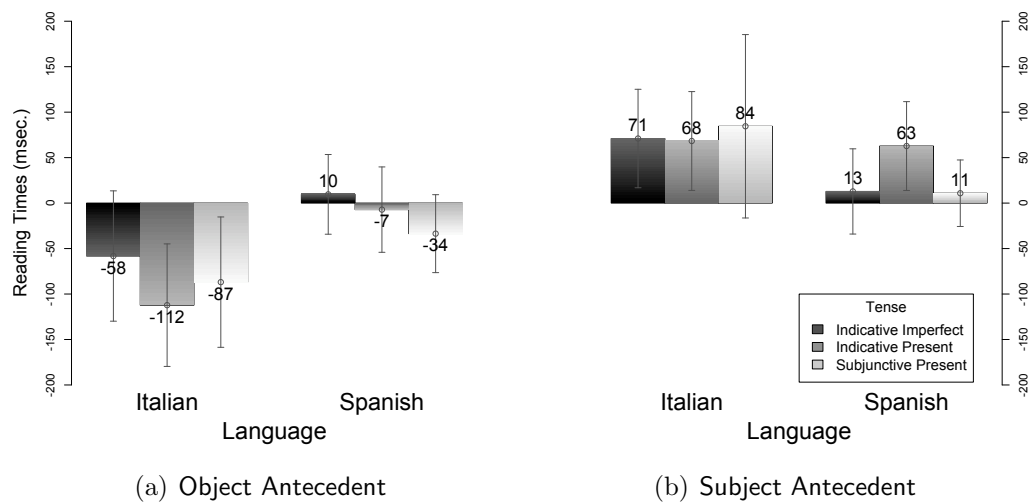


Figure 6.11: Adjusted RTs for the region following the final wrap up region.

sentences wrapped up significantly faster if the antecedent is in the object position (-48 msec. vs. 52 msec.), and a fully significant interaction *Antecedent* by *Language* ( $F_1(1, 94) = 5.73$ ;  $p = .018$ ;  $F_2(1, 158) = 8.45$ ;  $p = .004$ ).

The interaction confirms that, in the Object antecedent condition, sentences are wrapped up significantly faster in Italian than in Spanish ( $F_1(1, 94) = 8.25$ ;  $p = .005$ ;  $F_2(1, 158) = 5.66$ ;  $p = .018$ ; -86 msec. vs. -10 msec.), whereas no significant differences appear between languages in the Subject condition.

If we look at the two languages separately, we find that there is a highly significant effect for *Antecedent* in Italian ( $F_1(1, 47) = 13.68$ ;  $p < .000$ ;  $F_2(1, 79) = 20.68$ ;  $p < .000$ ) with faster RTs in the Object antecedent condition (-86 msec. vs. 75 msec.), whereas in Spanish this effect is marginally significant and only in the analysis by items ( $F_1(1, 47) = 2.25$ ;  $p = .14$ ;  $F_2(1, 79) = 3.20$ ;  $p < .077$ ; -10 msec. vs. 29 msec.).

*Tense* does not have any significant effect in any analysis and does not interact with any variable.

#### 6.3.8.4 Comprehension Questions

Figure 6.12 shows the reaction times to the comprehension questions with the 95% confidence intervals, Table 6.22 shows the percentages of errors for each condition.

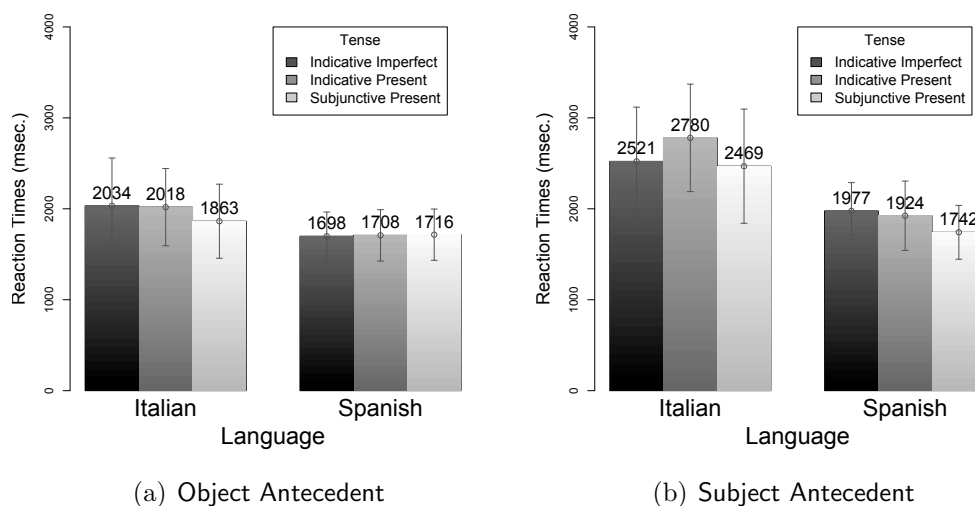


Figure 6.12: Reaction times to the comprehension questions.

Like in section 6.3.6.4, the analysis of the reaction times to the questions revealed a significant main effect for *Language* ( $F_1(1, 94) = 4.28$ ;  $p = .041$ ;  $F_2(1,$

62) = 18.68;  $p < .000$ ), with faster RTs in Spanish (1794 msec. vs. 2281 msec.), and a significant main effect for *Antecedent* ( $F_1(1, 94) = 12.31$ ;  $p < .000$ ;  $F_2(1, 62) = 10.68$ ;  $p = .002$ ), with faster RTs in the Object antecedent condition (1840 msec. vs. 2235 msec.), while the interaction between *Language* and *Antecedent* is now only marginally significant both by subjects and by items ( $F_1(1, 94) = 3.88$ ;  $p = .052$ ;  $F_2(1, 62) = 3.37$ ;  $p = .071$ ).

If we analyse the two languages separately, we find a significant main effect for *Antecedent* in Italian ( $F_1(1, 47) = 10.6$ ;  $p = .002$ ;  $F_2(1, 31) = 7.63$ ;  $p = .009$ ), with faster RTs after object antecedent sentences (1972 msec. vs. 2590 msec.), but no significant effects in Spanish.

Further analyses of the interaction reveal that questions following sentences with subject antecedents are answered significantly faster in Spanish ( $F_1(1, 94) = 5.68$ ;  $p = .019$ ;  $F_2(1, 62) = 19.03$ ;  $p < .000$ ; 1880 msec. vs. 2235 msec.), while questions following sentences with object antecedents show no significant differences across languages.

No main effects or interactions were found involving the *Tense* variable.

Table 6.22: Percentages of wrong answers to the comprehension questions.

		Italian (%)	Spanish (%)
INDICATIVE	Object Antecedent	22	16
IMPERFECT	Subject Antecedent	33	33
INDICATIVE	Object Antecedent	19	13
PRESENT	Subject Antecedent	27	32
SUBJUNCTIVE	Object Antecedent	22	18
PRESENT	Subject Antecedent	25	25

The accuracy of the answers was analysed using logistic regression, the model fitted included the predictors: *Tense*, *Antecedent* and *Language*. An answer was coded as correct when the chosen antecedent was compatible with the most plausible interpretation for the sentence.

The model only gave one significant coefficient for the *Antecedent* predictor ( $\beta = -0.56$ ;  $p = 0.17$ ,  $e^\beta = 0.57$ ), indicating that the chance of a correct answer

decreases significantly in the Subject condition. The model overall is explanatory ( $\chi^2(11) = 54.4; p < .000$ ), although the residual deviance is larger than expected ( $\chi^2(566) = 1127.1; p < .000$ ) indicating a lack of goodness of fit.

### 6.3.8.5 Discussion

The analyses in this section produced largely similar results to those in section 6.3.6, showing that, apart from a short-lived and only marginally significant effect of *Tense* at the VP, the Indicative Imperfect behaves like the other verbal tenses both in Italian and in Spanish.

The only potentially interesting difference between the results in section 6.3.6 and the present ones concerns the wrap up region in Spanish, where the effect of *Antecedent* is no longer significant. If we look at the charts in Figure 6.11 we can see that, whereas in the Indicative and Subjunctive Present conditions Spanish sentences tend to be wrapped up faster if they have an object antecedent, in the Imperfect condition, the difference tends to fade. This appears to confirm that the OPS bias in Spanish is unreliable and dependent on contextual factors, among which the verb tense may possibly play a role, although the present experiment does not provide any reliable evidence for this claim, but only reveal some tendencies. Furthermore, these tendencies do not support the Morphological Ambiguity hypothesis as it has been formulated, because the prediction is that tenses with the same relative ambiguity (i.e. Subjunctive Present and Indicative Imperfect) should pattern alike and differently from non-ambiguous tenses, which does not appear to be the case.

### 6.3.9 General Discussion

The present experiment did not provide support for the Morphological Ambiguity hypothesis, since none of the predictions produced by the hypothesis were borne out by the data.

The analyses confirmed overall the findings of Experiment 1 and 2, highlighting the presence of cross-linguistic differences limited to the processing of overt pronoun anaphors in Italian and Spanish. However, they also produced some unexpected results, revealing a stronger OPS bias than the previous experiments,

with a more dramatic difference between the Subject and Object Antecedent conditions, as well as a weakening of the NS bias.

As I mentioned above, these different results do not appear to be due to the relative ambiguity of the verbal morphology, and cannot be easily explained in terms of ambiguity resolution. It seems more plausible that they may be due to the fact that this experiment introduced two variations, compared to the previous ones: the relative order between main and subordinate clause was reversed, and the coherence relation between the clauses was changed.

As for the time-course of the anaphora resolution, the present experiment confirmed the presence of some early effects for *Anaphora* and, to a lesser extent, *Antecedent*, already at the VP level, but it also confirmed that any effects involving the *Language* variable tend to emerge late, at the final wrap up region and at the comprehension questions.

### 6.3.9.1 The main–subordinate order

Intuitively, we can tell that the understanding of clauses with different main-subordinate orders may involve different processes. According to [Salvi & Vanelli \(2004\)](#), when a subordinate clause precedes its main clause, it acts as a frame to the action in the main clause, whereas when the order is reversed, upon completion of the main clause, the comprehender can consider the sentence concluded, and the subordinate can be interpreted more as comment added to it. The result is that there seems to be more *distance* between two clauses in the main-subordinate order.

These intuitions can be confirmed by empirical data. [Garnham et al. \(1998\)](#) looked at the acceptability of sentences containing elliptical verb phrases; in order for these phrases to be interpreted the comprehender needs access to the surface form of the antecedent verb phrase. The researchers found that the acceptability judgements were considerably lower in main–subordinate sentences, with the antecedent appearing in the main clause, and that the elliptical clauses were interpreted more quickly when the antecedent appeared in a subordinate clause. The results are interpreted as an indication that the surface form of the

antecedent phrase is more accessible when it appears in a subordinate clause and this is due to the fact that, for a subordinate clause to be fully interpreted, its meaning needs to be integrated to the main clause, so its superficial form may have to be retained until the main clause is processed, whereas a main clause can be fully interpreted without waiting for a subordinate.

It seems plausible that also anaphora resolution may be affected by the relative order of main and subordinate clause. In section 4.4.7, I explained that Carminati (2002) formulated and tested her Position of Antecedent hypothesis on stimuli with the subordinate–main order, and explicitly predicted processing differences for the resolution of anaphoric dependencies in different structures or across sentence boundaries. However, in one of her experiments, a questionnaire study asking for the preferred interpretation of globally ambiguous sentences, she used the main–subordinate order. The study included temporal and *if*-clauses. Carminati assumed that the temporal clauses are attached to the VP, whereas the *if*-clauses are attached higher, to the IP node. She predicted that, with null subjects, we may find relatively more preferences for object antecedent interpretations in the temporal clauses than in *if*-clauses, due to the fact that the anaphor and the antecedent are both within the same phrase, the VP node and, following the *Late Closure* principle (Frazier & Fodor 1978), comprehenders may prefer to attach incoming material to the phrase that they are currently parsing. As for the overt pronoun, she predicts that it should not be affected by the attachment site of the subordinate clause. In other words Carminati predicts a weakening of the null subject bias, and no changes in the overt subject bias in the main–subordinate order, when the subordinate is attached to the VP.

Carminati's results supported the prediction at least in part, since they revealed a main effect for the type of clause (fully significant only in the analysis by subjects), with more object antecedents chosen with temporal clauses, and an interaction only significant in the analysis by subjects showing that the effect is due to fact that null subjects receive significantly more object antecedent readings in temporal clauses. The results of the experiment presented in this chapter, showing a *weakening* of the null subject bias, may be interpreted as

confirming Carminati's results, that in the main-subordinate order, with VP-attached subordinate clauses, an antecedent in the object position may become more accessible to the null subject. On the other hand, Carminati's task was different from the present experiment, and a possible problem with her results is that she used analysis of variance to analyse categorical data (choices of preferred interpretation).

### 6.3.9.2 Coherence relations

The other variable that had to be manipulated in the present experiment was the coherence relation between the clauses: Experiment 1 and 2 included temporal and reason clauses, while here the subordinates were all concessive, to allow for the use of the Subjunctive.

Stevenson et al. (1994, 2000) suggested that pronoun antecedent preferences can be affected by the choice of connectives between sentences. For example Stevenson et al. (1994) found that pronoun resolution biases based on the thematic roles of the antecedents and explained by the fact that comprehenders tend to focus their attention on the consequences of an event, could be moderated or nullified by changing the coherence relations between clauses. So, a preference for a goal antecedent in a goal-source sentence, for a patient antecedent in an agent-patient sentence, or for the experiencer in an experiencer-stimulus sentence, could be encouraged through the use of the connective *so*, or mitigated and cancelled by the use of the connective *because*, which induces participants to expect that the following discourse will focus on the causes of the state of affairs described in the preceding clause.

The subordination relation used in Experiment 3 creates a particular type of cause-effect relation between the two clauses, called *denial of preventer* by Kehler (2002), a coherence relation that requires the establishment of an implicational relationship between the propositions established from the two clauses. Such relationship, which is not required with temporal subordinates, may affect the comprehender's expectations about the entity that is going to be mentioned next (see Kehler et al. 2008).

The next experiment was designed to disentangle possible effects due to the manipulation of the main–subordinate order and the type of coherence relation between the two clauses. The experiment included only null anaphoric subjects with two possible antecedents (the preceding subject or the preceding object) disambiguated by the semantic information provided by the verb following the null subject, like in Experiment 2 and 3. The order of the clauses could be either main–subordinate or subordinate–main; in half of the items the subordinate clause was a temporal clause and in the other half it was a concessive clause. I expect to find an effect for either or both the relative order of main and subordinate clause and the coherence relation resulting in a reduction of the NS bias.

## **6.4 Experiment 4**

### **6.4.1 Participants**

Two groups of people took part in the experiment, one group of monolingual native speakers of Italian ( $n = 32$ ) and one group of monolingual native speakers of Spanish ( $n = 32$ ); participants were recruited among undergraduate and postgraduate students recently arrived at the university of Edinburgh, and people attending English language programmes for adults in Edinburgh. People had only been living in Scotland, or in an English speaking country, for a few months when they took part in the experiment, so the likelihood of attrition with English was minimal. In order to control for dialectal variation, Spanish speakers were asked about their origin and only people from Spain were included in the study.

### **6.4.2 Materials and Design**

The experiment included 48 experimental sentences and 44 filler sentences. Each experimental sentence included two clauses, one main and one subordinate. The first clause introduced two antecedents of the same gender, one in the preverbal subject position and the other in the object position. The second clause included a null anaphoric subject which was temporarily ambiguous, in the sense that it could refer to either the subject or the object of the preceding clause. The verb following the null subject provided the semantic information allowing for the



disambiguation of the antecedent, making only one of the antecedents plausible in the context. Three variables were manipulated: the *Antecedent* of the anaphoric subject, which could be the previous preverbal subject or postverbal object; the relative *Order* of the clauses, which could be main–subordinate or subordinate–main; and the *Coherence Relation* between clauses, so in half of the experimental items the subordinate clause was a temporal clause, and in the other half it was a concessive clause. The examples below show two Italian and two Spanish items in each experimental condition. The full list of the experimental items is provided in Appendix D.

- (6.4) a. Antonio mandava cartoline a Bernardo, quando era in viaggio per motivi di lavoro.  
*‘Antonio used to send postcards to Bernardo, when he was travelling for work.’*
- b. Quando Antonio mandava cartoline a Bernardo, era in viaggio per motivi di lavoro.  
*‘When Antonio used to send postcards to Bernardo, he was travelling for work.’*
- c. Antonio riceveva cartoline da Bernardo, quando era in viaggio per motivi di lavoro.  
*‘Antonio used to receive postcards from Bernardo, when he was travelling for work.’*
- d. Quando Antonio riceveva cartoline da Bernardo, era in viaggio per motivi di lavoro.  
*‘When Antonio used to receive postcards from Bernardo, he was travelling for work.’*

- (6.5) a. Bernardo non è stato denunciato da Diego, anche se ha rubato parecchi soldi.  
*‘Bernardo has not been reported by Diego, even though he has stolen a lot of money.’*
- b. Anche se Bernardo non è stato denunciato da Diego, ha rubato parecchi soldi.  
*‘Even though Bernardo has not been reported by Diego, he has stolen a lot of money.’*
- c. Bernardo non vuole denunciare Diego, anche se ha rubato parecchi soldi.  
*‘Bernardo does not want to report Diego, even though he has stolen a lot of money.’*
- d. Anche se Bernardo non vuole denunciare Diego, ha rubato parecchi soldi.  
*‘Even though Bernardo does not want to report Diego, he has stolen a lot of money.’*
- (6.6) a. Antonio enviaba postales a Bernardo, cuando estaba de viaje por razones de trabajo.  
*‘Antonio used to send postcards to Bernardo, when he was travelling for work.’*
- b. Cuando Antonio enviaba postales a Bernardo, estaba de viaje por razones de trabajo.  
*‘When Antonio used to send postcards to Bernardo, he was travelling for work.’*
- c. Antonio recibía postales de Bernardo, cuando estaba de viaje por razones de trabajo.  
*‘Antonio used to receive postcards from Bernardo, when he was travelling for work.’*
- d. Cuando Antonio recibía postales de Bernardo, estaba de viaje por razones de trabajo.  
*‘When Antonio used to receive postcards from Bernardo, he was travelling for work.’*

- (6.7) a. Bernardo no ha sido denunciado por Diego, aunque ha robado mucho dinero.  
*‘Bernardo has not been reported by Diego, even though he has stolen a lot of money.’*
- b. Aunque Bernardo no ha sido denunciado por Diego, ha robado mucho dinero.  
*‘Even though Bernardo has not been reported by Diego, he has stolen a lot of money.’*
- c. Bernardo no quiere denunciar a Diego, aunque ha robado mucho dinero.  
*‘Bernardo does not want to report Diego, even though he has stolen a lot of money.’*
- d. Aunque Bernardo no quiere denunciar a Diego, ha robado mucho dinero.  
*‘Even though Bernardo does not want to report Diego, he has stolen a lot of money.’*

The materials were divided into four lists for each language and participants were randomly assigned to each list. Experimental sentences and fillers were randomised at every run of the experiment. Half of the experimental items were followed by a comprehension question, asking to identify the antecedent of the anaphoric subject, in order to encourage the participants to engage in the resolution of the anaphors.

### 6.4.3 Procedure

The experiment consisted in a phrase by phrase self-paced reading task. At the press of a button on a USB button-box a series of dashes appeared on the screen of a 13” MacBook, indicating where the sentence would be displayed. Subsequently, at each button press, a phrase appeared, in a moving window. The experiment was run using Psyscope X software (Cohen et al. 1993). All responses were collected through a USB button box. When the sentence was followed by a comprehension question, the two possible answers appeared, at the press of a button of a USB button box, at the bottom of the screen below the question, one

to the left and one to the right. Participants were instructed to chose the correct answer by pressing a button to the right or to the left of the button box. Each answer (subject or object antecedent) appeared half of the times on the left hand side of the screen and half of the times on the right hand side. The instructions were presented in written form, at the beginning of the experiment, in the native language of the participant (see Appendix D).

#### 6.4.4 Predictions

If either the relative order of main and subordinate clause, or the coherence relation between clauses affect the antecedent assignment properties of the null subject, in either language, I would expect to find significant interactions between the *Antecedent* variable and the *Clause Order* or the *Coherence Relation* variables respectively.

#### 6.4.5 Results

The regions analysed were those following the anaphoric null subject of the second clause, that is the VP region, the region after the VP (VP+1), and the final wrap up region. The forward slashes in the example below indicate the regions that were presented at each button press:

(6.8) Quando / Antonio / riceveva /cartoline /da Bernardo,  
 // era in viaggio / per motivi /di lavoro.  
           VP                  VP+1      WRAP UP

The data, adjusted for the length of the stimuli in order to take into account the systematic differences between the two languages (see section 4.4.7), were submitted to a series of 2 x 2 x 2 x 2 ANOVAs, with *Antecedent* (Subject or Object), *Clause Order* (Subordinate–Main or Main–Subordinate) and *Coherence Relation* (Temporal or Concessive) as within subjects factors and *Language* (Italian or Spanish) as a between subjects factor. In the analysis by items, only *Antecedent* and *Clause Order* were analysed within subjects, while *Coherence Relation* and *Language* were both analysed between subjects. The results for each region are presented below.

## 6.4.5.1 VP region

The bar charts in figure 6.13 and 6.14 show the mean reading times in each condition for the VP region with the respective 95% confidence intervals.

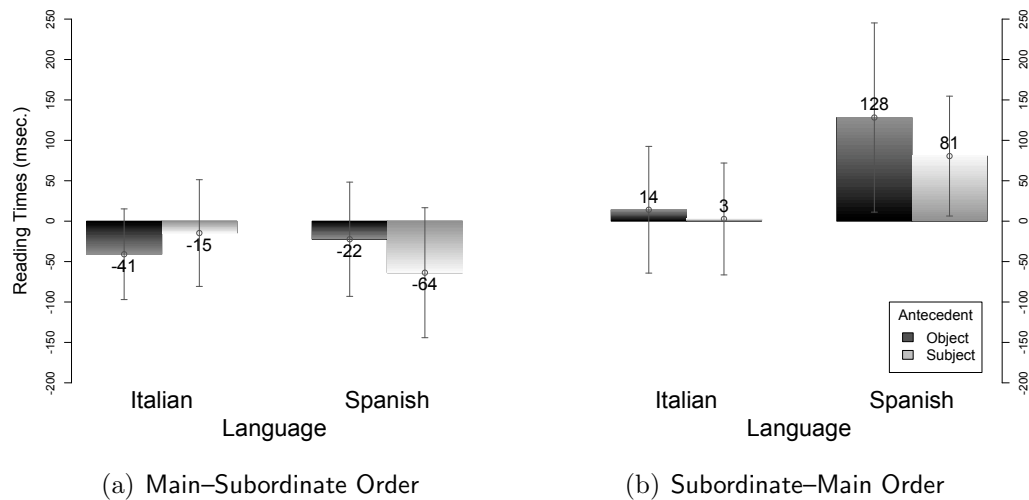


Figure 6.13: Reading times for the VP region of concessive clauses.

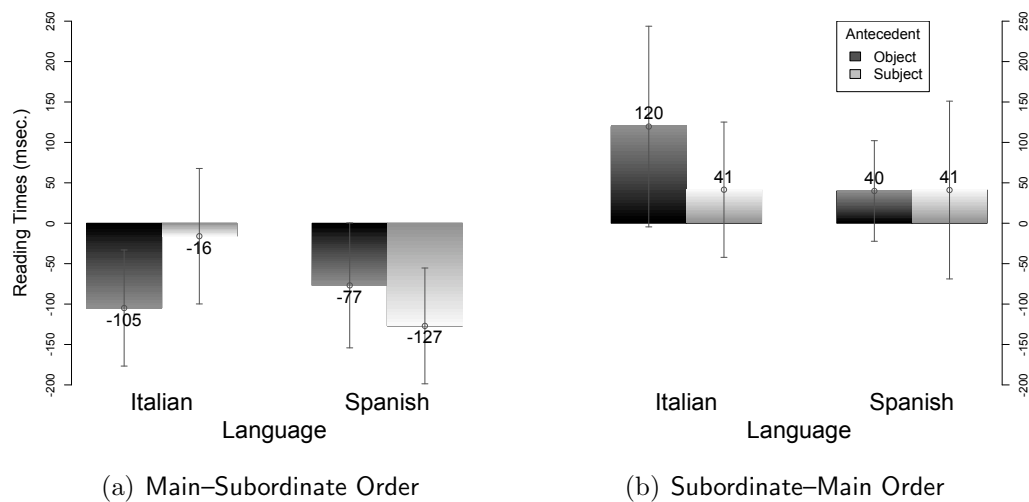


Figure 6.14: Reading times for the VP region of temporal clauses.

The analysis of the VP region revealed a significant effect of *Clause Order* ( $F_1(1, 62) = 18.29$ ;  $p < .000$ ;  $F_2(1, 92) = 29.08$ ;  $p < .000$ ), with significantly faster RTs in the main-subordinate order (-58 msec. vs. 58 msec.).

## 6.4.5.2 VP+1 region

The barcharts in figure 6.15 and 6.16 show the mean RTs and the 95% confidence intervals for the region following the VP.

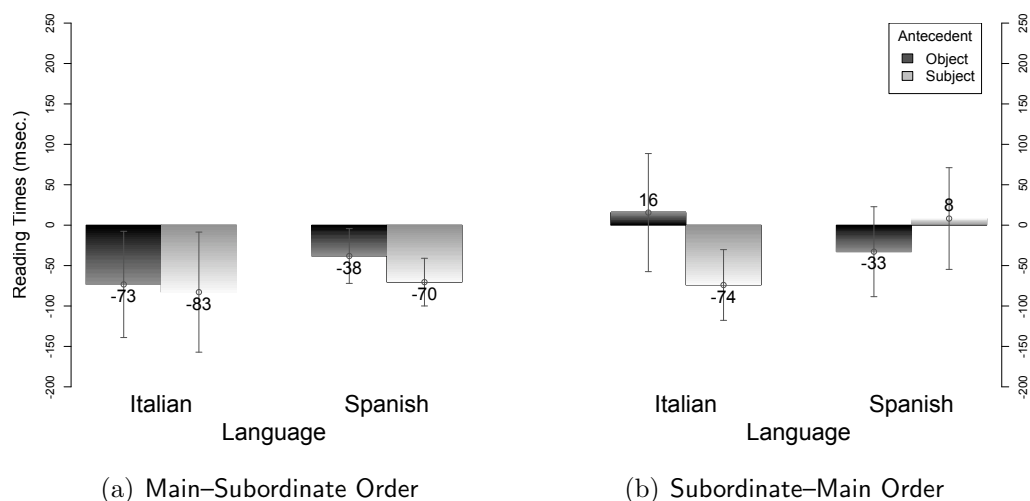


Figure 6.15: Reading times for the region following the VP of concessive clauses.

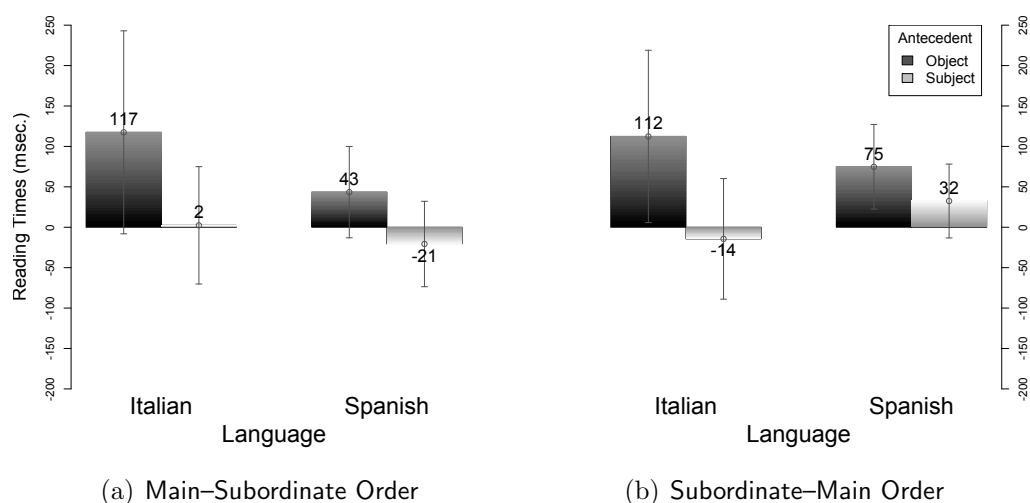


Figure 6.16: Reading times for the region following the VP of temporal clauses.

In the region following the VP, the ANOVA shows that the main effect for *Clause Order* that was significant in the previous region is now only marginally significant ( $F_1(1, 62) = 3.44$ ;  $p = .068$ ;  $F_2(1, 92) = 3.43$ ;  $p = .067$ ); on the

other hand we now find a fully significant main effect for *Antecedent* ( $F_1(1, 62) = 11.24$ ;  $p = .001$ ;  $F_2(1, 92) = 10.39$ ;  $p = .001$ ), with faster RTs for sentences with a subject antecedent (-27 msec. vs. 27 msec.), and a significant main effect for *Relation* ( $F_1(1, 62) = 23.89$ ;  $p < .000$ ;  $F_2(1, 92) = 14.8$ ;  $p < .000$ ), with faster RTs for concessive clauses (-43 msec. vs. 43 msec.).

Finally we find a marginally significant interaction between *Language* and *Antecedent* ( $F_1(1, 62) = 3.45$ ;  $p = .068$ ;  $F_2(1, 92) = 3.31$ ;  $p = .072$ ) and a marginally significant interaction between *Antecedent* and *Relation* ( $F_1(1, 62) = 3.1$ ;  $p = .08$ ;  $F_2(1, 92) = 3.58$ ;  $p = .061$ ).

### 6.4.5.3 Wrap up region

Figure 6.17 and 6.18 show the mean RTs for the final wrap up region and their respective 95% confidence intervals. A first visual inspection of the charts seems to confirm Carminati's (2002) predictions, that antecedent biases are stronger in the subordinate-main order because the object becomes a more accessible antecedent in the opposite order.

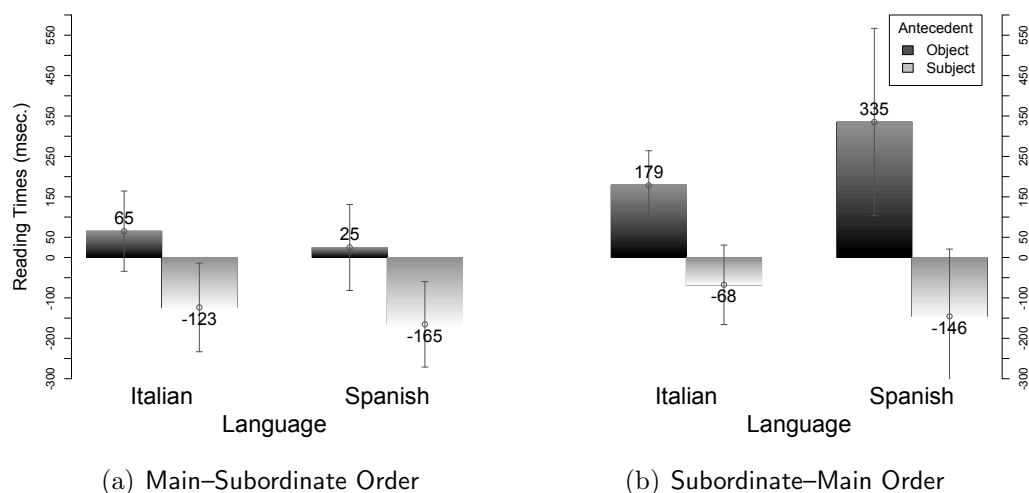


Figure 6.17: Reading times for the wrap up region of concessive clauses.

The analysis of the data confirms the presence of a fully significant main effect for *Antecedent* ( $F_1(1, 62) = 22.72$ ;  $p < .000$ ;  $F_2(1, 92) = 29.38$ ;  $p < .000$ ) with

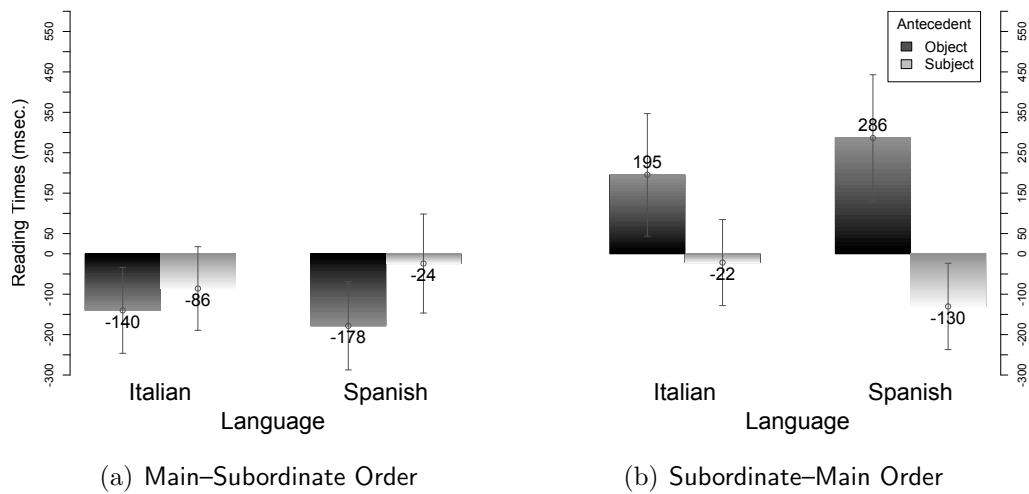


Figure 6.18: Reading times for the final wrap up region of temporal clauses.

faster reading times for sentences with a subject antecedent (-95 msec. vs. 96 msec.) and a significant main effect for *Clause Order* ( $F_1(1, 62) = 18.08$ ;  $p < .000$ ;  $F_2(1, 92) = 16.01$ ;  $p < .000$ ), with faster RTs for the main-subordinate order (-78 msec. vs. 79 msec.).

The analyses also revealed the following interactions: a fully significant interaction between *Antecedent* and *Order* ( $F_1(1, 62) = 14.05$ ;  $p < .000$ ;  $F_2(1, 92) = 17.18$ ;  $p < .000$ ), indicating that the antecedent preferences of the null subject vary depending on the relative order of main and subordinate clause; a fully significant interaction between *Antecedent* and *Relation* ( $F_1(1, 62) = 6.4$ ;  $p = .014$ ;  $F_2(1, 92) = 5.77$ ;  $p < .018$ ), confirming that the antecedent preferences of the NS are also influenced significantly by the type of coherence relation; a three-way interaction between *Antecedent*, *Clause Order* and *Coherence Relation* fully significant in the analysis by subjects and marginally significant in the analysis by items ( $F_1(1, 62) = 6.83$ ;  $p = .011$ ;  $F_2(1, 92) = 2.91$ ;  $p = .091$ ); and a marginally significant three-way interaction between *Antecedent*, *Language* and *Clause Order* ( $F_1(1, 62) = 2.81$ ;  $p = .098$ ;  $F_2(1, 92) = 3.42$ ;  $p = .068$ ).

In order to qualify the interactions I analysed separately the two *Clause Order* conditions. In the subordinate-main order, there is a significant main effect for



*Antecedent* ( $F_1(1, 62) = 24.51; p < .000; F_2(1, 92) = 36.66; p < .000$ ) with faster RTs for sentences with a subject antecedent (-91 msec. vs. 248 msec.). In the main-subordinate order, there is a significant interaction between *Antecedent* and *Coherence Relation* ( $F_1(1, 62) = 17.12; p < .000; F_2(1, 92) = 11.18; p = .001$ ), suggesting that the antecedent preferences of the NS are affected by coherence relations between clauses only in the main-subordinate order. More precisely, in main-subordinate temporal clauses, we find no main effect for *Antecedent* ( $F_1(1, 62) = 3.83; p = .055; F_2(1, 46) = 2.72; p < .106$ ), whereas in main-subordinate concessive clauses there is a main effect for *Antecedent* ( $F_1(1, 62) = 11.97; p < .000; F_2(1, 46) = 9.55; p = .003$ ) with significantly faster RTs for subject antecedents (-144 msec. vs. 45 msec.).

If we analyse separately the two *Coherence Relation* conditions, we find that with concessive clauses there is a significant main effect for *Antecedent* ( $F_1(1, 62) = 21.92; p < .000; F_2(1, 46) = 29.92; p < .000$ ), with significantly faster RTs for subject antecedents (-125 msec. vs. 150 msec.), a significant main effect for *Order* ( $F_1(1, 62) = 6.23; p = .015; F_2(1, 46) = 5.48; p = .023$ ), with significantly faster RTs in the main-subordinate order (-50 msec. vs. 75 msec.), and a marginally significant interaction between *Antecedent* and *Order* ( $F_1(1, 62) = 3.53; p = .065; F_2(1, 46) = 3.87; p = .055$ ). With temporal clauses, we find a smaller but yet significant main effect for *Antecedent* ( $F_1(1, 62) = 5.66; p = .02; F_2(1, 46) = 4.66; p = .036$ ), with faster RTs for subject antecedents (-65 msec. vs. 40 msec.), a main effect for *Order* ( $F_1(1, 62) = 14.42; p < .000; F_2(1, 46) = 10.8; p = .002$ ), with significantly faster RTs in the main-subordinate order (-107 msec. vs. 82 msec.), and a fully significant interaction between *Order* and *Antecedent* ( $F_1(1, 62) = 20.92; p < .000; F_2(1, 46) = 13.89; p < .000$ ). This last interaction suggests that with Temporal clauses the antecedent bias of the NS changes with the relative order of main and subordinate clause. As we have seen above, with temporal clauses the effect of *Antecedent* is not significant in the main-subordinate order, whereas it is highly significant in the subordinate-main order ( $F_1(1, 62) = 18.58; p < .000; F_2(1, 46) = 13.63; p < .000$ ), with faster RTs for subject antecedents (-76 msec. vs. 241 msec.).

Finally, there are no significant differences in the RTs for subject antecedent sentences across the different conditions, whereas with object antecedents we find significant main effects for both *Clause Order* ( $F_1(1, 62) = 24.76$ ;  $p < .000$ ;  $F_2(1, 92) = 27.88$ ;  $p < .000$ ) and *Coherence Relation* ( $F_1(1, 62) = 5.22$ ;  $p = .026$ ;  $F_2(1, 92) = 3.53$ ;  $p = .063$ ), with faster RTs in the main–subordinate order (-57 msec. vs. 248 msec.) and in temporal clauses (41 msec. vs. 151 msec.). This confirms that object antecedents become more accessible to the NS in the main–subordinate order although they also reveal that their accessibility is modulated by the coherence relation between clauses.

#### 6.4.5.4 Comprehension questions

The barcharts in figure 6.19 and 6.20 show the mean RTs and the 95% confidence intervals for each condition. Table 6.23 shows the percentages of errors to the questions.

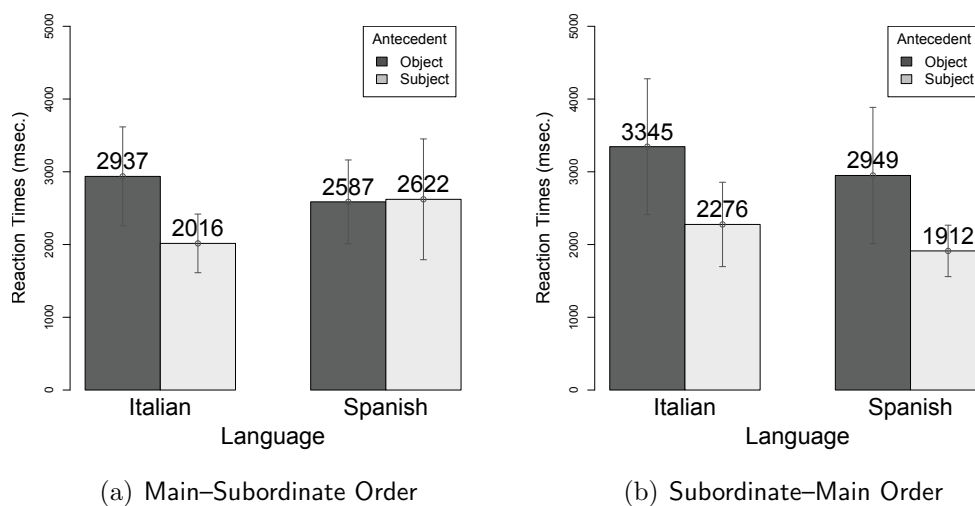


Figure 6.19: Reaction times to the comprehension questions of concessive clauses.

The ANOVA performed on the RTs revealed a significant main effect for *Antecedent* ( $F_1(1, 62) = 11.17$ ;  $p = .001$ ;  $F_2(1, 44) = 11.38$ ;  $p = .001$ ), with faster answers to questions following sentences with a subject antecedent (2316 msec. vs. 3079 msec.). The analysis also revealed the presence of an interaction between *Language* and *Clause Order* that is fully significant by subjects and marginally

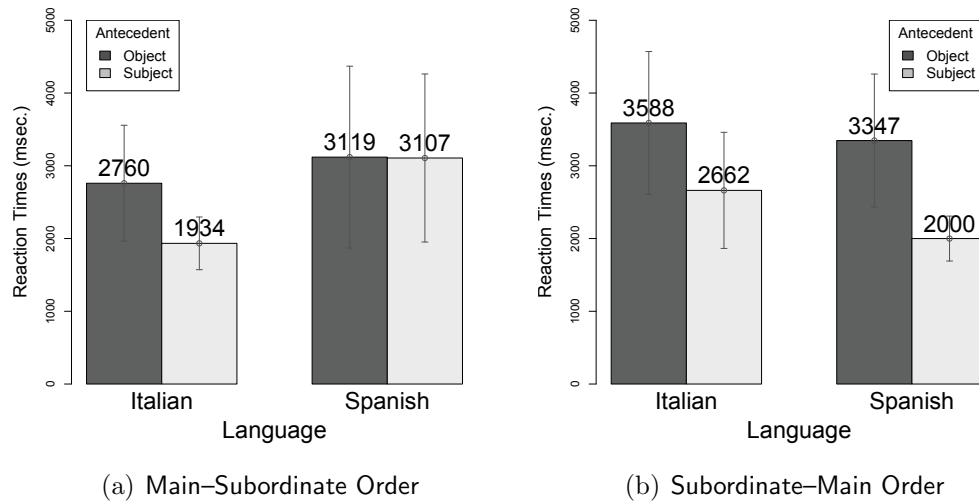


Figure 6.20: Reaction times to the comprehension questions of temporal clauses.

significant by items ( $F_1(1, 62) = 5.6$ ;  $p = .021$ ;  $F_2(1, 44) = 4.03$ ;  $p = .051$ ), and an interaction between *Antecedent* and *Clause Order* that is fully significant by subjects and marginally significant by items ( $F_1(1, 62) = 5.7$ ;  $p = .02$ ;  $F_2(1, 44) = 3.43$ ;  $p = .071$ ).

If we look at the two clause orders separately, we find no significant effects in the main-subordinate order, whereas the subordinate-main order yields a highly significant main effect for *Antecedent* ( $F_1(1, 62) = 15.07$ ;  $p < .000$ ;  $F_2(1, 44) = 17.58$ ;  $p < .000$ ), with significantly faster RTs in the subject antecedent condition (2213 msec. vs. 3307 msec.). If we analyse the two languages separately, in Italian we find a significant main effect for *Antecedent* ( $F_1(1, 31) = 7.36$ ;  $p = .01$ ;  $F_2(1, 22) = 15.5$ ;  $p < .000$ ), with significant faster RTs for questions following a sentence with a subject antecedent (2222 msec. vs. 3158 msec.), and a significant main effect for *Clause Order* ( $F_1(1, 31) = 4.79$ ;  $p = .036$ ;  $F_2(1, 22) = 5.76$ ;  $p = .025$ ), with faster RTs to questions following a sentence with the main-subordinate order (2411 msec. vs. 2968 msec.). In Spanish, the analysis reveals no main effects, but an interaction between *Antecedent* and *Clause Order* that is fully significant by subjects and marginally significant by items ( $F_1(1, 31) = 9.87$ ;  $p = .004$ ;  $F_2(1, 22) = 4.18$ ;  $p = .053$ ). This interaction indicates that in

Spanish, questions following a sentence with a subject antecedent are answered significantly faster than after an object antecedent only if the sentences are in the subordinate–main order ( $F_1(1, 31) = 9.87$ ;  $p = .004$ ;  $F_2(1, 22) = 8.69$ ;  $p = .007$ ; 1956 msec. vs. 3148 msec.), whereas no significant differences appear in the main–subordinate order.

Table 6.23: Percentages of wrong answers to the comprehension questions.

			Italian (%)	Spanish (%)
CONCESSIVE	Main–Sub.	Object	29	33
		Subject	8	14
	Sub.–Main	Object	53	37
		Subject	4	16
TEMPORAL	Main–Sub.	Object	15	25
		Subject	7	24
	Sub.–Main	Object	42	40
		Subject	4	24

The accuracy of the answers to the comprehension questions was analysed using logistic regression. An answer was coded as correct when it corresponded to the antecedent that was more plausible given the meaning of the sentence. The predictors in the model were: *Antecedent*, *Clause Order*, *Coherence Relation* and *Language*. The results show a significant effect for *Antecedent*, indicating that the likelihood of a correct answer increases significantly in the subject antecedent condition ( $\beta = 1.51$ ;  $p < .000$ ,  $e^\beta = 4.53$ ); a significant main effect for *Order*, suggesting that the probability of a correct answer tends to decrease in the subordinate–main order ( $\beta = -1.01$ ;  $p < .000$ ,  $e^\beta = 0.36$ ), and a main effect for the *Coherence Relation*, with more correct answers after temporal clauses ( $\beta = 0.88$ ;  $p = .016$ ,  $e^\beta = 2.41$ ). The model also yields a significant interaction between *Antecedent* and *Clause Order* ( $\beta = 1.75$ ;  $p = .012$ ,  $e^\beta = 5.75$ ). The model was overall explanatory ( $\chi^2(15) = 184$ ;  $p < .000$ ), although the model does not fit the data very well ( $\chi^2(496) = 574.4$ ;  $p = .008$ ).

The interaction shows that after sentences in the main–subordinate order, the answers are significantly more accurate in the subject condition ( $\beta = 1.51$ ;  $p < .000$ ,  $e^\beta = 4.52$ ) and with temporal clauses ( $\beta = 0.88$ ;  $p = .016$ ,  $e^\beta = 2.41$ ). After

sentences in the subordinate–main order, we still find significantly more correct answers in the subject antecedent condition ( $\beta = 3.26$ ;  $p < .000$ ,  $e^\beta = 26.04$ ), but we also find a significant effect for *Language*, with more chances to get a correct answer in Spanish ( $\beta = 0.64$ ;  $p = .03$ ,  $e^\beta = 1.99$ ), and a significant interaction *Antecedent* by *Language* ( $\beta = -2.08$ ;  $p = .001$ ,  $e^\beta = 0.12$ ). This means that after sentences in the subordinate–main order, the likelihood of a correct answer is greater in each language after a subject antecedent ( $\beta = 3.26$ ;  $p < .000$ ,  $e^\beta = 26.07$  in Italian and  $\beta = 1.18$ ;  $p < .000$ ,  $e^\beta = 3.25$  in Spanish), but in the subject antecedent condition there are significantly less chances to get a correct answer in Spanish ( $\beta = -1.45$ ;  $p = .013$ ,  $e^\beta = 0.23$ ) while in the object antecedent condition there are significantly more chances to get a correct answer in Spanish ( $\beta = 0.64$ ;  $p = .03$ ,  $e^\beta = 1.9$ ).

#### 6.4.6 Discussion

Experiment 4 confirmed that the antecedent bias of the null subject is affected by both the relative order of main and subordinate clause and the coherence relation that exists between the clauses.

The data revealed a main effect for *Clause Order*, significant at the VP and again at wrap up. This effect, suggests that sentences in the main–subordinate order may be easier to process, due to the fact that the main clause can be fully interpreted before the subordinate clause starts to be processed. With the opposite order, the first clause cannot be fully interpreted until later on, possibly only at the end of the sentence, so more information has to be kept in memory.

Similarly to Experiment 2, a main effect for *Antecedent* only becomes significant in the region following the VP, probably due to the fact that the semantic information provided by the verb needs to be processed and integrated to the discourse, before the antecedent can be identified.

The influence of both *Coherence Relation* and *Order* becomes apparent at sentence wrap up, where both variables interact with the *Antecedent* variable. As Carminati (2002) found with her questionnaire study, the antecedent bias of the null subject appears to be *weakened* in the main–subordinate order, due to

the fact that the object antecedent becomes more accessible as an antecedent for the null subject. This was shown by the pattern of reading times in the wrap up region, showing that sentences with an object antecedent are read significantly faster in the main–subordinate order. This result was explained by Carminati as an effect of the *Late Closure* principle, leading comprehenders to attach new material to the phrase that is currently being parsed, in this case the VP of the main clause. According to Carminati the fact that the subordinate clause is attached to the VP node, and that the same node also contains the object antecedent, makes the object antecedent more accessible by the null subject.

Moreover, *Antecedent* and *Clause Order* interacted also with the *Coherence Relation*, yielding significantly faster reading times for sentences with object antecedents in temporal clauses than in concessive clauses. That is to say that, while with concessive clauses in the main–subordinate order the preference for a subject antecedent over an object remained significant, this was not the case for temporal clauses in the same order. On the other hand, what was found in Experiment 3 was precisely a lack of antecedent bias for the null subject with concessive clauses in the main–subordinate order. So this effect may require further investigation.

I do not think that any differences between the two types of subordination used in this experiment may be due to semantic factors, like focusing on different constituents due to semantic reasons. Similarly to the present experiment, Carminati included two kinds of subordination relations in her questionnaire study: temporal clauses and *if*–clauses. Her results, like the present ones, showed a stronger effect in the temporal clauses than in the *if*–clauses. Her explanation for the results was that temporal clauses attach to the VP, while the *if*–clauses attach higher, at the IP level, so the *Late Closure* principle would not affect the accessibility of the object antecedent in this configuration. The present data show that the antecedent preferences of null subjects in concessive clauses as well as temporal clauses are affected by clause order, although to a lesser extent, and as I suggested above, Experiment 3 yielded different results, so the evidence gathered with the present experiment cannot be considered conclusive.

Finally, a cross-linguistic difference appears in the reaction times to the comprehension questions, showing that, in the main-subordinate order, Italian participants respond significantly faster to questions following a sentence with a subject antecedent, while this is not the case for Spanish participants. This may suggest that in Spanish, in the main-subordinate order, the null subject bias is weaker and more short-lived than it is in Italian.

## 6.5 Summary and Conclusions

In this chapter I have presented the Morphological Ambiguity Hypothesis, which tried to identify a link between the relative ambiguity of the verbal morphology in Italian and Spanish and, on the one hand, possible differences in the distribution of null and overt subjects across tenses within each language, on the other hand the relative strength of the pragmatic bias on overt pronouns in each language.

The experiment presented in this chapter did not provide any support for an effect of the relative ambiguity of the verbal morphology on the distribution of overt pronouns within either language, confirming thus the findings of corpus based studies on Spanish, such as [Enríquez \(1984\)](#). Furthermore the experiment did not provide any evidence that the different strength of the overt subject bias in Italian and Spanish may be related to the different amount of ambiguity of the verbal paradigm in each language.

Interestingly though, the experiment produced some unexpected results, namely a weakening of the NS bias and an apparent amplification of the OPS bias. In order to confirm that such effects were not related to the manipulation of the verb morphology ambiguity, but to other variables introduced in the experiment, I run a control experiment manipulating the relative order of main and subordinate clause and the coherence relation between the clauses. The results confirmed that the null subject bias is affected by both the relative order of main and subordinate clause and the coherence relation between the two clauses, as had been already suggested by [Carminati \(2002\)](#). Whether the amplification of the overt subject bias was also due to the manipulation of the relative order of main and

subordinate clause, contrary to Carminati's hypothesis, or whether it was an effect of the change in the coherence relation between clauses, is a question that remains open for further research.



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## CHAPTER 7

### Conclusions

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#### 7.1 Introduction

At the beginning of this thesis I set out to answer the following questions:

1. Can Spanish and Italian be considered equivalent from the point of view of the anaphoric properties of null and overt subject pronouns?
2. If differences between the two languages emerge, what is their extent and where should we expect to find them?
3. What could be the source of any cross-linguistic variation? Is it related to other morpho-syntactic differences between the two languages?

In this work I have presented four pairs of experiments that addressed the above questions. In the next section I will summarise the experimental findings, then I will discuss the implications of such findings and possible directions for future work.

#### 7.2 Summary of the experimental findings

##### 7.2.1 Experiment 1

This experiment was designed to address question (1) and (2) above. It was based on [Carminati \(2002\)](#) experimental work on null and overt subject resolution in intra-sentential anaphora in Italian. It consisted in a clause by clause self-paced reading task. The methodology and experimental materials for Italian were

taken from Experiment 1 in Carminati (2002), the materials were adapted and translated into Spanish, so that the same task could be used with speakers of each language and the data could be directly compared.

The results for Italian replicated Carminati's results, confirming the validity of the Position of Antecedent Strategy in this language. Clauses containing a null subject were read faster and understood more easily (as shown by the reaction times and accuracy of the answers to the comprehension questions) when the subject referred to an antecedent in the preverbal subject position, while clauses containing overt subject pronouns were read faster and understood better in the context of a *shift of reference*, that is if the antecedent of the pronoun occupied the, less prominent, syntactic object position.

When the Italian data was compared to the Spanish data, a pattern of cross-linguistic differences started to emerge. As predicted on the basis of Accessibility Theory (Ariel 1990), the cross-linguistic differences between the two languages were limited to the scope of the overt subject pronoun. In both languages, null subject sentences were processed faster when they referred to the antecedent in the subject position, and conversely, in both languages, when subject reference was maintained across clauses, null subject sentences were processed faster than overt subject ones. By contrast, overt subject pronouns in Spanish did not seem to *facilitate* a shift in subject reference as much they did in Italian, and the reading times for overt subject sentences in Spanish were not significantly different whether the antecedent occupied the subject or object position.

In spite of yielding some promising results, Experiment 1 also presented some limitations. For example the crucial interaction supporting the hypothesis of a cross-linguistic difference in the processing of overt pronouns was only marginally significant by subjects. Likewise, the crucial comparison between overt subject sentences referring to object antecedents across the two languages, was only significant in the analysis by items. These partial results may have been due to a lack of power of the experiment. Furthermore Experiment 1 did not allow to get any insight into the time-course of the anaphora resolution. These shortcomings were addressed in Experiment 2.

### 7.2.2 Experiment 2

Experiment 2 had two aims: to confirm the results of Experiment 1 providing a more powerful and fine grained test to detect cross-linguistic differences between Italian and Spanish, and to give information about the time-course of anaphora resolution.

The first aim of the experiment was met, since it confirmed the preliminary findings of Experiment 1 and, most importantly, the crucial interactions supporting the hypothesis of a cross-linguistic difference, in the interpretation of overt subject pronouns, reached full significance. The data confirmed the presence of reliable cross-linguistic differences limited to the antecedent biases of the overt pronoun. In particular they provided additional evidence that while Italian pronominal subjects facilitate a shift in subject reference in the syntactic context analysed, this effect does not obtain in Spanish, where overt subjects are processed significantly more slowly than in Italian when they refer to a non-prominent antecedent and do not seem to incur a significant processing penalty or hinder comprehension when they are associated to a prominent preverbal subject antecedent, as was shown by the accuracy of the answers to the comprehension questions.

The analysis of the time-course of the anaphora resolution also revealed that the semantic information provided by the VP to disambiguate the most plausible antecedent was used immediately after the VP, producing a significant effect for the *Antecedent* variable. Similarly the accessibility information encoded in the representation of the two antecedents appeared to be used in the same region, as revealed by the presence of an interaction between *Anaphora* and *Antecedent*.

This experiment also revealed some unexpected results, that could be related to the relative accessibility of the subject antecedent and may be due to the nature of the task, which may have interfered with the normal comprehension and integration of the information.

### 7.2.3 Experiment 3

Experiment 3 was designed to address question (3), by testing the Morphological Ambiguity hypothesis, according to which the antecedent bias of overt subject pronouns may depend in part on the relative amount of ambiguity with which person features are overtly realised by the verbal agreement morphology. The relative ambiguity of the verbal agreement system may affect the availability of null subjects with specific verbal forms (Rohrbacher 1999), which may have an effect on the pragmatic biases on the distribution of the overt pronoun.

The experiment confirmed the findings of Experiment 1 and 2 regarding the cross-linguistic differences between Italian and Spanish, as well as the results of Experiment 2, regarding the time-course of the anaphora resolution, confirming that the effect of language tends to emerge and become reliable only late at the final wrap up region and tends to affect the performance at the level of the comprehension questions. However it did not provide any evidence in support of the Morphological Ambiguity Hypothesis.

The experiment also produced some unexpected results, that is a weakening of the null subject bias and an apparent amplification of the overt pronoun bias. These effects may have been due to the fact that two variables had to be manipulated in order to test for the effect of the verb morphology: the relative order of main and subordinate clause and the coherence relation between the clauses. Experiment 4 was run to control for the effect of these two variables.

### 7.2.4 Experiment 4

Experiment 4 was run to control for the effect of the subordination relation between clauses and of the main-subordinate clause order on the resolution of the null subject. The results showed that both variables had an effect on the null subject bias both in Italian and in Spanish, suggesting that different syntactic contexts should be taken into account when evaluating the antecedent biases of anaphoric expressions.

### 7.3 Anaphoric subjects in Italian and Spanish

Given the evidence provided by the experiments summarised above, the answer to the first question addressed by this thesis, whether Italian and Spanish can be considered equivalent from the point of view of the properties of their pronominal system the answer is no. In the syntactic contexts analysed, the evidence consistently pointed at the fact that the antecedent preferences of personal pronouns vary across the two languages, and while the Italian overt pronoun tends to both facilitate a shift in subject reference *and* incur a processing penalty, hindering comprehension, when associated with a discourse prominent antecedent, Spanish pronouns do not seem to be reliably associated to these two effects. By contrast, no systematic differences emerged regarding the anaphoric preferences of null subjects, compatibly with predictions based on Accessibility theory and with Carminati's findings that the null subject bias in Italian seems to be less affected by contextual factors and more costly to override compared to the overt subject bias.

These findings have implications first of all for the classification of Spanish pronouns. In Chapter 4, I have suggested that we can think of the difference between Italian and Spanish pronouns in terms of [Cardinaletti & Starke \(1999\)](#) cross-linguistic typology of deficient forms. The lack of a restriction on the possibility to associate pronouns with prominent discourse antecedents in Spanish may be a sign of relative *weakness* of Spanish pronouns compared to their strong Italian counterparts. In other words, from the point of view of antecedent biases, Spanish pronouns *él* and *ella* may be equivalent to their Italian cognates *egli* and *ella*, although other tests regarding their semantic and syntactic properties should be carried out, to verify to what extent the comparison is appropriate. As a matter of fact, if the Spanish pronouns could be simply equated to weak pronouns, then the prediction would be that they should be equivalent to *pro*, which does not seem to be the case either. If we use instead [Bresnan \(1997, 2001\)](#) framework and terminology, Spanish pronouns should be considered strong forms, unmarked for topic anaphoricity, although this analysis may raise a different problem, namely that strong unmarked forms should be available for topic anaphoricity only in contexts in which they do not alternate with weaker forms

(*pro*, or (pronominal) agreement), and it is not clear how or why there should be a lack of alternation in particular contexts in Spanish, given that the verbal morphology is obligatory and there seem to be no syntactic restrictions on the occurrence of *pro*.

This work also bears some implications for research in the areas of language acquisition and loss in situations of language contact, since it deals with a phenomenon at the interface between syntax and pragmatics, an area that is being studied extensively by developmental linguists, because it is considered harder for learners and vulnerable to cross-linguistic influence. The existence of cross-linguistic differences between Italian and Spanish regarding the pragmatic constraints on subject realisation helps for example the interpretation of unexpected results obtained by Sorace et al. (2009). Similarly, the idea that Spanish pronouns may not be constrained by a pragmatic bias, contrary to what was implicitly assumed by previous research, may help shed light on the fact that evidence for cross-linguistic influence from English in this specific area of grammar has not been entirely consistent, especially when compared to the results obtained for Italian (see Silva-Corvalán 1994, Montrul 2004, Flores-Ferrán 2004).

## 7.4 Future work

Several questions have been left open due to the limitations of the present work. For example, although we can probably rule out the hypothesis of a direct link between the pragmatic biases on overt pronouns in Italian and Spanish and the relative ambiguity of the verbal agreement morphology, we still do not know why exactly the cross-linguistic differences exist and if they are related to other morpho-syntactic aspects of the languages.

A possible explanation could be that overt pronouns in Italian and Spanish do not really obey different pragmatic biases in terms of preference for non-prominent antecedents, but that they may *look* at different cues among those encoding prominence relations in the discourse. As we have seen in Chapter 3 different factors contribute jointly in determining prominence relations in the

discourse. We have also seen that, according to the Form Specific Multiple Constraints approach (Kaiser & Trueswell 2008, Kaiser et al. 2009), informationally equivalent anaphoric expressions in a language may be sensitive to different extents to the various factors affecting antecedent prominence in the discourse. A possible extension of this theory could be that, across languages, informationally equivalent expressions may be sensitive to different factors affecting prominence.

In section 4.5.2 I also suggested that we could take instead the opposite perspective, and hypothesise that Spanish pronouns may actually mark a lower level of accessibility than Italian ones and that the experiments in the present study did not detect any consistent differences between subject and (direct or indirect) object antecedents because the accessibility of these two antecedents is too similar and too high for Spanish pronouns. This idea comes from some data by Silva-Corvalán (1994), presented in Table 4.4, which may suggest that the cut off point for overt subject use in Spanish may be between direct object and oblique argument (where we can see the sharpest increase in pronoun expression), rather than between subject and object. However this idea should be taken with caution, since the data in the table does not discriminate between pronouns and other types of overt subjects and it comes from a population of heritage speakers that may not be representative of a monolingual population.

Another question that is left open by the present work is the discrepancy between the results of Experiment 1 and 2, regarding the strength of the biases towards and against the preverbal subject antecedent. In the discussion of the results of Experiment 2, I attributed it to the demands of the task, which interferes with the normal reading process and possibly with the encoding of prominence information. This hypothesis could be tested through the use of a less disruptive methodology. A visual world paradigm could be appropriate, since it has been used to monitor the resolution of anaphoric dependencies in the discourse, without interfering with the processing of the stimuli and without imposing any additional burden on the participant (Arnold et al. 2000, Wilson 2009).

Finally, the results of Experiment 4 suggest that the order of main and subordinate clause and the coherence relations between clauses affect the resolution of

null subject anaphors and can explain some unexpected results in Experiment 3. On the other hand, the effect of these variables was not tested on overt pronouns, and the question that remains open is whether they would produce an enhancement of their bias, as the results of Experiment 3 suggest, or if the bias would remain unaltered, as Carminati (2002) hypothesises.



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## APPENDIX A

### Materials for experiment 1

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#### A.1 Italian Instructions

In questo esperimento leggerai delle frasi che appaiono sullo schermo e occasionalmente risponderai a delle domande premendo il tasto ‘F’ o ‘J’ (segnati in giallo sulla tastiera). Quando vedi il messaggio ‘PREMERE LA BARRA SPAZIATRICE PER CONTINUARE’, premi la barra; appariranno delle righe tratteggiate, per esempio:

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Questo ti dice che la frase è distribuita su due righe di una certa lunghezza. Le righe sono per darti un’idea di quello che leggerai, non è necessario che ti soffermi su di esse. Per fare apparire il testo della prima riga, premi la barra spaziatrice. Leggi il testo normalmente, al fine di comprendere il significato. Quando hai finito premi ancora la barra spaziatrice; il testo della seconda riga apparirà sullo schermo. Continua a leggere, quando hai finito premi la barra.

Occasionalmente ci saranno delle domande che si riferiscono alla frase che hai appena letto. Sotto la domanda ci sono due risposte. Se pensi che la risposta corretta sia quella a sinistra, premi il tasto di sinistra, cioè ‘F’. Se pensi che la risposta giusta sia quella di destra, premi il tasto di destra, (‘J’).

All’inizio ci sarà una breve seduta di pratica durante la quale la sperimentatrice risponderà alle tue eventuali domande.

Dopo la pratica inizierà l’esperimento, che dura dai 35 ai 40 minuti a seconda della velocità di lettura. Alla fine apparirà il messaggio ‘FINE DELL’ESPERIMENTO, GRAZIE’. Premi un tasto qualunque per terminare il programma.

NB: 1. Se durante l’esperimento desideri fare una pausa, puoi riposarti nel punto in cui appare il messaggio ‘PREMERE LA BARRA SPAZIATRICE PER CONTINUARE’. In quel momento il programma non fa niente.

2. Premi la barra spaziatrice con il pollice destro, e tieni l’indice destro sul tasto ‘J’ e il sinistro sul tasto ‘F’. Questo consente alle dita di ‘reagire’ prontamente.

3. L'idea è di leggere ad una velocità il più normale possibile, in un atteggiamento rilassato, senza preoccuparsi eccessivamente se si risponde giusto o sbagliato alle domande.

GRAZIE PER LA PARTECIPAZIONE! PREMI UN TASTO PER COMINCIARE.

## A.2 Experimental Materials : Italian

1. (a) Dopo che Andrea ha messo in imbarazzo Bruno di fronte a tutti,/ lui si è scusato ripetutamente./  
 (b) Dopo che Andrea ha messo in imbarazzo Bruno di fronte a tutti,/ si è scusato ripetutamente./  
 (c) Quando Andrea ha messo in imbarazzo Bruno di fronte a tutti,/ lui si è offeso tremendamente./  
 (d) Quando Andrea ha messo in imbarazzo Bruno di fronte a tutti,/ si è offeso tremendamente./
2. (a) Quando Bruno ha sfidato Carlo a bere una intera bottiglia di whisky,/ lui diceva sul serio./  
 (b) Quando Bruno ha sfidato Carlo a bere una intera bottiglia di whisky,/ diceva sul serio./  
 (c) Quando Bruno ha sfidato Carlo a bere una intera bottiglia di whisky,/ lui ha detto di sì./  
 (d) Quando Bruno ha sfidato Carlo a bere una intera bottiglia di whisky,/ ha detto di sì./
3. (a) Quando Andrea ha insultato Carlo per strada,/ lui ha usato parole brutte./  
 (b) Quando Andrea ha insultato Carlo per strada,/ ha usato parole brutte./  
 (c) Quando Andrea ha insultato Carlo per strada,/ lui ha fatto altrettanto./  
 (d) Quando Andrea ha insultato Carlo per strada,/ ha fatto altrettanto./
4. (a) Quando Carlo ha pregato Dario di non fumare,/ lui ha detto che era allergico al fumo./  
 (b) Quando Carlo ha pregato Dario di non fumare,/ ha detto che era allergico al fumo./  
 (c) Quando Carlo ha pregato Dario di non fumare,/ lui ha detto che non riusciva a smettere./  
 (d) Quando Carlo ha pregato Dario di non fumare,/ ha detto che non riusciva a smettere./
5. (a) Ogni volta che Bruno chiama Carlo al telefono,/ lui non lo trova mai in casa./  
 (b) Ogni volta che Bruno chiama Carlo al telefono,/ non lo trova mai in casa./  
 (c) Ogni volta che Bruno chiama Carlo al telefono,/ lui impiega molto a rispondere./  
 (d) Ogni volta che Bruno chiama Carlo al telefono,/ impiega molto a rispondere./
6. (a) Quando Carlo contraddice Dino,/ lui lo fa per dispetto./  
 (b) Quando Carlo contraddice Dino,/ lo fa per dispetto./  
 (c) Quando Carlo contraddice Dino,/ lui si arrabbia molto./  
 (d) Quando Carlo contraddice Dino,/ si arrabbia molto./

7. (a) Dopo che Andrea ha criticato Bruno così ingiustamente,/ lui gli ha chiesto scusa./  
(b) Dopo che Andrea ha criticato Bruno così ingiustamente,/ gli ha chiesto scusa./  
(c) Quando Andrea ha criticato Bruno così ingiustamente,/ lui si è sentito umiliato./  
(d) Quando Andrea ha criticato Bruno così ingiustamente,/ si è sentito umiliato./
8. (a) Poichè Carlo apprezza molto l'opinione di Dino,/ lui gli chiede sempre consigli./  
(b) Poichè Carlo apprezza molto l'opinione di Dino,/ gli chiede sempre consigli./  
(c) Poichè Carlo apprezza molto l'opinione di Dino,/ lui si sente molto importante./  
(d) Poichè Carlo apprezza molto l'opinione di Dino,/ si sente molto importante./
9. (a) Quando Anna ha visitato Bruna in ospedale,/ lei le ha portato un mazzo di rose./  
(b) Quando Anna ha visitato Bruna in ospedale,/ le ha portato un mazzo di rose./  
(c) Quando Anna ha visitato Bruna in ospedale,/ lei era già fuori pericolo./  
(d) Quando Anna ha visitato Bruna in ospedale,/ era già fuori pericolo./
10. (a) Quando Bruna ha disubbidito a Carla,/ lei l'ha fatto apposta./  
(b) Quando Bruna ha disubbidito a Carla,/ l'ha fatto apposta./  
(c) Quando Bruna ha disubbidito a Carla,/ lei si è offesa molto./  
(d) Quando Bruna ha disubbidito a Carla,/ si è offesa molto./
11. (a) Siccome Carla ha soggezione di Daniela,/ lei non osa neanche rivolgerle la parola./  
(b) Siccome Carla ha soggezione di Daniela,/ non osa neanche rivolgerle la parola./  
(c) Siccome Carla ispira soggezione a Daniela,/ lei non osa neanche rivolgerle la parola./  
(d) Siccome Carla ispira soggezione a Daniela,/ non osa neanche rivolgerle la parola./
12. (a) Mentre Bruna faceva il bagno alla piccola Carla,/ lei si è bagnata tutta la gonna./  
(b) Mentre Bruna faceva il bagno alla piccola Carla,/ si è bagnata tutta la gonna./  
(c) Mentre Bruna faceva il bagno alla piccola Carla,/ lei strillava a più non posso./  
(d) Mentre Bruna faceva il bagno alla piccola Carla,/ strillava a più non posso./
13. (a) Quando Daniela ha trovato Emma svenuta sul divano,/ lei è andata in panico./  
(b) Quando Daniela ha trovato Emma svenuta sul divano,/ è andata in panico./  
(c) Quando Daniela ha trovato Emma svenuta sul divano,/ lei era pallidissima./  
(d) Quando Daniela ha trovato Emma svenuta sul divano,/ era pallidissima./

14. (a) Quando Carla ha avuto bisogno di Daniela,/ lei non ha esitato a chiederle aiuto./  
 (b) Quando Carla ha avuto bisogno di Daniela,/ non ha esitato a chiederle aiuto./  
 (c) Quando Carla ha avuto bisogno di Daniela,/ lei non ha esitato ad offrirle aiuto./  
 (d) Quando Carla ha avuto bisogno di Daniela,/ non ha esitato ad offrirle aiuto./
15. (a) Siccome Bruna ama fare regali costosi a Carla,/ lei rimane spesso a corto di soldi./  
 (b) Siccome Bruna ama fare regali costosi a Carla,/ rimane spesso a corto di soldi./  
 (c) Siccome Bruna ama fare regali costosi a Carla,/ lei la ricambia con inviti a teatro./  
 (d) Siccome Bruna ama fare regali costosi a Carla,/ la ricambia con inviti a teatro./
16. (a) Siccome Daniela ha disubbidito a Emma,/ lei le ha chiesto scusa./  
 (b) Siccome Daniela ha disubbidito a Emma,/ le ha chiesto scusa./  
 (c) Siccome Daniela ha disubbidito a Emma,/ lei è piuttosto seccata./  
 (d) Siccome Daniela ha disubbidito a Emma,/ è piuttosto seccata./

### A.3 Spanish Instructions

¡BIENVENIDO!

Tu tarea consiste en leer las frases que aparecerán en la pantalla del ordenador y de vez en cuando, responder a unas preguntas. Pulsa las teclas ‘F’ o ‘J’ (marcadas en amarillo en el teclado). Cuando veas el mensaje ‘PULSA LA BARRA ESPACIADORA PARA SEGUIR’ por favor, púlsala y aparecerán dos o tres líneas de texto de diversas longitudes. Estas líneas son un avance de las frases que verás a continuación. Así, estas líneas:

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te indican que la frase siguiente tendrá dos líneas de esa longitud. El objetivo de estas líneas es darte una idea de lo que vas a leer seguidamente. No hace falta que las mires durante mucho tiempo. Pulsa la barra espaciadora para leer la primera línea de la frase. Lee la frase normalmente fijándote en el significado (ni demasiado rápido ni demasiado despacio). Cuando hayas terminado de leer la primera línea, pulsa de nuevo la barra espaciadora y aparecerá la segunda. Sigue leyendo y pulsando la barra espaciadora hasta que termine la frase. Cuando hayas terminado de leer la última línea, pulsa la barra.

De vez en cuando aparecerá en la pantalla una pregunta relativa a la frase que acabas de leer. Bajo la pregunta habrá dos respuestas. Si crees que la respuesta correcta es la que aparece a la izquierda, pulsa la tecla de la izquierda (la ‘F’) y si crees que es la de la derecha, pulsa la tecla de la derecha (la ‘J’).

El principio del experimento consiste en una sesión de práctica para que te familiarices con el proceso. La investigadora estará contigo durante la práctica para responder cualquier pregunta que tengas.

Tras la sesión de práctica viene el experimento, durante el cual estarás solo/a durante 35 o 40 minutos, dependiendo de la velocidad a la que leas (no todo el mundo lee a la misma velocidad). Al final del experimento verás el mensaje ‘MUCHAS GRACIAS POR TU PARTICIPACIÓN’ y el programa finalizará solo, no hace falta que hagas nada más.

#### NOTAS:

1. Si durante el experimento te encuentras cansado/a y deseas parar, puedes hacerlo cuando veas en la pantalla el mensaje ‘PULSA LA BARRA ESPACIADORA PARA SEGUIR’, pues en esos momentos el programa está inactivo.

2. Recomendamos que durante el experimento pulses la barra espaciadora con el pulgar derecho y que mantengas el índice derecho sobre la ‘J’ y el índice izquierdo sobre la ‘F’ para reaccionar rápidamente.

3. Necesitamos que leas a una velocidad lo más normal posible, estando relajado/a, sin preocuparte excesivamente de si respondes correctamente a las preguntas.

¡MUCHAS GRACIAS POR PARTICIPAR EN ESTE EXPERIMENTO!

## A.4 Experimental Materials : Spanish

1. (a) Como Antonio puso a Bernardo en una situación violenta delante de todos,/ él se disculpó muchas veces./  
 (b) Como Antonio puso a Bernardo en una situación violenta delante de todos,/ se disculpó muchas veces./  
 (c) Como Antonio puso a Bernardo en una situación violenta delante de todos,/ él se ofendió terriblemente./  
 (d) Como Antonio puso a Bernardo en una situación violenta delante de todos,/ se ofendió terriblemente./
2. (a) Cuando Antonio desafió a Bernardo a beber toda una botella de whisky,/ él decía en serio./  
 (b) Cuando Antonio desafió a Bernardo a beber toda una botella de whisky,/ decía en serio./  
 (c) Cuando Antonio desafió a Bernardo a beber toda una botella de whisky,/ él aceptó de buen grado./  
 (d) Cuando Antonio desafió a Bernardo a beber toda una botella de whisky,/ aceptó de buen grado./
3. (a) Cuando Bernardo insultó a Carlos en la calle,/ él usó palabrotas./  
 (b) Cuando Bernardo insultó a Carlos en la calle,/ usó palabrotas./  
 (c) Cuando Bernardo insultó a Carlos en la calle,/ él hizo lo mismo./  
 (d) Cuando Bernardo insultó a Carlos en la calle,/ hizo lo mismo./
4. (a) Cuando Antonio le pidió a Carlos que no fumase,/ él dijo que era alérgico al humo./  
 (b) Cuando Antonio le pidió a Carlos que no fumase,/ dijo que era alérgico al humo./

- (c) Cuando Antonio le pidió a Carlos que no fumase,/ él dijo que no lograba dejarlo./
  - (d) Cuando Antonio le pidió a Carlos que no fumase,/ dijo que no lograba dejarlo./
- 5.
- (a) Cada vez que Bernardo llamaba a Carlos por teléfono,/ él nunca lo encontraba en casa./
  - (b) Cada vez que Bernardo llamaba a Carlos por teléfono,/ nunca lo encontraba en casa./
  - (c) Cada vez que Bernardo llama a Carlos por teléfono,/ él tarda mucho tiempo en contestar./
  - (d) Cada vez que Bernardo llama a Carlos por teléfono,/ tarda mucho tiempo en contestar./
- 6.
- (a) Cuando Antonio contradice a Carlos,/ él lo hace para hacerle enfadar./
  - (b) Cuando Antonio contradice a Carlos,/ lo hace para hacerle enfadar./
  - (c) Cuando Antonio contradice a Carlos,/ él siempre se enfada muchísimo./
  - (d) Cuando Antonio contradice a Carlos,/ siempre se enfada muchísimo./
- 7.
- (a) Después de que Bernardo criticó a Carlos tan injustamente,/ él le pidió disculpas./
  - (b) Después de que Bernardo criticó a Carlos tan injustamente,/ le pidió disculpas./
  - (c) Cuando Bernardo criticó a Carlos tan injustamente,/ él se sintió muy ofendido./
  - (d) Cuando Bernardo criticó a Carlos tan injustamente,/ se sintió muy ofendido./
- 8.
- (a) Como Antonio aprecia mucho la opinión de Bernardo,/ él siempre le pide consejo./
  - (b) Como Antonio aprecia mucho la opinión de Bernardo,/ siempre le pide consejo./
  - (c) Como Antonio aprecia mucho la opinión de Bernardo,/ él se siente muy importante./
  - (d) Como Antonio aprecia mucho la opinión de Bernardo,/ se siente muy importante./
- 9.
- (a) Cuando Ana visitó a Beatriz en el hospital,/ ella le llevó un ramo de rosas./
  - (b) Cuando Ana visitó a Beatriz en el hospital,/ le llevó un ramo de rosas./
  - (c) Cuando Ana visitó a Beatriz en el hospital,/ ella ya estaba fuera de peligro./
  - (d) Cuando Ana visitó a Beatriz en el hospital,/ ya estaba fuera de peligro./
- 10.
- (a) Cuando Ana desobedeció a Beatriz,/ ella lo hizo a propósito./
  - (b) Cuando Ana desobedeció a Beatriz,/ lo hizo a propósito./
  - (c) Cuando Ana desobedeció a Beatriz,/ ella se ofendió muchísimo./
  - (d) Cuando Ana desobedeció a Beatriz,/ se ofendió muchísimo./
- 11.
- (a) Como Beatriz tiene miedo de Carmen,/ ni siquiera se atreva a hablarle./
  - (b) Como Beatriz tiene miedo de Carmen,/ ni siquiera se atreva a hablarle./
  - (c) Como Beatriz da miedo a Carmen,/ ni siquiera se atreva a hablarle./
  - (d) Como Beatriz da miedo a Carmen,/ ni siquiera se atreva a hablarle./

12. (a) Mientras Ana le daba un baño a la pequeña Beatriz,/ ella se mojó toda la falda./  
(b) Mientras Ana le daba un baño a la pequeña Beatriz,/ se mojó toda la falda./  
(c) Mientras Ana le daba un baño a la pequeña Beatriz,/ ella gritaba a más no poder./  
(d) Mientras Ana le daba un baño a la pequeña Beatriz,/ gritaba a más no poder./
13. (a) Cuando Ana encontró a Beatriz desmayada en el sofá,/ ella se asustó mucho./  
(b) Cuando Ana encontró a Beatriz desmayada en el sofá,/ se asustó mucho./  
(c) Cuando Ana encontró a Beatriz desmayada en el sofá,/ ella estaba palidísima./  
(d) Cuando Ana encontró a Beatriz desmayada en el sofá,/ estaba palidísima./
14. (a) Cuando Ana ha necesitado a Beatriz,/ ella le ha pedido ayuda sin dudarle./  
(b) Cuando Ana ha necesitado a Beatriz,/ le ha pedido ayuda sin dudarle./  
(c) Cuando Ana ha necesitado a Beatriz,/ ella le ha ofrecido ayuda sin vacilar./  
(d) Cuando Ana ha necesitado a Beatriz,/ le ha ofrecido ayuda sin vacilar./
15. (a) Como Beatriz quiere hacerle regalos caros a Carmen,/ ella a menudo se queda con poquísimo dinero./  
(b) Como Beatriz quiere hacerle regalos caros a Carmen,/ menudo se queda con poquísimo dinero./  
(c) Como Beatriz quiere hacerle regalos caros a Carmen,/ ella le corresponde con invitaciones a teatro./  
(d) Como Beatriz quiere hacerle regalos caros a Carmen,/ le corresponde con invitaciones a teatro./
16. (a) Como Ana desobedeció a Beatriz,/ ella le pidió disculpas./  
(b) Como Ana desobedeció a Beatriz,/ le pidió disculpas./  
(c) Como Ana desobedeció a Beatriz,/ ella estaba muy enfadada./  
(d) Como Ana desobedeció a Beatriz,/ estaba muy enfadada./





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## APPENDIX B

### Materials for experiment 2

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#### B.1 Italian Instructions

In questo esperimento leggerai delle frasi che appariranno sullo schermo e di tanto in tanto risponderai a delle domande.

Appoggia le mani sulla pulsantiera mettendo il pollice destro sul tasto viola e quello sinistro sul tasto rosso. Sotto al tuo indice destro sul lato della pulsantiera si troverà un tasto bianco e sotto il tuo indice sinistro si troverà un tasto nero.

Quando vedi apparire il messaggio ‘PREMERE IL TASTO VIOLA PER CONTINUARE’, premi il tasto viola con il pollice della mano destra e appariranno sullo schermo delle righe tratteggiate, come queste:

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Questo ti dice che la frase che leggerai distribuita su due righe di una certa lunghezza, non è necessario che ti soffermi su di esse. Per fare apparire il testo, premi di nuovo il tasto viola con il pollice. Leggi il testo normalmente, per comprenderne il significato. Quando hai finito premi di nuovo il tasto viola e appariranno le parole successive. Continua a leggere e quando finisce la frase premi ancora il tasto viola.

Occasionalmente ci saranno delle domande che si riferiscono alla frase che hai appena letto. Premendo il tasto viola, sotto la domanda, appariranno due risposte. Se pensi che la risposta corretta sia quella a sinistra, usa l’indice sinistro per premere il tasto nero sul lato sinistro della pulsantiera. Se pensi che la risposta giusta sia quella di destra, premi con l’indice destro il tasto bianco sul lato destro.

All’inizio ci sarà una breve seduta di pratica durante la quale la sperimentatrice risponderà alle tue eventuali domande.

Dopo la pratica inizierà l’esperimento. Alla fine apparirà il messaggio ‘FINE DELL’ESPERIMENTO, GRAZIE’. Premi un tasto qualunque per terminare il programma.

NB:

1. Se durante l'esperimento desideri fare una pausa, puoi riposarti nel punto in cui appare il messaggio 'PREMERE IL TASTO VIOLA PER CONTINUARE. In quel momento il programma non fa niente.

2. Leggi ad una velocità il più normale possibile senza preoccuparti eccessivamente se rispondi giusto o sbagliato alle domande.

GRAZIE PER LA PARTECIPAZIONE! PREMI UN TASTO PER COMINCIARE.

## B.2 Experimental materials: Italian

1.
  - (a) Quando Antonio ha ricevuto una cartolina da Bernardo, lui si è commosso per il pensiero.
  - (b) Quando Antonio ha ricevuto una cartolina da Bernardo, si è commosso per il pensiero.
  - (c) Quando Antonio ha spedito una cartolina a Bernardo, lui si è commosso per il pensiero.
  - (d) Quando Antonio ha spedito una cartolina a Bernardo, si è commosso per il pensiero.
2.
  - (a) Da quando Antonio chiede aiuto a Bernardo per fare i compiti, lui prende bei voti a scuola.
  - (b) Da quando Antonio chiede aiuto a Bernardo per fare i compiti, prende bei voti a scuola.
  - (c) Da quando Antonio aiuta Bernardo a fare i compiti, lui prende bei voti a scuola.
  - (d) Da quando Antonio aiuta Bernardo a fare i compiti, prende bei voti a scuola.
3.
  - (a) Quando Bernardo riceve una telefonata da Carlo, lui risponde un po' maleducatamente.
  - (b) Quando Bernardo riceve una telefonata da Carlo, risponde un po' maleducatamente.
  - (c) Quando Bernardo fa una telefonata a Carlo, lui risponde un po' maleducatamente.
  - (d) Quando Bernardo fa una telefonata a Carlo, risponde un po' maleducatamente.
4.
  - (a) Quando Antonio ha messo in imbarazzo Bernardo, lui si è scusato subito ripetutamente.
  - (b) Quando Antonio ha messo in imbarazzo Bernardo, si è scusato subito ripetutamente.
  - (c) Quando Antonio si è imbarazzato a causa di Bernardo, lui si è scusato subito ripetutamente.
  - (d) Quando Antonio si è imbarazzato a causa di Bernardo, si è scusato subito ripetutamente.
5.
  - (a) Quando Bernardo fu sfidato a duello da Carlo, lui accettò senza preoccuparsi delle conseguenze.
  - (b) Quando Bernardo fu sfidato a duello da Carlo, accettò senza preoccuparsi delle conseguenze.
  - (c) Quando Bernardo si sfidò a duello Carlo, lui accettò senza preoccuparsi delle conseguenze.

- (d) Quando Bernardo sfidò a duello Carlo, accettò senza preoccuparsi delle conseguenze.
6.
    - (a) Quando Carlo udì gli insulti di Diego per strada, lui rispose in modo violento.
    - (b) Quando Carlo udì gli insulti di Diego per strada, rispose in modo violento.
    - (c) Quando Carlo insultò Diego per strada, lui rispose in modo violento,
    - (d) Quando Carlo insultò Diego per strada, rispose in modo violento.
  7.
    - (a) Quando Bernardo chiese a Diego il permesso di fumare, lui dovette spegnere la sigaretta senza protestare.
    - (b) Quando Bernardo chiese a Diego il permesso di fumare, dovette spegnere la sigaretta senza protestare.
    - (c) Quando Bernardo negò a Diego il permesso di fumare, lui dovette spegnere la sigaretta senza protestare.
    - (d) Quando Bernardo negò a Diego il permesso di fumare, dovette spegnere la sigaretta senza protestare.
  8.
    - (a) Quando Carlo si sente contraddetto da Diego, lui si arrabbia moltissimo con tutti.
    - (b) Quando Carlo si sente contraddetto da Diego, si arrabbia moltissimo con tutti.
    - (c) Quando Carlo contraddice inutilmente Diego, lui si arrabbia moltissimo con tutti.
    - (d) Quando Carlo contraddice inutilmente Diego, si arrabbia moltissimo con tutti.
  9.
    - (a) Dopo che Antonio è stato criticato così ingiustamente da Bernardo, lui si è sentito umiliato senza nessuna ragione.
    - (b) Dopo che Antonio è stato criticato così ingiustamente da Bernardo, si è sentito umiliato senza nessuna ragione.
    - (c) Dopo che Antonio ha criticato così ingiustamente Bernardo, lui si è sentito umiliato senza nessuna ragione.
    - (d) Dopo che Antonio ha criticato così ingiustamente Bernardo, si è sentito umiliato senza nessuna ragione.
  10.
    - (a) Siccome Bernardo gode della stima di Carlo, lui si considera molto importante e intelligente.
    - (b) Siccome Bernardo gode della stima di Carlo, si considera molto importante e intelligente.
    - (c) Siccome Bernardo stima molto Carlo, lui si considera molto importante e intelligente.
    - (d) Siccome Bernardo stima molto Carlo, si considera molto importante e intelligente.
  11.
    - (a) Da quando Carlo ha investito per strada Diego, lui guida con molta più prudenza.
    - (b) Da quando Carlo ha investito per strada Diego, guida con molta più prudenza
    - (c) Da quando Carlo è stato investito per strada da Diego, lui guida con molta più prudenza.

- (d) Da quando Carlo è stato investito per strada da Diego, guida con molta più prudenza.
- 12. (a) Quando Antonio subisce i rimproveri severi di Bernardo, lui si pente della sua cattiva condotta.  
(b) Quando Antonio subisce i rimproveri severi di Bernardo, si pente della sua cattiva condotta.  
(c) Quando Antonio rimprovera severamente Bernardo, lui si pente della sua cattiva condotta.  
(d) Quando Antonio rimprovera severamente Bernardo, si pente della sua cattiva condotta.
- 13. (a) Quando Bernardo batte Carlo a tennis, lui si pavoneggia per molti giorni.  
(b) Quando Bernardo batte Carlo a tennis, si pavoneggia per molti giorni.  
(c) Quando Bernardo perde contro Carlo a tennis, lui si pavoneggia per molti giorni.  
(d) Quando Bernardo perde contro Carlo a tennis, si pavoneggia per molti giorni.
- 14. (a) Ogni volta che Antonio va a prendere Bernardo all'aeroporto, lui parcheggia la macchina in divieto di sosta.  
(b) Ogni volta che Antonio va a prendere Bernardo all'aeroporto, parcheggia la macchina in divieto di sosta.  
(c) Ogni volta che Antonio riceve un passaggio da Bernardo per l'aeroporto, lui parcheggia la macchina in divieto di sosta.  
(d) Ogni volta che Antonio riceve un passaggio da Bernardo per l'aeroporto, parcheggia la macchina in divieto di sosta.
- 15. (a) Quando Carlo ha chiesto aiuto a Diego per preparare l'esame, lui lo ha superato con voti eccellenti.  
(b) Quando Carlo ha chiesto aiuto a Diego per preparare l'esame, lo ha superato con voti eccellenti.  
(c) Quando Carlo ha aiutato Diego a preparare l'esame, lui lo ha superato con voti eccellenti.  
(d) Quando Carlo ha aiutato Diego a preparare l'esame, lo ha superato con voti eccellenti.
- 16. (a) Quando Antonio ha ricevuto un pugno da Carlo, lui si è arrabbiato più del necessario.  
(b) Quando Antonio ha ricevuto un pugno da Carlo, si è arrabbiato più del necessario.  
(c) Quando Antonio ha dato un pugno a Carlo, lui si è arrabbiato più del necessario.  
(d) Quando Antonio ha dato un pugno a Carlo, si è arrabbiato più del necessario.
- 17. (a) Siccome Bernardo è un anno più giovane di Carlo, lui rispetta molto la sua opinione.  
(b) Siccome Bernardo è un anno più giovane di Carlo, rispetta molto la sua opinione.  
(c) Siccome Bernardo è un anno più vecchio di Carlo, lui rispetta molto la sua opinione.

- (d) Siccome Bernardo è un anno più vecchio di Carlo, rispetta molto la sua opinione.
18. (a) Da quando Bernardo fu elogiato da Carlo davanti agli amministratori, lui ha ottenuto la promozione che sperava.  
(b) Da quando Bernardo fu elogiato da Carlo davanti agli amministratori, ha ottenuto la promozione che sperava.  
(c) Da quando Bernardo ha elogiato Carlo davanti agli amministratori, lui ha ottenuto la promozione che sperava.  
(d) Da quando Bernardo ha elogiato Carlo davanti agli amministratori, ha ottenuto la promozione che sperava.
19. (a) Quando Antonio ha chiesto i compiti a Bernardo, lui ha copiato tutte le risposte.  
(b) Quando Antonio ha chiesto i compiti a Bernardo, ha copiato tutte le risposte.  
(c) Quando Antonio ha passato i compiti a Bernardo, lui ha copiato tutte le risposte.  
(d) Quando Antonio ha passato i compiti a Bernardo, ha copiato tutte le risposte.
20. (a) Quando Carlo ha riparato il computer di Diego, lui ci ha lavorato per un giorno intero.  
(b) Quando Carlo ha riparato il computer di Diego, ci ha lavorato per un giorno intero.  
(c) Quando Carlo ha fatto riparare il computer a Diego, lui ci ha lavorato per un giorno intero.  
(d) Quando Carlo ha fatto riparare il computer a Diego, ci ha lavorato per un giorno intero.
21. (a) Siccome Antonio teme le reazioni violente di Carlo, lui è cauto nel dargli cattive notizie.  
(b) Siccome Antonio teme le reazioni violente di Carlo, è cauto nel dargli cattive notizie.  
(c) Siccome Antonio reagisce violentemente di fronte a Carlo, lui è cauto nel dargli cattive notizie.  
(d) Siccome Antonio reagisce violentemente di fronte a Carlo, è cauto nel dargli cattive notizie.
22. (a) Quando Bernardo trovò rifugio in casa di Carlo, lui approfittò dell'ospitalità per molte settimane.  
(b) Quando Bernardo trovò rifugio in casa di Carlo, approfittò dell'ospitalità per molte settimane.  
(c) Quando Bernardo offrì rifugio in casa sua a Carlo, lui approfittò dell'ospitalità per molte settimane.  
(d) Quando Bernardo offrì rifugio in casa sua a Carlo, approfittò dell'ospitalità per molte settimane.
23. (a) Da quando Bernardo ha ricevuto elogi da Carlo, lui ha fiducia nelle sue capacità lavorative.  
(b) Da quando Bernardo ha ricevuto elogi da Carlo, ha fiducia nelle sue capacità lavorative.

- (c) Da quando Bernardo ha elogiato apertamente Carlo, lui ha fiducia nelle sue capacità lavorative.
  - (d) Da quando Bernardo ha elogiato apertamente Carlo, ha fiducia nelle sue capacità lavorative.
- 24.
- (a) Da quando Bernardo accompagna Diego nei suoi viaggi, lui sta imparando molte lingue straniere.
  - (b) Da quando Bernardo accompagna Diego nei suoi viaggi, sta imparando molte lingue straniere.
  - (c) Da quando Bernardo porta con sè Diego nei suoi viaggi, lui sta imparando molte lingue straniere.
  - (d) Da quando Bernardo porta con se Diego nei suoi viaggi, sta imparando molte lingue straniere.
- 25.
- (a) Da quando Anna ha ricevuto il motorino da Beatrice, lei esce di casa tutte le sere.
  - (b) Da quando Anna ha ricevuto il motorino da Beatrice, esce di casa tutte le sere.
  - (c) Da quando Anna ha regalato il motorino a Beatrice, lei esce di casa tutte le sere.
  - (d) Da quando Anna ha regalato il motorino a Beatrice, esce di casa tutte le sere.
- 26.
- (a) Quando Beatrice ha preso in prestito il vestito preferito di Carmen, lei ha avuto cura di non rovinarlo.
  - (b) Quando Beatrice ha preso in prestito il vestito preferito di Carmen, ha avuto cura di non rovinarlo.
  - (c) Quando Beatrice ha prestato il suo vestito preferito a Carmen, lei ha avuto cura di non rovinarlo.
  - (d) Quando Beatrice ha prestato il suo vestito preferito a Carmen, ha avuto cura di non rovinarlo.
- 27.
- (a) Dopo che Anna ha ricevuto la visita di Beatrice all'ospedale, lei si è ripresa molto velocemente.
  - (b) Dopo che Anna ha ricevuto una visita di Beatrice all'ospedale, si è ripresa molto velocemente.
  - (c) Dopo che Anna è andata a trovare Beatrice all'ospendale, lei si è ripresa molto velocemente.
  - (d) Dopo che Anna è andata a trovare Beatrice all'ospendale, si è ripresa molto velocemente.
- 28.
- (a) Quando Anna è venuta a sapere delle critiche di Beatrice, lei si è offesa a causa dell'amica.
  - (b) Quando Anna è venuta a sapere delle critiche di Beatrice, si è offesa a causa dell'amica.
  - (c) Quando Anna criticò severamente Beatrice, lei si è offesa a causa dell'amica.
  - (d) Quando Anna criticò severamente Beatrice, si è offesa a causa dell'amica.
- 29.
- (a) Siccome Beatrice ha molta soggezione di Claudia, lei non osa nemmeno rivolgerle la parola.
  - (b) Siccome Beatrice ha molta soggezione di Claudia, non osa nemmeno rivolgerle la parola.

- (c) Siccome Beatrice mette molta soggezione a Claudia, lei non osa nemmeno rivolgerle la parola.
  - (d) Siccome Beatrice mette molta soggezione a Claudia, non osa nemmeno rivolgerle la parola.
- 30.
- (a) Quando la piccola Maria viene lavata da Claudia, lei strilla a più non posso.
  - (b) Quando la piccola Maria viene lavata da Claudia, strilla a più non posso.
  - (c) Quando Maria fa il bagno alla piccola Claudia, lei strilla a più non posso.
  - (d) Quando Maria fa il bagno alla piccola Claudia, strilla a più non posso.
- 31.
- (a) Quando Beatrice ha trovato Claudia svenuta sul sofà, lei si è spaventata come non mai.
  - (b) Quando Beatrice ha trovato Claudia svenuta sul sofà, si è spaventata come non mai.
  - (c) Quando Beatrice è svenuta sul sofà di fronte a Claudia, lei si è spaventata come non mai.
  - (d) Quando Beatrice è svenuta sul sofà di fronte a Claudia, si è spaventata come non mai.
- 32.
- (a) Quando Claudia offre aiuto ad Anna, lei risolve tutti i problemi senza esitare.
  - (b) Quando Claudia offre aiuto ad Anna, risolve tutti i problemi senza esitare.
  - (c) Quando Claudia chiede aiuto ad Anna, lei risolve tutti i problemi senza esitare.
  - (d) Quando Claudia chiede aiuto ad Anna, risolve tutti i problemi senza esitare.
- 33.
- (a) Siccome Anna riceve regali costosi da Beatrice, lei ricambia con inviti a teatro.
  - (b) Siccome Anna riceve regali costosi da Beatrice, ricambia con inviti a teatro.
  - (c) Siccome Anna ama fare regali costosi a Beatrice, lei ricambia con inviti a teatro.
  - (d) Siccome Anna ama fare regali costosi a Beatrice, ricambia con inviti a teatro.
- 34.
- (a) Siccome Beatrice viene disobbedita spesso da Maria, lei si arrabbia spesso con la bambina.
  - (b) Siccome Beatrice viene disobbedita spesso da Maria, si arrabbia spesso con la bambina.
  - (c) Siccome Beatrice disobbedisce spesso a Maria, lei si arrabbia spesso con la bambina.
  - (d) Siccome Beatrice disobbedisce spesso a Maria, si arrabbia spesso con la bambina.
- 35.
- (a) Quando Beatrice ha intervistato per radio Claudia, lei ha fatto domande abbastanza personali.
  - (b) Quando Beatrice ha intervistato per radio Claudia, ha fatto domande abbastanza personali.
  - (c) Quando Beatrice è stata intervistata per radio da Claudia, lei ha fatto domande abbastanza personali.
  - (d) Quando Beatrice è stata intervistata per radio da Claudia, ha fatto domande abbastanza personali.

36. (a) Siccome Claudia ama molto la sua nipotina Maria, lei la vizia con giocattoli e caramelle.  
(b) Siccome Claudia ama molto la sua nipotina Maria, la vizia con giocattoli e caramelle.  
(c) Siccome Claudia è la nipote preferita di Maria, lei la vizia con giocattoli e caramelle.  
(d) Siccome Claudia è la nipote preferita di Maria, la vizia con giocattoli e caramelle.
37. (a) Siccome Anna non ha ricevuto gli auguri da Beatrice, lei le tiene il muso da alcuni giorni.  
(b) Siccome Anna non ha ricevuto gli auguri da Beatrice, le tiene il muso da alcuni giorni.  
(c) Siccome Anna non ha fatto gli auguri a Beatrice, lei le tiene il muso da alcuni giorni.  
(d) Siccome Anna non ha fatto gli auguri a Beatrice, le tiene il muso da alcuni giorni.
38. (a) Quando Claudia veste Maria la mattina, lei abbina i vestitini con buon gusto.  
(b) Quando Claudia veste Maria la mattina, abbina i vestitini con buon gusto.  
(c) Quando Claudia viene vestita da Maria la mattina, lei abbina i vestitini con buon gusto.  
(d) Quando Claudia viene vestita da Maria la mattina, abbina i vestitini con buon gusto.
39. (a) Quando Anna è accompagnata al parco giochi da Beatrice, lei gioca tranquillamente con gli altri bambini.  
(b) Quando Anna è accompagnata al parco giochi da Beatrice, gioca tranquillamente con gli altri bambini.  
(c) Quando Anna accompagna al parco giochi Beatrice, lei gioca tranquillamente con gli altri bambini.  
(d) Quando Anna accompagna al parco giochi Beatrice, gioca tranquillamente con gli altri bambini.
40. (a) Quando Anna fu accusata del furto da Beatrice, lei confessò tutto l'accaduto.  
(b) Quando Anna fu accusata del furto da Beatrice, confessò tutto l'accaduto.  
(c) Quando Anna accusò del furto Beatrice, lei confessò tutto l'accaduto.  
(d) Quando Anna accusò del furto Beatrice, confessò tutto l'accaduto.
41. (a) Quando Beatrice mangiò tutta la torta di Maria, lei ebbe male alla pancia tutto il giorno.  
(b) Quando Beatrice mangiò tutta la torta di Maria, ebbe male alla pancia tutto il giorno.  
(c) Quando Beatrice regalò una torta intera a Maria, lei ebbe male alla pancia tutto il giorno.  
(d) Quando Beatrice regalò una torta intera a Maria, ebbe male alla pancia tutto il giorno.
42. (a) Siccome Maria apprezza molto l'opinione di Anna, lei le chiede consiglio quasi sempre.



- (b) Siccome Maria apprezza molto l'opinione di Anna, le chiede consiglio quasi sempre.
  - (c) Siccome Maria conosce molte più cose di Anna, lei le chiede consiglio quasi sempre.
  - (d) Siccome Maria conosce molte più cose di Anna, le chiede consiglio quasi sempre.
- 43.
- (a) Siccome Anna lavora più a lungo di Beatrice, lei rimane in ufficio fino a tarda ora.
  - (b) Siccome Anna lavora più a lungo di Beatrice, rimane in ufficio fino a tarda ora.
  - (c) Siccome Anna lavora meno a lungo di Beatrice, lei rimane in ufficio fino a tarda ora.
  - (d) Siccome Anna lavora meno a lungo di Beatrice, rimane in ufficio fino a tarda ora.
- 44.
- (a) Da quando Beatrice ha rovinato le rose di Claudia, lei ha paura di incontrarla per strada.
  - (b) Da quando Beatrice ha rovinato le rose di Claudia, ha paura di incontrarla per strada.
  - (c) Da quando Beatrice ha scoperto le sue rose rovinate da Claudia, lei ha paura di incontrarla per strada.
  - (d) Da quando Beatrice ha scoperto le sue rose rovinate da Claudia, ha paura di incontrarla per strada.
- 45.
- (a) Quando Anna scrive lettere a Maria, lei racconta quello che succede durante la settimana.
  - (b) Quando Anna scrive lettere a Maria, racconta quello che succede durante la settimana.
  - (c) Quando Anna riceve lettere da Maria, lei racconta quello che succede durante la settimana.
  - (d) Quando Anna riceve lettere da Maria, racconta quello che succede durante la settimana.
- 46.
- (a) Siccome Claudia usa spesso le cose di Diana, lei si sdebita pulendo tutta la casa.
  - (b) Siccome Claudia usa spesso le cose di Diana, si sdebita pulendo tutta la casa.
  - (c) Siccome Claudia cucina spesso per Diana, lei si sdebita pulendo tutta la casa.
  - (d) Siccome Claudia cucina spesso per Diana, si sdebita pulendo tutta la casa.
- 47.
- (a) Quando Claudia pulisce tutta la casa di Diana, lei si stanca per la pesantezza del lavoro.
  - (b) Quando Claudia pulisce tutta la casa di Diana, si stanca per la pesantezza del lavoro.
  - (c) Quando Claudia fa pulire tutta la casa a Diana, lei si stanca per la pesantezza del lavoro.
  - (d) Quando Claudia fa pulire tutta la casa a Diana, si stanca per la pesantezza del lavoro.

48. (a) Dopo che Claudia ha subito la sgridata di Diana, lei ha pianto per tutto il pomeriggio.
- (b) Dopo che Claudia ha subito la sgridata di Diana, ha pianto per tutto il pomeriggio.
- (c) Dopo che Claudia ha ripreso severamente Diana, lei ha pianto per tutto il pomeriggio.
- (d) Dopo che Claudia ha ripreso severamente Diana, ha pianto per tutto il pomeriggio.

### B.3 Spanish Instructions

¡BIENVENIDO!

Tu tarea consiste en leer las frases que aparecerán en la pantalla y de vez en cuando, responder a unas preguntas.

Colca las manos sobre el teclado poniendo tu pulgar derecho sobre la tecla violeta y tu pulgar izquierdo sobre la tecla roja. Bajo tu índice derecho, al lado derecho del teclado encontrarás una tecla blanca y bajo tu ndice izquierdo encontrars una tecla negra.

Cuando veas el mensaje ‘PULSA LA TECLA VIOLETA PARA SEGUIR’ por favor, púlsala y aparecerán dos líneas. Así, estas líneas:

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te indican que la frase tendrá dos líneas de esa longitud. Pulsa la tecla violeta bajo tu pulgar derecho para leer las primeras palabras. Lee normalmente fijándote en el significado.

Cuando hayas terminado, pulsa de nuevo la misma tecla y aparecerán las palabras siguientes. Cuando hayas leído la última palabra, pulsa la tecla violeta otra vez.

De vez en cuando aparecerá en la pantalla una pregunta relativa a la frase que acabas de leer. Pulsa la tecla violeta y bajo la pregunta aparecerán dos respuestas. Si crees que la respuesta correcta es la de la izquierda, pulsa la tecla bajo tu índice izquierdo, si crees que es la de la derecha, pulsa la tecla bajo tu índice derecho.

El principio del experimento consiste en una sesión de práctica. La investigadora estará contigo para responder cualquier pregunta.

Tras la sesión de práctica viene el experimento.

Al final del experimento verás el mensaje ‘MUCHAS GRACIAS POR TU PARTICIPACIÓN’ pulsa una tecla cualquier para finalizar el programa.

NOTAS:

1. Si durante el experimento te encuentras cansado/a y deseas parar, puedes hacerlo cuando veas en la pantalla el mensaje ‘PULSA LA TECLA VIOLETA PARA SEGUIR’, pues en esos momentos el programa está inactivo.

2. Lee normalmente, estando relajado/a, sin preocuparte excesivamente de si respondes correctamente a las preguntas.

¡MUCHAS GRACIAS POR PARTICIPAR EN ESTE EXPERIMENTO!

#### B.4 Experimental materials: Spanish

1.
  - (a) Cuando Antonio recibió una postal de Bernardo, él se conmovió por la grata atención.
  - (b) Cuando Antonio recibió una postal de Bernardo, se conmovió por la grata atención.
  - (c) Cuando Antonio envió una postal a Bernardo, él se conmovió por la grata atención.
  - (d) Cuando Antonio envió una postal a Bernardo, se conmovió por la grata atención.
2.
  - (a) Desde que Antonio pide ayuda a Bernardo para hacer sus deberes, él saca buenas notas en la escuela.
  - (b) Desde que Antonio pide ayuda a Bernardo para hacer sus deberes, saca buenas notas en la escuela.
  - (c) Desde que Antonio ayuda a Bernardo a hacer sus deberes, él saca buenas notas en la escuela.
  - (d) Desde que Antonio ayuda a Bernardo a hacer sus deberes, saca buenas notas en la escuela.
3.
  - (a) Cuando Bernardo recibe una llamada telefónica de Carlos, él contesta un poco maleducadamente.
  - (b) Cuando Bernardo recibe una llamada telefónica de Carlos, contesta un poco maleducadamente.
  - (c) Cuando Bernardo hace una llamada telefónica a Carlos, él contesta un poco maleducadamente.
  - (d) Cuando Bernardo hace una llamada telefónica a Carlos, contesta un poco maleducadamente.
4.
  - (a) Cuando Antonio puso a Bernardo en una situación violenta delante de todos, él se disculpó muchas veces.
  - (b) Cuando Antonio puso a Bernardo en una situación violenta delante de todos, se disculpó muchas veces.
  - (c) Cuando Antonio se avergonzó por culpa de Bernardo delante de todos, él se disculpó muchas veces.
  - (d) Cuando Antonio se avergonzó por culpa de Bernardo delante de todos, se disculpó muchas veces.
5.
  - (a) Cuando Bernardo fue desafiado a duelo por Carlos, él aceptó sin preocuparse por las consecuencias.
  - (b) Cuando Bernardo fue desafiado a duelo por Carlos, aceptó sin preocuparse por las consecuencias.
  - (c) Cuando Bernardo desafió a duelo a Carlos, él aceptó sin preocuparse por las consecuencias.
  - (d) Cuando Bernardo desafió a duelo a Carlos, aceptó sin preocuparse por las consecuencias.
6.
  - (a) Cuando Carlos oyó los insultos de Diego en la calle, él respondió de manera violenta.

- (b) Cuando Carlos oyó los insultos de Diego en la calle, respondió de manera violenta.
  - (c) Cuando Carlos insultó a Diego en la calle, él respondió de manera violenta.
  - (d) Cuando Carlos insultó a Diego en la calle, respondió de manera violenta.
- 7.
- (a) Cuando Bernardo le pidió a Diego permiso para fumar, él tuvo que apagar su cigarillo sin protestar.
  - (b) Cuando Bernardo le pidió a Diego permiso para fumar, tuvo que apagar su cigarillo sin protestar.
  - (c) Cuando Bernardo negó a Diego el permiso para fumar, él tuvo que apagar su cigarillo sin protestar.
  - (d) Cuando Bernardo negó a Diego el permiso para fumar, tuvo que apagar su cigarillo sin protestar.
- 8.
- (a) Cuando Carlos se sinte contradicho por Diego, él se enfada muchísimo con todos.
  - (b) Cuando Carlos se sinte contradicho por Diego, se enfada muchísimo con todos.
  - (c) Cuando Carlos contradice inútilmente a Diego, él se enfada muchísimo con todos.
  - (d) Cuando Carlos contradice inútilmente a Diego, se enfada muchísimo con todos.
- 9.
- (a) Después de que Antonio sufriera críticas tan injustas de Bernardo, él se sintió humillado sin ninguna razón.
  - (b) Después de que Antonio sufriera críticas tan injustas de Bernardo, se sintió humillado sin ninguna razón.
  - (c) Después de que Antonio criticara tan injustamente a Bernardo, él se sintió humillado sin ninguna razón.
  - (d) Después de que Antonio criticara tan injustamente a Bernardo, se sintió humillado sin ninguna razón.
- 10.
- (a) Como Bernardo goza de la estima de Carlos, él se considera muy importante e inteligente.
  - (b) Como Bernardo goza de la estima de Carlos, se considera muy importante e inteligente.
  - (c) Como Bernardo estima mucho a Carlos, él se considera muy importante e inteligente.
  - (d) Como Bernardo estima mucho a Carlos, se considera muy importante e inteligente.
- 11.
- (a) Desde que Carlos atropelló en la calle a Diego, él conduce con mucho más cuidado.
  - (b) Desde que Carlos atropelló en la calle a Diego, conduce con mucho más cuidado.
  - (c) Desde que Carlos fue atropellado en la calle por Diego, él conduce con mucho más cuidado.
  - (d) Desde que Carlos fue atropellado en la calle por Diego, conduce con mucho más cuidado.
- 12.
- (a) Cuando Antonio sufre los reproches severos de Bernardo, él se arrepiente de su conducta reprochable.

- (b) Cuando Antonio sufre los reproches severos de Bernardo, se arrepiente de su conducta reprochable.
  - (c) Cuando Antonio reprende severamente a Bernardo, él se arrepiente de su conducta reprochable.
  - (d) Cuando Antonio reprende severamente a Bernardo, se arrepiente de su conducta reprochable.
- 13.
- (a) Cuando Bernardo gana a Carlos al tenis, él se pavonea durante unos días.
  - (b) Cuando Bernardo gana a Carlos al tenis, se pavonea durante unos días.
  - (c) Cuando Bernardo pierde contra Carlos al tenis, él se pavonea durante unos días.
  - (d) Cuando Bernardo pierde contra Carlos al tenis, se pavonea durante unos días.
- 14.
- (a) Cada vez que Antonio recoge en el aeropuerto a Bernardo, él aparca el coche donde está prohibido.
  - (b) Cada vez que Antonio recoge en el aeropuerto a Bernardo, aparca el coche donde está prohibido.
  - (c) Cada vez que Antonio necesita ser recogido en el aeropuerto por Bernardo, él aparca el coche donde está prohibido.
  - (d) Cada vez que Antonio necesita ser recogido por Bernardo en el aeropuerto, aparca el coche donde está prohibido.
- 15.
- (a) Cuando Carlos pidió ayuda a Diego para preparar el examen, él aprobó con notas excelentes.
  - (b) Cuando Carlos pidió ayuda a Diego para preparar el examen, aprobó con notas excelentes.
  - (c) Cuando Carlos ayudó a Diego a preparar el examen, él aprobó con notas excelentes.
  - (d) Cuando Carlos ayudó a Diego a preparar el examen, aprobó con notas excelentes.
- 16.
- (a) Cuando Antonio recibió un puñetazo de Carlos, él se enfadó más de lo necesario.
  - (b) Cuando Antonio recibió un puñetazo de Carlos, se enfadó más de lo necesario.
  - (c) Cuando Antonio dió un puñetazo a Carlos, él se enfadó más de lo necesario.
  - (d) Cuando Antonio dió un puñetazo a Carlos, se enfadó más de lo necesario.
- 17.
- (a) Como Bernardo es un año más joven que Carlos, él respeta mucho sus opiniones.
  - (b) Como Bernardo es un año más joven que Carlos, respeta mucho sus opiniones.
  - (c) Como Bernardo es un año mayor que Carlos, él respeta mucho sus opiniones.
  - (d) Como Bernardo es un año mayor que Carlos, respeta mucho sus opiniones.
- 18.
- (a) Después de que Bernardo recibiera los elogios de Carlos delante de los jefes, él obtuvo el ascenso que esperaba.
  - (b) Después de que Bernardo recibiera los elogios de Carlos delante de los jefes, obtuvo el ascenso que esperaba.
  - (c) Después de que Bernardo elogiara a Carlos delante de los jefes, él obtuvo el ascenso que esperaba.

- (d) Después de que Bernardo elogiara a Carlos delante de los jefes, obtuvo el ascenso que esperaba.
19. (a) Cuando Antonio le pidió su tarea a Bernardo, él copió todas las respuestas.  
(b) Cuando Antonio le pidió su tarea a Bernardo, copió todas las respuestas.  
(c) Cuando Antonio le pasó su tarea a Bernardo, él copió todas las respuestas.  
(d) Cuando Antonio le pasó su tarea a Bernardo, copió todas las respuestas.
20. (a) Cuando Carlos reparó el ordenador de Diego, él trabajó durante un día entero.  
(b) Cuando Carlos reparó el ordenador de Diego, trabajó durante un día entero.  
(c) Cuando Carlos hizo reparar el ordenador a Diego, él trabajó durante un día entero.  
(d) Cuando Carlos hizo reparar el ordenador a Diego, trabajó durante un día entero.
21. (a) Como Antonio teme las reacciones violentas de Carlos, él es cauteloso al darle noticias malas.  
(b) Como Antonio teme las reacciones violentas de Carlos, es cauteloso al darle noticias malas.  
(c) Como Antonio reacciona violentamente delante de Carlos, él es cauteloso al darle noticias malas.  
(d) Como Antonio reacciona violentamente delante de Carlos, es cauteloso al darle noticias malas.
22. (a) Cuando Bernardo encontró amparo en casa de Carlos, él se aprovechó de la hospitalidad durante muchas semanas.  
(b) Cuando Bernardo encontró amparo en casa de Carlos, se aprovechó de la hospitalidad durante muchas semanas.  
(c) Cuando Bernardo ofreció amparo en su casa a Carlos, él se aprovechó de la hospitalidad durante muchas semanas.  
(d) Cuando Bernardo ofreció amparo en su casa a Carlos, se aprovechó de la hospitalidad durante muchas semanas.
23. (a) Desde que Bernardo recibió elogios de Carlos, él confía en sus capacidades de trabajo.  
(b) Desde que Bernardo recibió elogios de Carlos, confía en sus capacidades de trabajo.  
(c) Desde que Bernardo elogió abiertamente a Carlos, él confía en sus capacidades de trabajo.  
(d) Desde que Bernardo elogió abiertamente a Carlos, confía en sus capacidades de trabajo.
24. (a) Desde que Bernardo sigue a Diego en sus viajes, él está aprendiendo muchos idiomas.  
(b) Desde que Bernardo sigue a Diego en sus viajes, está aprendiendo muchos idiomas.  
(c) Desde que Bernardo trae a Diego en sus viajes, él está aprendiendo muchos idiomas.  
(d) Desde que Bernardo trae a Diego en sus viajes, está aprendiendo muchos idiomas.

25. (a) Desde que Ana tiene el ciclomotor de Beatriz, ella sale de casa todas las noches.  
(b) Desde que Ana tiene el ciclomotor de Beatriz, sale de casa todas las noches.  
(c) Desde que Ana regalara el ciclomotor a Beatriz, ella sale de casa todas las noches.  
(d) Desde que Ana regalara el ciclomotor a Beatriz, sale de casa todas las noches.
26. (a) Cuando Beatriz tomó prestado el vestido preferido de Carmen, ella tuvo cuidado para que no se estropease.  
(b) Cuando Beatriz tomó prestado el vestido preferido de Carmen, tuvo cuidado para que no se estropease.  
(c) Cuando Beatriz prestó su vestido preferido a Carmen, ella tuvo cuidado para que no se estropease.  
(d) Cuando Beatriz prestó su vestido preferido a Carmen, tuvo cuidado para que no se estropease.
27. (a) Después de que Ana recibiera una visita de Beatriz en el hospital, ella se ha recuperado muy rápidamente.  
(b) Después de que Ana recibiera una visita de Beatriz en el hospital , se ha recuperado muy rápidamente.  
(c) Después de que Ana visitara a Beatriz en el hospital, ella se ha recuperado muy rápidamente.  
(d) Después de que Ana visitara a Beatriz en el hospital se ha recuperado muy rápidamente.
28. (a) Cuando Ana se enteró de las críticas de Beatriz, ella se ofendió por culpa de su amiga.  
(b) Cuando Ana se enteró de las críticas de Beatriz, se ofendió por culpa de su amiga.  
(c) Cuando Ana criticó severamente a Beatriz, ella se ofendió por culpa de su amiga.  
(d) Cuando Ana criticó severamente a Beatriz, se ofendió por culpa de su amiga.
29. (a) Como Beatriz tiene miedo de Carmen, ella no se atreve ni siquiera a hablarle.  
(b) Como Beatriz tiene miedo de Carmen, no se atreve ni siquiera a hablarle.  
(c) Como Beatriz da miedo a Carmen, ella no se atreve ni siquiera a hablarle.  
(d) Como Beatriz da miedo a Carmen, no se atreve ni siquiera a hablarle.
30. (a) Cuando la pequeña María es bañada por Carmen, ella grita a más no poder.  
(b) Cuando la pequeña María es bañada por Carmen, grita a más no poder.  
(c) Cuando María le da un baño a la pequeña Carmen, ella grita a más no poder.  
(d) Cuando María le da un baño a la pequeña Carmen, grita a más no poder.
31. (a) Cuando Beatriz encontró desmayada en el sofá a Carmen, ella se asustó como nunca.  
(b) Cuando Beatriz encontró desmayada en el sofá a Carmen, se asustó como nunca.  
(c) Cuando Beatriz se desmayó en el sofá delante de Carmen, ella se asustó como nunca.

- (d) Cuando Beatriz se desmayó en el sofá delante de Carmen, se asustó como nunca.
32. (a) Cuando Carmen ofrece ayuda a Ana, ella soluciona todos los problemas sin dudarlo.  
(b) Cuando Carmen ofrece ayuda a Ana, soluciona todos los problemas sin dudarlo.  
(c) Cuando Carmen pide ayuda a Ana, ella soluciona todos los problemas sin dudarlo.  
(d) Cuando Carmen pide ayuda a Ana, soluciona todos los problemas sin dudarlo.
33. (a) Como Ana recibe regalos caros de Beatriz, ella le corresponde con invitaciones al teatro.  
(b) Como Ana recibe regalos caros de Beatriz, le corresponde con invitaciones al teatro.  
(c) Como Ana quiere hacerle regalos caros a Beatriz, ella le corresponde con invitaciones al teatro.  
(d) Como Ana quiere hacerle regalos caros a Beatriz, le corresponde con invitaciones al teatro.
34. (a) Como Beatriz no puede obtener el respeto de María, ella se enfada frecuentemente con la niña.  
(b) Como Beatriz no puede obtener el respeto de María, se enfada frecuentemente con la niña.  
(c) Como Beatriz desobedece frecuentemente a María, ella se enfada frecuentemente con la niña.  
(d) Como Beatriz desobedece frecuentemente a María, se enfada frecuentemente con la niña.
35. (a) Cuando Beatriz entrevistó en la radio a Carmen, ella preguntó cosas muy personales.  
(b) Cuando Beatriz entrevistó en la radio a Carmen, preguntó cosas muy personales.  
(c) Cuando Beatriz fue entrevistada en la radio por Carmen, ella preguntó cosas muy personales.  
(d) Cuando Beatriz fue entrevistada en la radio por Carmen, preguntó cosas muy personales.
36. (a) Como Carmen quiere mucho a su nieta María, ella la mima con juguetes y caramelos.  
(b) Como Carmen quiere mucho a su nieta María, la mima con juguetes y caramelos.  
(c) Como Carmen es la nieta más querida de María, ella la mima con juguetes y caramelos.  
(d) Como Carmen es la nieta más querida de María, la mima con juguetes y caramelos.
37. (a) Como Ana no ha recibido las felicitaciones de Beatriz, ella está enfadada desde hace unos días.  
(b) Como Ana no ha recibido las felicitaciones de Beatriz, está enfadada desde hace unos días.



- (c) Como Ana no ha felicitado pronto a Beatriz, ella está enfadada desde hace unos días,
  - (d) Como Ana no ha felicitado pronto a Beatriz, está enfadada desde hace unos días.
- 38.
- (a) Cuando Carmen viste por la mañana a María, ella combina la ropa con muy buen gusto.
  - (b) Cuando Carmen viste por la mañana a María, combina la ropa con muy buen gusto.
  - (c) Cuando Carmen es vestida por la mañana por María, ella combina la ropa con muy buen gusto.
  - (d) Cuando Carmen es vestida por la mañana por María, combina la ropa con muy buen gusto.
- 39.
- (a) Cuando Ana es acompañada al parque infantil por Beatriz, ella juega tranquilamente con otros niños.
  - (b) Cuando Ana es acompañada al parque infantil por Beatriz, juega tranquilamente con otros niños.
  - (c) Cuando Ana acompaña al parque infantil a Beatriz, ella juega tranquilamente con otros niños.
  - (d) Cuando Ana acompaña al parque infantil a Beatriz, juega tranquilamente con otros niños.
- 40.
- (a) Cuando Ana fue acusada del robo por Beatriz, ella confesó todo lo que había pasado.
  - (b) Cuando Ana fue acusada del robo por Beatriz, confesó todo lo que había pasado.
  - (c) Cuando Ana acusó del robo a Beatriz, ella confesó todo lo que había pasado.
  - (d) Cuando Ana acusó del robo a Beatriz, confesó todo lo que había pasado.
- 41.
- (a) Cuando Beatriz se comió toda la tarta de María, ella tuvo dolores de barriga todo el día.
  - (b) Cuando Beatriz se comió toda la tarta de María, tuvo dolores de barriga todo el día.
  - (c) Cuando Beatriz regaló una tarta entera a María, ella tuvo dolores de barriga todo el día.
  - (d) Cuando Beatriz regaló una tarta entera a María, tuvo dolores de barriga todo el día.
- 42.
- (a) Como María aprecia mucho la opinión de Ana, ella le pide consejo casi siempre.
  - (b) Como María aprecia mucho la opinión de Ana, le pide consejo casi siempre.
  - (c) Como María sabe muchas más cosas que Ana, ella le pide consejo casi siempre.
  - (d) Como María sabe muchas más cosas que Ana, le pide consejo consejo casi siempre.
- 43.
- (a) Como Ana trabaja más horas que Beatriz, ella se queda en la oficina hasta muy tarde.
  - (b) Como Ana trabaja más horas que Beatriz, se queda en la oficina hasta muy tarde.

- (c) Como Ana trabaja menos horas que Beatriz, ella se queda en la oficina hasta muy tarde.
  - (d) Como Ana trabaja menos horas que Beatriz, se queda en la oficina hasta muy tarde.
44. (a) Después de que Beatriz arruinara las rosas de Carmen, ella tiene miedo de encontrarla en la calle.
- (b) Después de que Beatriz arruinara las rosas de Carmen, tiene miedo de encontrarla en la calle.
- (c) Después de que Beatriz viera sus rosas arruinadas por Carmen, ella tiene miedo de encontrarla en la calle.
- (d) Después de que Beatriz viera sus rosas arruinadas por Carmen, tiene miedo de encontrarla en la calle.
45. (a) Cuando Ana escribe cartas a María, ella le cuenta lo que hace durante la semana.
- (b) Cuando Ana escribe cartas a María, le cuenta lo que hace durante la semana.
- (c) Cuando Ana recibe cartas de María, ella le cuenta lo que hace durante la semana.
- (d) Cuando Ana recibe cartas de María, le cuenta lo que hace durante la semana.
46. (a) Como Carmen usa frecuentemente las cosas de Diana, ella le corresponde limpiando toda la casa.
- (b) Como Carmen usa frecuentemente las cosas de Diana, le corresponde limpiando toda la casa.
- (c) Como Carmen cocina frecuentemente para Diana, ella le corresponde limpiando toda la casa.
- (d) Como Carmen cocina frecuentemente para Diana, le corresponde limpiando toda la casa.
47. (a) Cuando Carmen limpia toda la casa de Diana, ella se agota por la pesadez de la tarea.
- (b) Cuando Carmen limpia toda la casa de Diana, se agota por la pesadez de la tarea.
- (c) Cuando Carmen hace limpiar toda la casa a Diana, ella se agota por la pesadez de la tarea.
- (d) Cuando Carmen hace limpiar toda la casa a Diana, se agota por la pesadez de la tarea.
48. (a) Después de que Carmen sufriera los reproches de Diana, ella lloró durante toda la tarde.
- (b) Después de que Carmen sufriera los reproches de Diana, lloró durante toda la tarde.
- (c) Después de que Carmen reprendiese severamente a Diana, ella lloró durante toda la tarde.
- (d) Después de que Carmen reprendiese severamente a Diana, lloró durante toda la tarde.

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## APPENDIX C

### Materials for experiment 3

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#### C.1 Italian Instructions

The same as in the Italian version of Experiment 2, Appendix [B.1](#).

#### C.2 Experimental materials: Italian

1.
  - (a) Maria ha regalato una vacanza ad Anna, nonostante lei sia povera e senza lavoro.
  - (b) Maria ha ricevuto in regalo una vacanza da Anna, nonostante lei sia povera e senza lavoro.
  - (c) Maria ha regalato una vacanza ad Anna, nonostante sia povera e senza lavoro.
  - (d) Maria ha ricevuto in regalo una vacanza da Anna, nonostante sia povera e senza lavoro.
  - (e) Maria ha regalato una vacanza ad Anna, anche se lei è povera e senza lavoro.
  - (f) Maria ha ricevuto in regalo una vacanza da Anna, anche se lei è povera e senza lavoro.
  - (g) Maria regalava vacanze ad Anna, anche se lei era povera e senza lavoro.
  - (h) Maria riceveva in regalo vacanze da Anna, anche se lei era povera e senza lavoro.
  
2.
  - (a) Anna accompagna sempre fino a casa Beatrice, nonostante lei faccia tardi per la lezione.
  - (b) Anna viene sempre accompagnata fino a casa da Beatrice, nonostante lei faccia tardi per la lezione.
  - (c) Anna accompagna sempre fino a casa Beatrice, nonostante faccia tardi per la lezione.
  - (d) Anna viene sempre accompagnata fino a casa da Beatrice, nonostante faccia tardi per la lezione.
  - (e) Anna accompagna sempre fino a casa Beatrice, anche se lei fa tardi per la lezione.
  - (f) Anna viene sempre accompagnata fino a casa da Beatrice, anche se lei fa tardi per la lezione.

- (g) Anna accompagnava sempre fino a casa Beatrice, anche se lei faceva tardi per la lezione.
  - (h) Anna veniva sempre accompagnata fino a casa da Beatrice, anche se lei faceva tardi per la lezione.
- 3.
- (a) Beatrice vende sempre vestiti a Claudia, nonostante lei faccia prezzi molto alti.
  - (b) Beatrice compra sempre vestiti da Claudia, nonostante lei faccia prezzi molto alti.
  - (c) Beatrice vende sempre vestiti a Claudia, nonostante faccia prezzi molto alti.
  - (d) Beatrice compra sempre vestiti da Claudia, nonostante faccia prezzi molto alti.
  - (e) Beatrice vende sempre vestiti a Claudia, anche se lei fa prezzi molto alti.
  - (f) Beatrice compra sempre vestiti da Claudia, anche se lei fa prezzi molto alti.
  - (g) Beatrice vendeva sempre vestiti a Claudia, anche se lei faceva prezzi molto alti.
  - (h) Beatrice comprava sempre vestiti da Claudia, anche se lei faceva prezzi molto alti.
- 4.
- (a) Carmen prende sempre in prestito romanzi da Diana, nonostante lei non legga molti libri.
  - (b) Carmen presta sempre romanzi a Diana, nonostante lei non legga molti libri.
  - (c) Carmen prende in prestito i romanzi di Diana, nonostante non legga molti libri.
  - (d) Carmen presta sempre i suoi romanzi a Diana, nonostante non legga molti libri.
  - (e) Carmen prende sempre in prestito romanzi da Diana, anche se lei non legge molti libri.
  - (f) Carmen presta sempre romanzi a Diana, anche se lei non legge molti libri.
  - (g) Carmen prendeva sempre in prestito romanzi da Diana, anche se lei non leggeva molti libri.
  - (h) Carmen prestava sempre romanzi a Diana, anche se lei non leggeva molti libri.
- 5.
- (a) Beatrice invita spesso a casa sua Claudia, nonostante lei non ami ricevere ospiti in casa.
  - (b) Beatrice va spesso in visita a casa di Claudia, nonostante lei non ami ricevere ospiti in casa.
  - (c) Beatrice invita spesso a casa sua Claudia, nonostante non ami ricevere ospiti in casa.
  - (d) Beatrice va spesso in visita a casa di Claudia, nonostante non ami ricevere ospiti in casa.
  - (e) Beatrice invita spesso a casa sua Claudia, anche se lei non ama ricevere ospiti in casa.
  - (f) Beatrice va spesso in visita a casa di Claudia, anche se lei non ama ricevere ospiti in casa.
  - (g) Beatrice invitava spesso a casa sua Claudia, anche se lei non amava ricevere ospiti in casa.
  - (h) Beatrice andava spesso in visita a casa di Claudia, anche se lei non amava ricevere ospiti in casa.

6.
  - (a) Anna ha portato le valige di Beatrice, nonostante lei soffra di artrite a una mano.
  - (b) Anna ha lasciato portare le valige a Beatrice, nonostante lei soffra di artrite a una mano.
  - (c) Anna ha portato le valige di Beatrice, nonostante soffra di artrite a una mano.
  - (d) Anna ha lasciato portare le valige a Beatrice, nonostante soffra di artrite a una mano.
  - (e) Anna ha portato le valige di Beatrice, anche se lei soffre di artrite a una mano.
  - (f) Anna ha lasciato portare le valige a Beatrice, anche se lei soffre di artrite a una mano.
  - (g) Anna ha portato le valige di Beatrice, anche se lei soffriva di artrite a una mano.
  - (h) Anna ha lasciato portare le valige a Beatrice, anche se lei soffriva di artrite a una mano.
7.
  - (a) Claudia compra regali costosi per Diana, nonostante lei sia indebitata fino al collo.
  - (b) Claudia riceve regali costosi da Diana, nonostante lei sia indebitata fino al collo.
  - (c) Claudia compra regali costosi per Diana, nonostante sia indebitata fino al collo.
  - (d) Claudia riceve regali costosi da Diana, nonostante sia indebitata fino al collo.
  - (e) Claudia compra regali costosi per Diana, anche se lei è indebitata fino al collo.
  - (f) Claudia riceve regali costosi da Diana, anche se lei è indebitata fino al collo.
  - (g) Claudia comprava regali costosi per Diana, anche se lei era indebitata fino al collo.
  - (h) Claudia riceveva regali costosi da Diana, anche se lei era indebitata fino al collo.
8.
  - (a) Beatrice ha mangiato il dolce di Claudia, nonostante lei sia a dieta per dimagrire.
  - (b) Beatrice ha preparato un dolce per Claudia, nonostante lei sia a dieta per dimagrire.
  - (c) Beatrice ha mangiato il dolce di Claudia, nonostante sia a dieta per dimagrire.
  - (d) Beatrice ha preparato un dolce per Claudia, nonostante sia a dieta per dimagrire.
  - (e) Beatrice ha mangiato il dolce di Claudia, anche se lei è a dieta per dimagrire.
  - (f) Beatrice ha preparato un dolce per Claudia, anche se lei è a dieta per dimagrire.
  - (g) Beatrice ha mangiato il dolce di Claudia, anche se lei era a dieta per dimagrire.
  - (h) Beatrice ha preparato un dolce per Claudia, anche se lei era a dieta per dimagrire.
9.
  - (a) Anna ha immortalato in un bel ritratto Beatrice, nonostante lei dipinga solo per passione.

- (b) Anna è stata immortalata in un bel ritratto da Beatrice, nonostante lei dipinga solo per passione.
  - (c) Anna ha immortalato in un bel ritratto Beatrice, nonostante dipinga solo per passione.
  - (d) Anna è stata immortalata in un bel ritratto da Beatrice, nonostante dipinga solo per passione.
  - (e) Anna ha immortalato in un bel ritratto Beatrice, anche se lei dipinge solo per passione.
  - (f) Anna è stata immortalata in un bel ritratto da Beatrice, anche se lei dipinge solo per passione.
  - (g) Anna ha immortalato in un bel ritratto Beatrice, anche se lei dipingeva solo per passione.
  - (h) Anna è stata immortalata in un bel ritratto da Beatrice, anche se lei dipingeva solo per passione.
- 10.
- (a) Carmen non risponde mai alle domande di Diana, nonostante lei conosca tutte le risposte.
  - (b) Carmen non fa mai domande a Diana, nonostante lei conosca tutte le risposte.
  - (c) Carmen non risponde mai alle domande di Diana, nonostante conosca tutte le risposte.
  - (d) Carmen non fa mai domande a Diana, nonostante conosca tutte le risposte.
  - (e) Carmen non risponde mai alle domande di Diana, anche se lei conosce tutte le risposte.
  - (f) Carmen non fa mai domande a Diana, anche se lei conosce tutte le risposte.
  - (g) Carmen non rispondeva mai alle domande di Diana, anche se lei conosceva tutte le risposte.
  - (h) Carmen non faceva mai domande a Diana, anche se lei conosceva tutte le risposte.
- 11.
- (a) Anna spolvera sempre la stanza di Beatrice nonostante lei sia allergica alla polvere e agli acari
  - (b) Anna fa sempre spolverare la casa a Beatrice, nonostante lei sia allergica alla polvere e agli acari.
  - (c) Anna spolvera sempre la stanza di Beatrice, nonostante sia allergica alla polvere e agli acari.
  - (d) Anna fa sempre spolverare la casa a Beatrice, nonostante sia allergica alla polvere e agli acari.
  - (e) Anna spolvera sempre la stanza di Beatrice, anche se lei è allergica alla polvere e agli acari.
  - (f) Anna fa sempre spolverare la casa a Beatrice, anche se lei è allergica alla polvere e agli acari.
  - (g) Anna spolverava sempre la stanza di Beatrice, anche se lei era allergica alla polvere e agli acari.
  - (h) Anna faceva sempre spolverare la casa a Beatrice, anche se lei era allergica alla polvere e agli acari.
- 12.
- (a) Diana si irrita frequentemente con Emma, nonostante lei sia paziente generalmente con tutti.
  - (b) Diana fa irritare frequentemente Emma, nonostante lei sia paziente generalmente con tutti.

- (c) Diana si irrita frequentemente con Emma, nonostante sia paziente generalmente con tutti.
  - (d) Diana fa irritare frequentemente Emma, nonostante sia paziente generalmente con tutti.
  - (e) Diana si irrita frequentemente con Emma, anche se lei è paziente generalmente con tutti.
  - (f) Diana fa irritare frequentemente Emma, anche se lei è paziente generalmente con tutti.
  - (g) Diana si irritava frequentemente con Emma, anche se lei era paziente generalmente con tutti.
  - (h) Diana faceva irritare frequentemente Emma, anche se lei era paziente generalmente con tutti.
- 13.
- (a) Emma riceve ogni giorno la medicina da Anna, nonostante lei si lamenti facendo molti capricci.
  - (b) Emma somministra ogni giorno la medicina ad Anna, nonostante lei si lamenti facendo molti capricci.
  - (c) Emma riceve ogni giorno la medicina da Anna, nonostante si lamenti facendo molti capricci.
  - (d) Emma somministra ogni giorno la medicina ad Anna, nonostante si lamenti facendo molti capricci.
  - (e) Emma riceve ogni giorno la medicina da Anna, anche se lei si lamenta facendo molti capricci.
  - (f) Emma somministra ogni giorno la medicina ad Anna, anche se lei si lamenta facendo molti capricci.
  - (g) Emma riceveva ogni giorno la medicina da Anna, anche se lei si lamentava facendo molti capricci.
  - (h) Emma somministrava ogni giorno la medicina ad Anna, anche se lei si lamentava facendo i capricci.
- 14.
- (a) Maria riceve talvolta schiaffi da Anna, nonostante lei non faccia nulla di male.
  - (b) Maria dà talvolta schiaffi ad Anna, nonostante lei non faccia nulla di male.
  - (c) Maria riceve talvolta schiaffi da Anna, nonostante non faccia nulla di male.
  - (d) Maria dà talvolta schiaffi ad Anna, nonostante non faccia nulla di male.
  - (e) Maria riceve talvolta schiaffi da Anna, anche se lei non fa nulla di male.
  - (f) Maria dà talvolta schiaffi ad Anna, anche se lei non fa nulla di male.
  - (g) Maria riceveva talvolta schiaffi da Anna, anche se lei non faceva nulla di male.
  - (h) Maria dava talvolta schiaffi ad Anna, anche se lei non faceva nulla di male.
- 15.
- (a) Carmen chiede sempre indicazioni a Beatrice, nonostante lei conosca la città abbastanza bene.
  - (b) Carmen dà sempre indicazioni a Beatrice, nonostante lei conosca la città abbastanza bene.
  - (c) Carmen chiede sempre indicazioni a Beatrice, nonostante conosca la città abbastanza bene.
  - (d) Carmen dà sempre indicazioni a Beatrice, nonostante conosca la città abbastanza bene.
  - (e) Carmen chiede sempre indicazioni a Beatrice, anche se lei conosce la città abbastanza bene.

- (f) Carmen dà sempre indicazioni a Beatrice, anche se lei conosce la città abbastanza bene.
  - (g) Carmen chiedeva sempre indicazioni a Beatrice, anche se lei conosceva la città abbastanza bene.
  - (h) Carmen dava sempre indicazioni a Beatrice, anche se lei conosceva la città abbastanza bene.
- 16.
- (a) Antonio viene sempre aggredito con violenza da Bernardo, nonostante lui non reagisca davanti alle provocazioni.
  - (b) Antonio aggredisce sempre con violenza Bernardo, nonostante lui non reagisca davanti alle provocazioni.
  - (c) Antonio viene sempre aggredito con violenza da Bernardo, nonostante non reagisca davanti alle provocazioni.
  - (d) Antonio aggredisce sempre con violenza Bernardo, nonostante non reagisca davanti alle provocazioni.
  - (e) Antonio viene sempre aggredito con violenza da Bernardo, anche se lui non reagisce davanti alle provocazioni.
  - (f) Antonio aggredisce sempre con violenza Bernardo, anche se lui non reagisce davanti alle provocazioni.
  - (g) Antonio veniva sempre aggredito con violenza da Bernardo, anche se lui non reagiva davanti alle provocazioni.
  - (h) Antonio aggrediva sempre con violenza Bernardo, anche se lui non reagiva davanti alle provocazioni.
- 17.
- (a) Bernardo gode della fiducia di Carlo, nonostante lui menta riguardo a molte questioni.
  - (b) Bernardo si fida ciecamente di Carlo, nonostante lui menta riguardo a molte questioni.
  - (c) Bernardo gode della fiducia di Carlo, nonostante menta riguardo a molte questioni.
  - (d) Bernardo si fida ciecamente di Carlo, nonostante menta riguardo a molte questioni.
  - (e) Bernardo gode della fiducia di Carlo, anche se lui mente riguardo a molte questioni.
  - (f) Bernardo si fida ciecamente di Carlo, anche se lui mente riguardo a molte questioni.
  - (g) Bernardo godeva della fiducia di Carlo, anche se lui mentiva riguardo a molte questioni.
  - (h) Bernardo si fidava ciecamente di Carlo, anche se lui mentiva riguardo a molte questioni.
- 18.
- (a) Carlo ha subito accuse pesanti da Antonio, nonostante lui sia innocente secondo l'opinione pubblica.
  - (b) Carlo ha accusato pesantemente Antonio, nonostante lui sia innocente secondo l'opinione pubblica.
  - (c) Carlo ha subito accuse pesanti da Antonio, nonostante sia innocente secondo l'opinione pubblica.
  - (d) Carlo ha accusato pesantemente Antonio, nonostante sia innocente secondo l'opinione pubblica.
  - (e) Carlo ha subito accuse pesanti da Antonio, anche se lui è innocente secondo l'opinione pubblica.



- (f) Carlo ha accusato pesantemente Antonio, anche se lui è innocente secondo l'opinione pubblica.
  - (g) Carlo ha subito accuse pesanti da Antonio, anche se lui era innocente secondo l'opinione pubblica.
  - (h) Carlo ha accusato pesantemente Antonio, anche se lui era innocente secondo l'opinione pubblica.
- 19.
- (a) Bernardo appare in molte foto di Diego, nonostante lui sia timido davanti alle macchine fotografiche.
  - (b) Bernardo ha fatto molte foto a Diego, nonostante lui sia timido davanti alle macchine fotografiche.
  - (c) Bernardo appare in molte foto di Diego, nonostante sia timido davanti alle macchine fotografiche.
  - (d) Bernardo ha fatto molte foto a Diego, nonostante sia timido davanti alle macchine fotografiche.
  - (e) Bernardo appare in molte foto di Diego, anche se lui è timido davanti alle macchine fotografiche.
  - (f) Bernardo ha fatto molte foto a Diego anche se, lui è timido davanti alle macchine fotografiche.
  - (g) Bernardo appare in molte foto di Diego, anche se lui era timido davanti alle macchine fotografiche.
  - (h) Bernardo ha fatto molte foto a Diego, anche se lui era timido davanti alle macchine fotografiche.
- 20.
- (a) Antonio ha accettato di giocare a tennis con Carlo, nonostante lui detesti tutti gli sport.
  - (b) Antonio ha convinto a giocare a tennis Carlo, nonostante lui detesti tutti gli sport.
  - (c) Antonio ha accettato di giocare a tennis con Carlo, nonostante detesti tutti gli sport.
  - (d) Antonio ha convinto a giocare a tennis Carlo, nonostante detesti tutti gli sport.
  - (e) Antonio ha accettato di giocare a tennis con Carlo, anche se lui detesta tutti gli sport.
  - (f) Antonio ha convinto a giocare a tennis Carlo, anche se lui detesta tutti gli sport.
  - (g) Antonio ha accettato di giocare a tennis con Carlo, anche se lui detestava tutti gli sport.
  - (h) Antonio ha convinto a giocare a tennis Carlo anche se lui detestava tutti gli sport.
- 21.
- (a) Carlo ha il permesso di usare la macchina di Diego, nonostante lui guidi in modo spericolato.
  - (b) Carlo lascia usare la sua macchina a Diego, nonostante lui guidi in modo spericolato.
  - (c) Carlo ha il permesso di usare la macchina di Diego, nonostante guidi in modo spericolato.
  - (d) Carlo lascia usare la sua macchina a Diego, nonostante guidi in modo spericolato.
  - (e) Carlo ha il permesso di usare la macchina di Diego, anche se lui guida in modo spericolato.

- (f) Carlo lascia usare la sua macchina a Diego, anche se lui guida in modo spericolato.
  - (g) Carlo aveva il permesso di usare la macchina di Diego, anche se lui guidava in modo spericolato.
  - (h) Carlo lasciava usare la sua macchina a Diego, anche se lui guidava in modo spericolato.
- 22.
- (a) Bernardo ha letto le poesie di Carlo, nonostante lui non se ne intenda molto di letteratura.
  - (b) Bernardo ha fatto leggere le sue poesie a Carlo, nonostante lui non se ne intenda molto di letteratura.
  - (c) Bernardo ha letto le poesie di Carlo, nonostante non se ne intenda molto di letteratura.
  - (d) Bernardo ha fatto leggere le sue poesie a Carlo, nonostante non se ne intenda molto di letteratura.
  - (e) Bernardo ha letto le poesie di Carlo, anche se lui non se ne intende molto di letteratura.
  - (f) Bernardo ha fatto leggere le sue poesie a Carlo, anche se lui non se ne intende molto di letteratura.
  - (g) Bernardo ha letto le poesie di Carlo, anche se lui non se ne intendeva molto di letteratura.
  - (h) Bernardo ha fatto leggere le sue poesie a Carlo, anche se lui non se ne intendeva molto di letteratura.
- 23.
- (a) Diego ha riparato il computer di Antonio, nonostante lui ne capisca poco di elettronica.
  - (b) Diego ha fatto riparare il suo computer ad Antonio, nonostante lui ne capisca poco di elettronica.
  - (c) Diego ha riparato il computer di Antonio, nonostante ne capisca poco di elettronica.
  - (d) Diego ha fatto riparare il suo computer ad Antonio, nonostante ne capisca poco di elettronica.
  - (e) Diego ha riparato il computer di Antonio, anche se lui ne capisce poco di elettronica.
  - (f) Diego ha fatto riparare il suo computer ad Antonio, anche se lui ne capisce poco in materia di elettronica.
  - (g) Diego ha riparato il computer di Antonio, anche se lui ne capiva poco in materia di elettronica.
  - (h) Diego ha fatto riparare il suo computer ad Antonio, anche se lui ne capiva poco di elettronica.
- 24.
- (a) Bernardo è stato licenziato poco tempo fa da Antonio, nonostante lui sia il migliore nel suo campo.
  - (b) Bernardo ha licenziato poco tempo fa Antonio, nonostante lui sia il migliore nel suo campo.
  - (c) Bernardo è stato licenziato poco tempo fa da Antonio, nonostante sia il migliore nel suo campo.
  - (d) Bernardo ha licenziato poco tempo fa Antonio, nonostante sia il migliore nel suo campo.
  - (e) Bernardo è stato licenziato poco tempo fa da Antonio, anche se lui è il migliore nel suo campo.

- (f) Bernardo ha licenziato poco tempo fa Antonio, anche se lui è il migliore nel suo campo.
  - (g) Bernardo è stato licenziato poco tempo fa da Antonio, anche se lui era il migliore nel suo campo.
  - (h) Bernardo ha licenziato poco tempo fa Antonio, anche se lui era il migliore nel suo campo.
- 25.
- (a) Carlo viene ammonito varie volte da Diego, nonostante lui si comporti bene ultimamente.
  - (b) Carlo ha ammonito varie volte Diego, nonostante lui si comporti bene ultimamente.
  - (c) Carlo è stato ammonito varie volte da Diego, nonostante si comporti bene ultimamente.
  - (d) Carlo ha ammonito varie volte Diego, nonostante si comporti bene ultimamente.
  - (e) Carlo è stato ammonito varie volte da Diego, anche se lui si comporta bene ultimamente.
  - (f) Carlo ha ammonito varie volte Diego, anche se lui si comporta bene ultimamente.
  - (g) Carlo è stato ammonito varie volte da Diego, anche se lui si comportava bene ultimamente.
  - (h) Carlo ha ammonito varie volte Diego, anche se lui si comportava bene ultimamente.
- 26.
- (a) Bernardo riceve voti bassi da Carlo, nonostante lui studi con molta serietà.
  - (b) Bernardo dà voti bassi a Carlo, nonostante lui studi con molta serietà.
  - (c) Bernardo riceve voti bassi da Carlo, nonostante studi con molta serietà.
  - (d) Bernardo dà voti bassi a Carlo, nonostante studi con molta serietà.
  - (e) Bernardo riceve voti bassi da Carlo, anche se lui studia con molta serietà.
  - (f) Bernardo dà voti bassi a Carlo, anche se lui studia con molta serietà.
  - (g) Bernardo riceveva voti bassi da Carlo, anche se lui studiava con molta serietà.
  - (h) Bernardo dava voti bassi a Carlo, anche se lui studiava con molta serietà.
- 27.
- (a) Carlo è stato arrestato ieri da Diego, nonostante lui sia innocente secondo il parere di molti.
  - (b) Carlo ha arrestato ieri Diego, nonostante lui sia innocente secondo il parere di molti.
  - (c) Carlo è stato arrestato ieri da Diego, nonostante sia innocente secondo il parere di molti.
  - (d) Carlo ha arrestato ieri Diego, nonostante sia innocente secondo il parere di molti.
  - (e) Carlo è stato arrestato ieri da Diego, anche se lui è innocente secondo il parere di molti.
  - (f) Carlo ha arrestato ieri Diego, anche se lui è innocente secondo il parere di molti.
  - (g) Carlo è stato arrestato ieri da Diego, anche se lui era innocente secondo il parere di molti.
  - (h) Carlo ha arrestato ieri Diego, anche se lui era innocente secondo il parere di molti.

28. (a) Antonio fece aspettare per ore Bernardo, nonostante lui sia puntualissimo negli appuntamenti importanti.
- (b) Antonio dovette aspettare per ore Bernardo, nonostante lui sia puntualissimo negli appuntamenti importanti.
- (c) Antonio fece aspettare per ore Bernardo, nonostante sia puntualissimo negli appuntamenti importanti.
- (d) Antonio dovette aspettare per ore Bernardo, nonostante sia puntualissimo negli appuntamenti importanti.
- (e) Antonio ha fatto aspettare per ore Bernardo, anche se lui è puntualissimo negli appuntamenti importanti.
- (f) Antonio dovette aspettare per ore Bernardo, anche se lui è puntualissimo negli appuntamenti importanti.
- (g) Antonio faceva aspettare per ore Bernardo, anche se lui era puntualissimo negli appuntamenti importanti.
- (h) Antonio doveva aspettare per ore Bernardo, anche se lui era puntualissimo negli appuntamenti importanti.
29. (a) Antonio fu accusato della truffa da Bernardo, nonostante lui si dichiarasse completamente innocente.
- (b) Antonio ha accusato della truffa Bernardo, nonostante lui si dichiarasse completamente innocente.
- (c) Antonio fu accusato della truffa da Bernardo, nonostante si dichiarasse completamente innocente.
- (d) Antonio ha accusato della truffa Bernardo, nonostante si dichiarasse completamente innocente.
- (e) Antonio fu accusato della truffa da Bernardo, anche se lui si dichiarava completamente innocente.
- (f) Antonio ha accusato della truffa Bernardo, anche se lui si dichiarava completamente innocente.
- (g) Antonio fu accusato della truffa da Bernardo, anche se lui si dichiarava completamente innocente.
- (h) Antonio ha accusato della truffa Bernardo, anche se lui si dichiarava completamente innocente.
30. (a) Bernardo ha saputo di avere un tumore da Diego, nonostante lui non soffra di alcun sintomo.
- (b) Bernardo ha disagnosticato un tumore a Diego, nonostante lui non soffra di alcun sintomo.
- (c) Bernardo ha saputo di avere un tumore da Diego, nonostante non soffra di alcun sintomo.
- (d) Bernardo ha disagnosticato un tumore a Diego, nonostante non soffra di alcun sintomo.
- (e) Bernardo ha saputo di avere un tumore da Diego, anche se lui non soffre di alcun sintomo.
- (f) Bernardo ha disagnosticato un tumore a Diego, anche se lui non soffre di alcun sintomo.
- (g) Bernardo ha saputo di avere un tumore da Diego, anche se lui non soffriva di alcun sintomo.
- (h) Bernardo ha disagnosticato un tumore a Diego, anche se lui non soffriva di alcun sintomo.

31. (a) Anna ha accorciato i pantaloni di Beatrice, nonostante lei cucia male a macchina.  
(b) Anna ha fatto accorciare i pantaloni a Beatrice, nonostante lei cucia male a macchina.  
(c) Anna ha accorciato i pantaloni di Beatrice, nonostante cucia male a macchina.  
(d) Anna ha fatto accorciare i pantaloni a Beatrice, nonostante cucia male a macchina.  
(e) Anna ha accorciato i pantaloni di Beatrice, anche se lei cuce male a macchina.  
(f) Anna ha fatto accorciare i pantaloni a Beatrice, anche se lei cuce male a macchina.  
(g) Anna accorciava i pantaloni di Beatrice, anche se lei cuciva male a macchina.  
(h) Anna faceva accorciare i pantaloni a Beatrice, anche se lei cuciva male a macchina.
32. (a) Beatrice riceve spesso elogi da Diana, nonostante lei si comporti male a scuola.  
(b) Beatrice ricopre sempre di elogi Diana, nonostante lei si comporti male a scuola.  
(c) Beatrice riceve spesso elogi da Diana, nonostante si comporti male a scuola.  
(d) Beatrice ricopre sempre di elogi Diana, nonostante si comporti male a scuola.  
(e) Beatrice riceve spesso elogi da Diana, anche se lei si comporta male a scuola.  
(f) Beatrice ricopre sempre di elogi Diana, anche se lei si comporta male a scuola.  
(g) Beatrice riceveva spesso elogi da Diana, anche se lei si comportava male a scuola.  
(h) Beatrice ricopriva di elogi Diana, anche se lei si comportava male a scuola.
33. (a) Carmen ha ricevuto un voto alto da Maria, nonostante lei non studi molto per gli esami.  
(b) Carmen ha dato un voto alto a Maria, nonostante lei non studi molto per gli esami.  
(c) Carmen ha ricevuto un voto alto da Maria, nonostante non studi molto per gli esami.  
(d) Carmen ha dato un voto alto a Maria, nonostante non studi molto per gli esami.  
(e) Carmen ha ricevuto un voto alto da Maria, anche se lei non studia molto per gli esami.  
(f) Carmen ha dato un voto alto a Maria, anche se lei non studia molto per gli esami.  
(g) Carmen ha ricevuto un voto alto da Maria, anche se lei non studiava molto per gli esami.  
(h) Carmen ha dato un voto alto a Maria, anche se lei non studiava molto per gli esami.
34. (a) Anna vuole andare alla festa di Beatrice, nonostante lei non conosca nessuno degli invitati.  
(b) Anna vuole invitare alla sua festa Beatrice, nonostante lei non conosca nessuno degli invitati.  
(c) Anna vuole andare alla festa di Beatrice, nonostante non conosca nessuno degli invitati.

- (d) Anna vuole invitare alla sua festa Beatrice, nonostante non conosca nessuno degli invitati.
  - (e) Anna vuole andare alla festa di Beatrice, anche se lei non conosce nessuno degli invitati.
  - (f) Anna vuole invitare alla sua festa Beatrice, anche se lei non conosce nessuno degli invitati.
  - (g) Anna voleva andare alla festa di Beatrice, anche se lei non conosceva nessuno degli invitati.
  - (h) Anna voleva invitare alla sua festa Beatrice, anche se lei non conosceva nessuno degli invitati.
- 35.
- (a) Diana ha dato consigli perfino ad Anna, nonostante lei non sappia nulla della questione.
  - (b) Diana ha ricevuto consigli perfino da Anna, nonostante lei non sappia nulla della questione.
  - (c) Diana ha dato consigli perfino ad Anna, nonostante non sappia nulla della questione.
  - (d) Diana ha ricevuto consigli perfino da Anna, nonostante non sappia nulla della questione.
  - (e) Diana ha dato consigli perfino ad Anna, anche se lei non sa nulla della questione.
  - (f) Diana ha ricevuto consigli perfino da Anna, anche se lei non sa nulla della questione.
  - (g) Diana ha dato consigli perfino ad Anna, anche se lei non sapeva nulla della questione.
  - (h) Diana ha ricevuto consigli perfino da Anna, anche se lei non sapeva nulla della questione.
- 36.
- (a) Emma ottiene a volte premi da Anna, nonostante lei bari durante le eliminatorie.
  - (b) Emma concede a volte premi ad Anna, nonostante lei bari durante le eliminatorie.
  - (c) Emma ottiene a volte premi da Anna, nonostante bari durante le eliminatorie.
  - (d) Emma concede a volte premi ad Anna, nonostante bari durante le eliminatorie.
  - (e) Emma ottiene a volte premi da Anna, anche se lei bara durante le eliminatorie.
  - (f) Emma concede a volte premi ad Anna, anche se lei bara durante le eliminatorie.
  - (g) Emma otteneva a volte premi da Anna, anche se lei barava durante le eliminatorie.
  - (h) Emma concedeva a volte premi ad Anna, anche se lei barava durante le eliminatorie.
- 37.
- (a) Carmen ha battuto Diana a nuoto, nonostante lei non si alleni da moltissimo tempo.
  - (b) Carmen è stata battuta da Diana a nuoto, nonostante lei non si alleni da moltissimo tempo.
  - (c) Carmen ha battuto Diana a nuoto, nonostante non si alleni da moltissimo tempo.

- (d) Carmen è stata battuta da Diana a nuoto, nonostante non si alleni da moltissimo tempo.
  - (e) Carmen ha battuto Diana a nuoto, anche se lei non si allena da moltissimo tempo.
  - (f) Carmen è stata battuta da Diana a nuoto, anche se lei non si allena da moltissimo tempo.
  - (g) Carmen ha battuto Diana a nuoto, anche se lei non si allenava da moltissimo tempo.
  - (h) Carmen è stata battuta da Diana a nuoto, anche se lei non si allenava da moltissimo tempo.
- 38.
- (a) Beatrice ha ottenuto una promozione da Carmen, nonostante lei sia inesperta per il nuovo lavoro.
  - (b) Beatrice ha dato una promozione a Carmen, nonostante lei sia inesperta per il nuovo lavoro.
  - (c) Beatrice ha ottenuto una promozione da Carmen, nonostante sia inesperta per il nuovo lavoro.
  - (d) Beatrice ha dato una promozione a Carmen, nonostante sia inesperta per il nuovo lavoro.
  - (e) Beatrice ha ottenuto una promozione da Carmen, anche se lei è inesperta per il nuovo lavoro.
  - (f) Beatrice ha dato una promozione a Carmen, anche se lei è inesperta per il nuovo lavoro.
  - (g) Beatrice ha ottenuto una promozione da Carmen, anche se lei era inesperta per il nuovo lavoro.
  - (h) Beatrice ha dato una promozione a Carmen, anche se lei era inesperta per il nuovo lavoro.
- 39.
- (a) Anna passa più tempo di Beatrice con la famiglia, nonostante lei viaggi molto all'estero per lavoro.
  - (b) Anna passa meno tempo di Beatrice con la famiglia, nonostante lei viaggi molto all'estero per lavoro.
  - (c) Anna passa più tempo di Beatrice con la famiglia, nonostante viaggi molto all'estero per lavoro.
  - (d) Anna passa meno tempo di Beatrice con la famiglia, nonostante viaggi molto all'estero per lavoro.
  - (e) Anna passa più tempo di Beatrice con la famiglia, anche se lei viaggia molto all'estero per lavoro.
  - (f) Anna passa meno tempo di Beatrice con la famiglia, anche se lei viaggia molto all'estero per lavoro.
  - (g) Anna passa più tempo di Beatrice con la famiglia, anche se lei viaggiava molto all'estero per lavoro.
  - (h) Anna passa meno tempo di Beatrice con la famiglia, anche se lei viaggiava molto all'estero per lavoro.
- 40.
- (a) Carmen riesce a preparare la cena per Maria, nonostante lei debba uscire in fretta ogni sera.
  - (b) Carmen fa preparare la cena a Maria, nonostante lei debba uscire in fretta ogni sera.
  - (c) Carmen riesce a preparare la cena per Maria, nonostante debba uscire in fretta ogni sera.

- (d) Carmen fa preparare la cena a Maria, nonostante debba uscire in fretta ogni sera.
  - (e) Carmen riesce a preparare la cena per Maria, anche se lei deve uscire in fretta ogni sera.
  - (f) Carmen fa preparare la cena a Maria, anche se lei deve uscire in fretta ogni sera.
  - (g) Carmen riusciva a preparare la cena per Maria, anche se lei doveva uscire in fretta ogni sera.
  - (h) Carmen faceva preparare la cena a Maria, anche se lei doveva uscire in fretta ogni sera.
- 41.
- (a) Beatrice ha cantato una canzone a Diana, nonostante lei sia stonata come una campana.
  - (b) Beatrice ha fatto cantare una canzone a Diana, nonostante lei sia stonata come una campana.
  - (c) Beatrice ha cantato una canzone a Diana, nonostante sia stonata come una campana.
  - (d) Beatrice ha fatto cantare una canzone a Diana, nonostante sia stonata come una campana.
  - (e) Beatrice ha cantato una canzone a Diana, anche se lei è stonata come una campana.
  - (f) Beatrice ha fatto cantare una canzone a Diana, anche se lei è stonata come una campana.
  - (g) Beatrice ha cantato una canzone a Diana, anche se lei era stonata come una campana.
  - (h) Beatrice ha fatto cantare una canzone a Diana, anche se lei era stonata come una campana.
- 42.
- (a) Carmen ha sostenuto la causa di Anna, nonostante lei non approvi alcune delle sue idee.
  - (b) Carmen ha ottenuto l'appoggio di Anna, nonostante lei non approvi alcune delle sue idee.
  - (c) Carmen ha sostenuto la causa di Anna, nonostante non approvi alcune delle sue idee.
  - (d) Carmen ha ottenuto l'appoggio di Anna, nonostante non approvi alcune delle sue idee.
  - (e) Carmen ha sostenuto la causa di Anna, anche se lei non approva alcune delle sue idee.
  - (f) Carmen ha ottenuto l'appoggio di Anna, anche se lei non approva alcune delle sue idee.
  - (g) Carmen ha sostenuto la causa di Anna, anche se lei non approvava alcune delle sue idee.
  - (h) Carmen ha ottenuto l'appoggio di Anna, anche se lei non approvava alcune delle sue idee.
- 43.
- (a) Anna sta facendo la dieta di Beatrice, nonostante lei sia magra come un chiodo.
  - (b) Anna ha raccomandato una dieta a Beatrice, nonostante lei sia magra come un chiodo.
  - (c) Anna sta facendo la dieta di Beatrice, nonostante sia magra come un chiodo.



- (d) Anna ha raccomandato una dieta a Beatrice, nonostante sia magra come un chiodo.
  - (e) Anna sta facendo la dieta di Beatrice, anche se lei è magra come un chiodo.
  - (f) Anna ha raccomandato una dieta a Beatrice, anche se lei è magra come un chiodo.
  - (g) Anna sta facendo la dieta di Beatrice, anche se lei era magra come un chiodo.
  - (h) Anna ha raccomandato una dieta a Beatrice, anche se lei era magra come un chiodo.
- 44.
- (a) Beatrice riporta molti pettegolezzi a Claudia, nonostante lei non racconti con precisione i dettagli.
  - (b) Beatrice ascolta i pettegolezzi di Claudia, nonostante lei non racconti con precisione i dettagli.
  - (c) Beatrice riporta molti pettegolezzi a Claudia, nonostante non racconti con precisione i dettagli.
  - (d) Beatrice ascolta i pettegolezzi di Claudia, nonostante non racconti con precisione i dettagli.
  - (e) Beatrice riporta molti pettegolezzi a Claudia, anche se lei non racconta con precisione i dettagli.
  - (f) Beatrice ascolta i pettegolezzi di Claudia, anche se lei non racconta con precisione i dettagli.
  - (g) Beatrice riportava molti pettegolezzi a Claudia, anche se lei non raccontava con precisione i dettagli.
  - (h) Beatrice ascoltava i pettegolezzi di Claudia, anche se lei non raccontava con precisione i dettagli.
- 45.
- (a) Beatrice si occuperà delle domande di Claudia, nonostante lei risponda burscamente a volte.
  - (b) Beatrice deve fare delle domande a Claudia, nonostante lei risponda burscamente a volte.
  - (c) Beatrice si occuperà delle domande di Claudia, nonostante risponda burscamente a volte.
  - (d) Beatrice deve fare delle domande a Claudia, nonostante risponda burscamente a volte.
  - (e) Beatrice si occuperà delle domande di Claudia, anche se lei risponde burscamente a volte.
  - (f) Beatrice deve fare delle domande a Claudia, anche se lei risponde burscamente a volte.
  - (g) Beatrice è occupata delle domande di Claudia, anche se lei rispondeva burscamente a volte.
  - (h) Beatrice doveva fare delle domande a Claudia, anche se lei rispondeva burscamente a volte.
- 46.
- (a) Antonio non ama prendere denaro in prestito da Bernardo, nonostante lui restituisca sempre tutto puntualmente.
  - (b) Antonio non vuole prestare denaro a Bernardo, nonostante lui restituisca sempre tutto puntualmente.
  - (c) Antonio non ama prendere denaro in prestito da Bernardo, nonostante restituisca sempre tutto puntualmente.

- (d) Antonio vuole prestare denaro a Bernardo, nonostante restituisca sempre tutto puntualmente.
  - (e) Antonio non ama prendere denaro in prestito da Bernardo, anche se lui restituisce sempre tutto puntualmente.
  - (f) Antonio vuole prestare denaro a Bernardo, anche se lui restituisce sempre tutto puntualmente.
  - (g) Antonio non amava prendere denaro in prestito da Bernardo, anche se lui restituiva sempre tutto puntualmente.
  - (h) Antonio non voleva prestare denaro a Bernardo, anche se lui restituiva sempre tutto puntualmente.
- 47.
- (a) Carlo è stato invitato al compleanno di Diego, nonostante lui stia antipatico a tutta la famiglia.
  - (b) Carlo ha invitato al suo compleanno Diego, nonostante lui stia antipatico a tutta la famiglia.
  - (c) Carlo è stato invitato al compleanno di Diego, nonostante stia antipatico a tutta la famiglia.
  - (d) Carlo ha invitato al suo compleanno Diego, nonostante stia antipatico a tutta la famiglia.
  - (e) Carlo è stato invitato al compleanno di Diego, anche se lui sta antipatico a tutta la famiglia.
  - (f) Carlo ha invitato al suo compleanno Diego, anche se lui sta antipatico a tutta la famiglia.
  - (g) Carlo è stato invitato al compleanno di Diego, anche se lui stava antipatico a tutta la famiglia.
  - (h) Carlo ha invitato al suo compleanno Diego, anche se lui stava antipatico a tutta la famiglia.
- 48.
- (a) Bernardo ha curato il mal di testa di Carlo, nonostante lui sia specializzato nella cura di altri disturbi.
  - (b) Bernardo è stato curato con successo da Carlo, nonostante lui sia specializzato nella cura di altri disturbi.
  - (c) Bernardo ha curato il mal di testa di Carlo, nonostante sia specializzato nella cura di altri disturbi.
  - (d) Bernardo è stato curato con successo da Carlo, nonostante sia specializzato nella cura di altri disturbi.
  - (e) Bernardo ha curato il mal di testa di Carlo, anche se lui è specializzato nella cura di altri disturbi.
  - (f) Bernardo è stato curato con successo da Carlo, anche se lui è specializzato nella cura di altri disturbi.
  - (g) Bernardo ha curato il mal di testa di Carlo, anche se lui era specializzato nella cura di altri disturbi.
  - (h) Bernardo è stato curato con successo da Carlo, anche se lui era specializzato nella cura di altri disturbi.
- 49.
- (a) Diego è il professore meno amato da Carlo, nonostante lui insegni una materia interessante.
  - (b) Diego detesta le lezioni di Carlo, nonostante lui insegni una materia interessante.
  - (c) Diego è il professore meno amato da Carlo, nonostante insegni una materia interessante.

- (d) Diego detesta le lezioni di Carlo, nonostante insegni una materia interessante.
  - (e) Diego è il professore meno amato da Carlo, anche se lui insegna una materia interessante.
  - (f) Diego detesta le lezioni di Carlo, anche se lui insegna una materia interessante.
  - (g) Diego era il professore meno amato da Carlo, anche se lui insegnava una materia interessante.
  - (h) Diego detestava le lezioni di Carlo, anche se lui insegnava una materia interessante.
- 50.
- (a) Bernardo si prenderà cura del cucciolo di Antonio, nonostante lui sia allergico ai peli di cane.
  - (b) Bernardo lascerà il suo cucciolo ad Antonio, nonostante lui sia allergico ai peli di cane.
  - (c) Bernardo si prenderà cura del cucciolo di Antonio, nonostante sia allergico ai peli di cane.
  - (d) Bernardo lascerà il suo cucciolo ad Antonio, nonostante sia allergico ai peli di cane.
  - (e) Bernardo si prenderà cura del cucciolo di Antonio, anche se lui è allergico ai peli di cane.
  - (f) Bernardo lascerà il suo cucciolo ad Antonio, anche se lui è allergico ai peli di cane.
  - (g) Bernardo si è preso cura del cucciolo di Antonio, anche se lui era allergico ai peli di cane.
  - (h) Bernardo ha lasciato il suo cucciolo ad Antonio, anche se lui era allergico ai peli di cane.
- 51.
- (a) Carlo ha chiesto un aumento a Diego nonostante lui produca molto meno degli altri dipendenti
  - (b) Carlo ha dato un aumento a Diego, nonostante lui produca molto meno degli altri dipendenti.
  - (c) Carlo ha chiesto un aumento a Diego, nonostante produca molto meno degli altri dipendenti.
  - (d) Carlo ha dato un aumento a Diego, nonostante produca molto meno degli altri dipendenti.
  - (e) Carlo ha chiesto un aumento a Diego, anche se lui produce molto meno degli altri dipendenti.
  - (f) Carlo ha dato un aumento a Diego, anche se lui produce molto meno degli altri dipendenti.
  - (g) Carlo ha chiesto un aumento a Diego, anche se lui produceva molto meno degli altri dipendenti.
  - (h) Carlo ha dato un aumento a Diego, anche se lui produceva molto meno degli altri dipendenti.
- 52.
- (a) Diego ha ricevuto delle multe da Antonio, nonostante lui guidi sempre con prudenza.
  - (b) Diego ha dato delle multe ad Antonio, nonostante lui guidi sempre con prudenza.
  - (c) Diego ha ricevuto delle multe da Antonio, nonostante guidi sempre con prudenza.

- (d) Diego ha dato delle multe ad Antonio, nonostante guidi sempre con prudenza.
  - (e) Diego ha ricevuto delle multe da Antonio, anche se lui guida sempre con prudenza.
  - (f) Diego ha dato delle multe ad Antonio, anche se lui guida sempre con prudenza.
  - (g) Diego ha ricevuto delle multe da Antonio, anche se lui guidava sempre con prudenza.
  - (h) Diego ha dato delle multe ad Antonio, anche se lui guidava sempre con prudenza.
- 53.
- (a) Antonio ascolta le bugie di Bernardo, nonostante lui non creda a una sola parola.
  - (b) Antonio racconta bugie a Bernardo, nonostante lui non creda a una sola parola.
  - (c) Antonio ascolta le bugie di Bernardo, nonostante non creda a una sola parola.
  - (d) Antonio racconta bugie a Bernardo, nonostante non creda a una sola parola.
  - (e) Antonio ascolta le bugie di Bernardo, anche se lui non crede a una sola parola.
  - (f) Antonio racconta bugie a Bernardo anche se lui non crede a una sola parola
  - (g) Antonio ascoltava le bugie di Bernardo, anche se lui non credeva a una sola parola.
  - (h) Antonio raccontava bugie a Bernardo, anche se lui non credeva a una sola parola.
- 54.
- (a) Antonio riceve lettere da Diego, nonostante lui non riesca a leggere la sua calligrafia disordinata.
  - (b) Antonio scrive lettere a Diego, nonostante lui non riesca a leggere la sua calligrafia disordinata.
  - (c) Antonio riceve lettere da Diego, nonostante non riesca a leggere la sua calligrafia disordinata.
  - (d) Antonio scrive lettere a Diego, nonostante non riesca a leggere la sua calligrafia disordinata.
  - (e) Antonio riceve lettere da Diego, anche se lui non riesce a leggere la sua calligrafia disordinata.
  - (f) Antonio scrive lettere a Diego, anche se lui non riesce a leggere la sua calligrafia disordinata.
  - (g) Antonio riceveva lettere da Diego, anche se lui non riusciva a leggere la sua calligrafia disordinata.
  - (h) Antonio scriveva lettere a Diego, anche se lui non riusciva a leggere la sua calligrafia disordinata.
- 55.
- (a) Bernardo ha concesso un appuntamento a Carlo, nonostante lui non riceva gli studenti in questo periodo.
  - (b) Bernardo ha ottenuto un appuntamento da Carlo, nonostante lui non riceva gli studenti in questo periodo.
  - (c) Bernardo ha concesso un appuntamento a Carlo, nonostante non riceva gli studenti in questo periodo.
  - (d) Bernardo ha ottenuto un appuntamento da Carlo, nonostante non riceva gli studenti in questo periodo.

- (e) Bernardo ha concesso un appuntamento a Carlo, anche se lui non riceve gli studenti in questo periodo.
  - (f) Bernardo ha ottenuto un appuntamento da Carlo, anche se lui non riceve gli studenti in questo periodo.
  - (g) Bernardo ha concesso un appuntamento a Carlo, anche se lui non riceveva gli studenti in questo periodo.
  - (h) Bernardo ha ottenuto un appuntamento da Carlo, anche se lui non riceveva gli studenti in questo periodo.
- 56.
- (a) Carlo non riesce a educare Diego, nonostante lui lo castighi molto duramente.
  - (b) Carlo disobbedisce spesso a Diego, nonostante lui lo castighi molto duramente.
  - (c) Carlo non riesce a educare Diego, nonostante lo castighi molto duramente.
  - (d) Carlo disobbedisce spesso a Diego, nonostante lo castighi molto duramente.
  - (e) Carlo non riesce a educare Diego, anche se lui lo castiga molto duramente.
  - (f) Carlo disobbedisce spesso a Diego, anche se lui lo castiga molto duramente.
  - (g) Carlo non riusciva a educare Diego, anche se lui lo castigava molto duramente.
  - (h) Carlo disobbediva spesso a Diego, anche se lui lo castigava molto duramente.
- 57.
- (a) Antonio ha mostrato il suo progetto a Bernardo, nonostante lui nasconda quasi tutto riguardo al suo lavoro.
  - (b) Antonio ha visto il progetto di Bernardo, nonostante lui nasconda quasi tutto sul suo lavoro.
  - (c) Antonio ha mostrato il suo progetto a Bernardo, nonostante nasconda quasi tutto sul suo lavoro.
  - (d) Antonio ha visto il progetto di Bernardo, nonostante nasconda quasi tutto sul suo lavoro.
  - (e) Antonio ha mostrato il suo progetto a Bernardo, anche se lui nasconde quasi tutto sul suo lavoro.
  - (f) Antonio ha visto il progetto di Bernardo, anche se lui nasconde quasi tutto sul suo lavoro.
  - (g) Antonio ha mostrato il suo progetto a Bernardo, anche se lui nascondeva quasi tutto sul suo lavoro.
  - (h) Antonio ha visto il progetto di Bernardo, anche se lui nascondeva quasi tutto sul suo lavoro.
- 58.
- (a) Bernardo ha ricevuto un regalo da Carlo, nonostante lui compia gli anni solamete fra qualche mese.
  - (b) Bernardo ha comprato un regalo per Carlo, nonostante lui compia gli anni solamete fra qualche mese.
  - (c) Bernardo ha ricevuto un regalo da Carlo, nonostante compia gli anni solamete fra qualche mese.
  - (d) Bernardo ha comprato un regalo per Carlo, nonostante compia gli anni solamete fra qualche mese.
  - (e) Bernardo ha ricevuto un regalo da Carlo, anche se lui compie gli anni solamete fra qualche mese.
  - (f) Bernardo ha comprato un regalo per Carlo, anche se lui compie gli anni solamete fra qualche mese.

- (g) Bernardo ha ricevuto un regalo da Carlo, anche se lui compiva gli anni solamete fra qualche mese.
  - (h) Bernardo ha comprato un regalo per Carlo, anche se lui compiva gli anni solamete fra qualche mese.
- 59.
- (a) Diego non ha saputo rispondere alle domande di Antonio, nonostante lui sia un luminare nel suo campo.
  - (b) Diego non ha ottenuto risposte da Antonio, nonostante lui sia un luminare nel suo campo.
  - (c) Diego non ha saputo rispondere alle domande di Antonio, nonostante sia un luminare nel suo campo.
  - (d) Diego non ha ottenuto risposte da Antonio, nonostante sia un luminare nel suo campo.
  - (e) Diego non ha saputo rispondere alle domande di Antonio, anche se lui è un luminare nel suo campo.
  - (f) Diego non ha ottenuto risposte da Antonio, anche se lui è un luminare nel suo campo.
  - (g) Diego non ha saputo rispondere alle domande di Antonio, anche se lui era un luminare nel suo campo.
  - (h) Diego non ha ottenuto risposte da Antonio, anche se lui era un luminare nel suo campo.
- 60.
- (a) Bruno fa sempre morire le piante di Carlo, nonostante lui innaffi i vasi tutti i giorni.
  - (b) Bruno trova sempre morte le piante lasciate a Carlo, nonostante lui innaffi i vasi tutti i giorni.
  - (c) Bruno fa sempre morire le piante di Carlo, nonostante innaffi i vasi tutti i giorni.
  - (d) Bruno trova sempre morte le piante lasciate a Carlo, nonostante innaffi i vasi tutti i giorni.
  - (e) Bruno fa sempre morire le piante di Carlo, anche se lui innaffia i vasi tutti i giorni.
  - (f) Bruno trova sempre morte le piante lasciate a Carlo, anche se lui innaffia i vasi tutti i giorni.
  - (g) Bruno faceva sempre morire le piante di Carlo, anche se lui innaffiava i vasi tutti i giorni.
  - (h) Bruno trovava sempre morte le piante lasciate a Carlo, anche se lui innaffiava i vasi tutti i giorni.
- 61.
- (a) Anna non sveglia mai Maria, nonostante lei accenda la luce durante la notte.
  - (b) Anna non si sveglia per colpa di Maria, nonostante lei accenda la luce durante la notte.
  - (c) Anna non sveglia mai Maria, nonostante accenda la luce durante la notte.
  - (d) Anna non si sveglia per colpa di Maria, nonostante accenda la luce durante la notte.
  - (e) Anna non sveglia mai Maria, anche se lei accende la luce durante la notte.
  - (f) Anna non si sveglia per colpa di Maria, anche se lei accende la luce durante la notte.
  - (g) Anna non svegliava mai Maria, anche se lei accendeva la luce durante la notte.

- (h) Anna non si svegliava per colpa di Maria, anche se lei accendeva la luce durante la notte.
- 62.
- (a) Carmen è stata selezionata da Diana per il nuovo lavoro, nonostante lei sia inesperta e poco qualificata.
  - (b) Carmen ha selezionato Diana per il nuovo lavoro, nonostante lei sia inesperta e poco qualificata.
  - (c) Carmen è stata selezionata da Diana per il nuovo lavoro, nonostante sia inesperta e poco qualificata.
  - (d) Carmen ha selezionato Diana per il nuovo lavoro, nonostante sia inesperta e poco qualificata.
  - (e) Carmen è stata selezionata da Diana per il nuovo lavoro, anche se lei è inesperta e poco qualificata.
  - (f) Carmen ha selezionato Diana per il nuovo lavoro, anche se lei è inesperta e poco qualificata.
  - (g) Carmen è stata selezionata da Diana per il nuovo lavoro, anche se lei era inesperta e poco qualificata.
  - (h) Carmen ha selezionato Diana per il nuovo lavoro, anche se lei era inesperta e poco qualificata.
- 63.
- (a) Anna è una scrittrice molto amata da Beatrice, nonostante lei scriva libri molto pesanti.
  - (b) Anna ha letto tutti i lavori di Beatrice, nonostante lei scriva libri molto pesanti.
  - (c) Anna è una scrittrice molto amata da Beatrice, nonostante scriva libri molto pesanti.
  - (d) Anna ha letto tutti i lavori di Beatrice, nonostante scriva libri molto pesanti.
  - (e) Anna è una scrittrice molto amata da Beatrice, anche se lei scrive libri molto pesanti.
  - (f) Anna ha letto tutte le opere di Beatrice, anche se lei scrive libri molto pesanti.
  - (g) Anna era una scrittrice molto amata da Beatrice, anche se lei scriveva libri molto pesanti.
  - (h) Anna ha letto tutti le opere di Beatrice, anche se lei scriveva libri molto pesanti.
- 64.
- (a) Beatrice mette soggezione a Carmen, nonostante lei sia amichevole e molto alla mano.
  - (b) Beatrice ha soggezione di Carmen, nonostante lei sia amichevole e molto alla mano.
  - (c) Beatrice mette soggezione a Carmen, nonostante sia amichevole e molto alla mano.
  - (d) Beatrice ha soggezione di Carmen, nonostante sia amichevole e molto alla mano.
  - (e) Beatrice mette soggezione a Carmen, anche se lei è amichevole e molto alla mano.
  - (f) Beatrice ha soggezione di Carmen, anche se lei è amichevole e molto alla mano.
  - (g) Beatrice metteva soggezione a Carmen, anche se lei era amichevole e molto alla mano.

- (h) Beatrice aveva soggezione di Carmen, anche se lei era amichevole e molto alla mano.
- 65.
- (a) Carmen non gode della fiducia di Diana, nonostante lei dimostri molta maturità.
  - (b) Carmen non si fida completamente di Diana, nonostante lei dimostri molta maturità.
  - (c) Carmen non gode della fiducia di Diana, nonostante dimostri molta maturità.
  - (d) Carmen non si fida completamente di Diana, nonostante dimostri molta maturità.
  - (e) Carmen non gode della fiducia di Diana, anche se lei dimostra molta maturità.
  - (f) Carmen non si fida completamente di Diana, anche se lei dimostra molta maturità.
  - (g) Carmen non godeva della fiducia di Diana, anche se lei dimostrava molta maturità.
  - (h) Carmen non si fidava completamente di Diana, anche se lei dimostrava molta maturità.
- 66.
- (a) A Diana è stata prescritta una medicina da Emma, nonostante lei sia sana come un pesce.
  - (b) Diana ha prescritto una medicina a Emma, nonostante lei sia sana come un pesce.
  - (c) A Diana è stata prescritta una medicina da Emma, nonostante sia sana come un pesce.
  - (d) Diana ha prescritto una medicina a Emma, nonostante sia sana come un pesce.
  - (e) A Diana è stata prescritta una medicina da Emma, anche se lei è sana come un pesce.
  - (f) Diana ha prescritto una medicina a Emma, anche se lei è sana come un pesce.
  - (g) A Diana è stata prescritta una medicina da Emma, anche se lei era sana come un pesce.
  - (h) Diana ha prescritto una medicina a Emma, anche se lei era sana come un pesce.
- 67.
- (a) Emma non sarà cacciata di casa da Maria, nonostante lei rubi dalla sua stanza.
  - (b) Emma non cacerà di casa Maria, nonostante lei rubi dalla sua stanza.
  - (c) Emma non sarà cacciata di casa da Maria, nonostante rubi dalla sua stanza.
  - (d) Emma non cacerà di casa Maria, nonostante rubi dalla sua stanza.
  - (e) Emma non sarà cacciata di casa da Maria, anche se lei ruba dalla sua stanza.
  - (f) Emma non cacerà di casa Maria, anche se lei ruba dalla sua stanza.
  - (g) Emma non è stata cacciata di casa da Maria, anche se lei rubava dalla sua stanza.
  - (h) Emma non ha cacciato di casa Maria, anche se lei rubava dalla sua stanza.
- 68.
- (a) Beatrice riassume la trama dei film a Maria, nonostante lei non racconti particolari importanti.



- (b) Beatrice ascolta la trama dei film da Maria, nonostante lei non racconti particolari importanti.
  - (c) Beatrice riassume la trama dei film a Maria, nonostante non racconti particolari importanti.
  - (d) Beatrice ascolta la trama dei film da Maria, nonostante non racconti particolari importanti.
  - (e) Beatrice riassume la trama dei film a Maria, anche se lei non racconta particolari importanti.
  - (f) Beatrice ascolta la trama dei film da Maria, anche se lei non racconta particolari importanti.
  - (g) Beatrice riassumeva la trama dei film a Maria, anche se lei non raccontava particolari importanti.
  - (h) Beatrice ascoltava la trama dei film da Maria, anche se lei non raccontava particolari importanti.
- 69.
- (a) Maria ha ricevuto una richiesta di prestito da Carmen, nonostante lei non finanzia questo tipo di progetti.
  - (b) Maria ha chiesto un prestito a Carmen, nonostante lei non finanzia questo tipo di progetti.
  - (c) Maria ha ricevuto una richiesta di prestito da Carmen, nonostante non finanzia questo tipo di progetti.
  - (d) Maria ha chiesto un prestito a Carmen, nonostante non finanzia questo tipo di progetti.
  - (e) Maria ha ricevuto una richiesta di prestito da Carmen, anche se lei non finanzia questo tipo di progetti.
  - (f) Maria ha chiesto un prestito a Carmen, anche se lei non finanzia questo tipo di progetti.
  - (g) Maria ha ricevuto una richiesta di prestito da Carmen, anche se lei non finanziava questo tipo di progetti.
  - (h) Maria ha chiesto un prestito a Carmen, anche se lei non finanziava questo tipo di progetti.
- 70.
- (a) Beatrice sarà sfrattata dall'appartamento di Emma, nonostante lei paghi l'affitto puntualmente.
  - (b) Beatrice vuole sfrattare dall'appartamento Emma, nonostante lei paghi l'affitto puntualmente.
  - (c) Beatrice sarà sfrattata dall'appartamento di Emma, nonostante paghi l'affitto puntualmente.
  - (d) Beatrice vuole sfrattare dall'appartamento Emma, nonostante paghi l'affitto puntualmente.
  - (e) Beatrice sarà sfrattata dall'appartamento di Emma, anche se lei paga l'affitto puntualmente.
  - (f) Beatrice vuole sfrattare dall'appartamento Emma, anche se lei paga l'affitto puntualmente.
  - (g) Beatrice è stata sfrattata dall'appartamento di Emma, anche se lei pagava l'affitto puntualmente.
  - (h) Beatrice voleva sfrattare dall'appartamento Emma, anche se lei pagava l'affitto puntualmente.
- 71.
- (a) Bernardo non è stato denunciato da Diego, nonostante lui lo picchi qualche volta.

- (b) Bernardo ha deciso di non denunciare Diego, nonostante lui lo picchi qualche volta.
  - (c) Bernardo non è stato denunciato da Diego, nonostante lo picchi qualche volta.
  - (d) Bernardo ha deciso di non denunciare Diego, nonostante lo picchi qualche volta.
  - (e) Bernardo non è stato denunciato da Diego, anche se lui lo picchia qualche volta.
  - (f) Bernardo ha deciso di non denunciare Diego, anche se lui lo picchia qualche volta.
  - (g) Bernardo non è stato denunciato da Diego, anche se lui lo picchiava qualche volta.
  - (h) Bernardo ha deciso di non denunciare Diego, anche se lui lo picchiava qualche volta.
- 72.
- (a) Antonio viene sempre ascoltato con attenzione da Carlo, nonostante lui parli velocemente e in modo confuso.
  - (b) Antonio ascolta sempre con attenzione Carlo, nonostante lui parli velocemente e in modo confuso.
  - (c) Antonio viene sempre ascoltato con attenzione da Carlo, nonostante parli velocemente e in modo confuso.
  - (d) Antonio ascolta sempre con attenzione Carlo, nonostante parli velocemente e in modo confuso.
  - (e) Antonio viene sempre ascoltato con attenzione da Carlo, anche se lui parla velocemente e in modo confuso.
  - (f) Antonio ascolta sempre con attenzione Carlo, anche se lui parla velocemente e in modo confuso.
  - (g) Antonio veniva sempre ascoltato con attenzione da Carlo, anche se lui parlava velocemente e in modo confuso.
  - (h) Antonio ascoltava sempre con attenzione Carlo, anche se lui parlava velocemente e in modo confuso.
- 73.
- (a) Bernardo alle feste in maschera viene sempre riconosciuto da Diego, nonostante lui si travesta in modo perfetto.
  - (b) Bernardo alle feste in maschera riconosce sempre Diego, nonostante lui si travesta in modo perfetto.
  - (c) Bernardo alle feste in maschera viene sempre riconosciuto da Diego, nonostante si travesta in modo perfetto.
  - (d) Bernardo alle feste in maschera riconosce sempre Diego, nonostante si travesta in modo perfetto.
  - (e) Bernardo alle feste in maschera viene sempre riconosciuto da Diego, anche se lui si traveste in modo perfetto.
  - (f) Bernardo alle feste in maschera riconosce sempre Diego, anche se lui si traveste in modo perfetto.
  - (g) Bernardo alle feste in maschera veniva sempre riconosciuto da Diego, anche se lui si travestiva in modo perfetto.
  - (h) Bernardo alle feste in maschera riconosceva sempre Diego, anche se lui si travestiva in modo perfetto.
- 74.
- (a) Carlo viene localizzato sempre da Antonio, nonostante lui non lasci detto nulla a nessuno.

- (b) Carlo localizza sempre Antonio, nonostante lui non lasci detto nulla a nessuno.
  - (c) Carlo viene localizzato sempre da Antonio, nonostante non lasci detto nulla a nessuno.
  - (d) Carlo localizza sempre Antonio, nonostante non lasci detto nulla a nessuno.
  - (e) Carlo viene localizzato sempre da Antonio, anche se lui non lascia detto nulla a nessuno.
  - (f) Carlo localizza sempre Antonio, anche se lui non lascia detto nulla a nessuno.
  - (g) Carlo veniva localizzato sempre da Antonio, anche se lui non lasciava detto nulla a nessuno.
  - (h) Carlo localizzava sempre Antonio, anche se lui non lasciava detto nulla a nessuno.
- 75.
- (a) Diego ha sempre risvegliato l'ammirazione di Antonio, nonostante lui non meriti tutta questa attenzione.
  - (b) Diego ha sempre avuto ammirazione per Antonio, nonostante lui non meriti tutta questa attenzione.
  - (c) Diego ha sempre risvegliato l'ammirazione di Antonio, nonostante non meriti tutta questa attenzione.
  - (d) Diego ha sempre avuto ammirazione per Antonio, nonostante non meriti tutta questa attenzione.
  - (e) Diego ha sempre risvegliato l'ammirazione di Antonio, anche se lui non merita tutta questa attenzione.
  - (f) Diego ha sempre avuto ammirazione per Antonio, anche se lui non merita tutta questa attenzione.
  - (g) Diego ha sempre risvegliato l'ammirazione di Antonio, anche se lui non meritava tutta questa attenzione.
  - (h) Diego ha sempre avuto ammirazione per Antonio, anche se lui non meritava tutta questa attenzione.
- 76.
- (a) Antonio otterrà una proroga da Bernardo, nonostante lui possa finire il lavoro entro la scadenza.
  - (b) Antonio concederà una proroga a Bernardo, nonostante lui possa finire il lavoro entro la scadenza.
  - (c) Antonio otterrà una proroga da Bernardo, nonostante possa finire il lavoro entro la scadenza,
  - (d) Antonio concederà una proroga a Bernardo, nonostante possa finire il lavoro entro la scadenza.
  - (e) Antonio otterrà una proroga da Bernardo, anche se lui può finire il lavoro entro la scadenza.
  - (f) Antonio concederà una proroga a Bernardo, anche se lui può finire il lavoro entro la scadenza.
  - (g) Antonio ha ottenuto una proroga da Bernardo, anche se lui poteva finire il lavoro entro la scadenza.
  - (h) Antonio ha concesso una proroga a Bernardo, anche se lui poteva finire il lavoro entro la scadenza.
- 77.
- (a) Edoardo si infuria a causa di Antonio, nonostante lui si calmi sempre dopo poco.

- (b) Edoardo fa infuriare spesso Antonio, nonostante lui si calmi sempre dopo poco.
  - (c) Edoardo si infuria a causa di Antonio, nonostante si calmi sempre dopo poco.
  - (d) Edoardo fa infuriare spesso Antonio, nonostante si calmi sempre dopo poco.
  - (e) Edoardo si infuria a causa di Antonio, anche se lui si calma sempre dopo poco.
  - (f) Edoardo fa infuriare spesso Antonio, anche se lui si calma sempre dopo poco.
  - (g) Edoardo si infuriava a causa di Antonio, anche se lui si calmava sempre dopo poco.
  - (h) Edoardo faceva infuriare spesso Antonio, anche se lui si calmava sempre dopo poco.
78. (a) Bernardo si scoraggia per le critiche di Diego, nonostante lui si riprenda rapidamente ogni volta.
- (b) Bernardo scoraggia con le sue critiche Diego, nonostante lui si riprenda rapidamente ogni volta.
  - (c) Bernardo si scoraggia per le critiche di Diego, nonostante si riprenda rapidamente ogni volta.
  - (d) Bernardo scoraggia con le sue critiche Diego, nonostante si riprenda rapidamente ogni volta.
  - (e) Bernardo si scoraggia per le critiche di Diego, anche se lui si riprende rapidamente ogni volta.
  - (f) Bernardo scoraggia con le sue critiche Diego, anche se lui si riprende rapidamente ogni volta.
  - (g) Bernardo si scoraggiava per le critiche di Diego, anche se lui si riprendeva rapidamente ogni volta.
  - (h) Bernardo scoraggiava con le sue critiche Diego, anche se lui si riprendeva rapidamente ogni volta.
79. (a) Carlo non si presenta mai alle feste di Bernardo, nonostante lui prometta di venire ogni volta.
- (b) Carlo non si aspetta di incontrare alle feste Bernardo, nonostante lui prometta di venire ogni volta.
  - (c) Carlo non si presenta mai alle feste di Bernardo, nonostante prometta di venire ogni volta.
  - (d) Carlo non si aspetta di incontrare alle feste Bernardo, nonostante prometta di venire ogni volta.
  - (e) Carlo non si presenta mai alle feste di Bernardo, anche se lui promette di venire ogni volta.
  - (f) Carlo non si aspetta di incontrare alle feste Bernardo, anche se lui promette di venire ogni volta.
  - (g) Carlo non si presentava mai alle feste di Bernardo, anche se lui prometteva di venire ogni volta.
  - (h) Carlo non si aspettava di incontrare alle feste Bernardo, anche se lui prometteva di venire ogni volta.
80. (a) Antonio si sveglia ogni notte per colpa di Bernardo, nonostante lui dorma molto profondamente.

- (b) Antonio sveglia ogni notte Bernardo, nonostante lui dorma molto profondamente.
- (c) Antonio si sveglia ogni notte per colpa di Bernardo, nonostante dorma molto profondamente.
- (d) Antonio sveglia ogni notte Bernardo, nonostante dorma molto profondamente.
- (e) Antonio si sveglia ogni notte per colpa di Bernardo, anche se lui dorme molto profondamente.
- (f) Antonio sveglia ogni notte Bernardo, anche se lui dorme molto profondamente.
- (g) Antonio si svegliava ogni notte per colpa di Bernardo, anche se lui dormiva molto profondamente.
- (h) Antonio svegliava ogni notte Bernardo, anche se lui dormiva molto profondamente.

### C.3 Spanish Instructions

The same as in the Spanish version of Experiment 2, Appendix B.3.

### C.4 Experimental materials: Spanish

1.
  - (a) María ha ofrecido unas vacaciones de regalo a Ana, aunque ella sea pobre y sin trabajo.
  - (b) María ha recibido unas vacaciones de regalo de Ana, aunque ella sea pobre y sin trabajo.
  - (c) María ha ofrecido unas vacaciones de regalo a Ana, aunque sea pobre y sin trabajo.
  - (d) María ha recibido unas vacaciones de regalo de Ana, aunque sea pobre y sin trabajo.
  - (e) María ha ofrecido unas vacaciones de regalo a Ana, aunque ella es pobre y sin trabajo.
  - (f) María ha recibido unas vacaciones de regalo de Ana, aunque ella es pobre y sin trabajo.
  - (g) María ofrecía en regalo vacaciones a Ana, aunque ella era pobre y sin trabajo.
  - (h) María recibía vacaciones de regalo de Ana, aunque ella era pobre y sin trabajo.
2.
  - (a) Ana acompaña siempre hasta su casa a Beatriz, aunque ella se atrase por su clase.
  - (b) Ana es siempre acompañada hasta su casa por Beatriz, aunque ella se atrase por su clase.
  - (c) Ana acompaña siempre hasta su casa a Beatriz, aunque se atrase por su clase.
  - (d) Ana es siempre acompañada hasta su casa por Beatriz, aunque se atrase por su clase.
  - (e) Ana acompaña siempre hasta su casa a Beatriz, aunque ella se atrasa por su clase.
  - (f) Ana es siempre acompañada hasta su casa por Beatriz, aunque ella se atrasa por su clase.

- (g) Ana acompañaba siempre hasta su casa a Beatriz, aunque ella se atrasaba por su clase.
  - (h) Ana era siempre acompañada hasta su casa por Beatriz, aunque ella se atrasaba por su clase.
- 3.
- (a) Beatriz vende siempre ropa a Carmen, aunque ella tenga precios bastante caros.
  - (b) Beatriz compra siempre en la tienda de Carmen, aunque ella tenga precios bastante caros.
  - (c) Beatriz vende siempre ropa a Carmen, aunque tenga precios bastante caros.
  - (d) Beatriz compra siempre en la tienda de Carmen, aunque tenga precios bastante caros.
  - (e) Beatriz vende siempre ropa a Carmen, aunque ella tiene precios bastante caros.
  - (f) Beatriz compra siempre en la tienda de Carmen, aunque ella tiene precios bastante caros.
  - (g) Beatriz vendía siempre ropa a Carmen, aunque ella tenía precios bastante caros.
  - (h) Beatriz compraba siempre ropa en la tienda de Carmen, aunque ella tenía precios bastante caros.
- 4.
- (a) Carmen coge siempre novelas prestadas de Diana, aunque ella no lea muchos libros.
  - (b) Carmen presta siempre novelas a Diana, aunque ella no lea muchos libros.
  - (c) Carmen coge siempre novelas prestadas de Diana, aunque no lea muchos libros.
  - (d) Carmen presta siempre novelas a Diana, aunque no lea muchos libros.
  - (e) Carmen coge siempre novelas prestadas de Diana, aunque ella no lee muchos libros.
  - (f) Carmen presta siempre novelas a Diana, aunque ella no lee muchos libros.
  - (g) Carmen cogía siempre novelas prestadas de Diana, aunque ella no leía muchos libros.
  - (h) Carmen prestaba siempre novelas a Diana, aunque ella no leía muchos libros.
- 5.
- (a) Beatriz a menudo invita a su casa a Carmen, aunque ella no quiera recibir huéspedes en casa.
  - (b) Beatriz a menudo visita en casa a Carmen, aunque ella no quiera recibir huéspedes en casa.
  - (c) Beatriz a menudo invita a su casa a Carmen, aunque no quiera recibir huéspedes en casa.
  - (d) Beatriz a menudo visita en casa a Carmen, aunque no quiera recibir huéspedes en casa.
  - (e) Beatriz a menudo invita a su casa a Carmen, aunque ella no quiere recibir huéspedes en casa.
  - (f) Beatriz a menudo visita en casa a Carmen, aunque ella no quiere recibir huéspedes en casa.
  - (g) Beatriz a menudo invitaba a su casa a Carmen, aunque ella no quería recibir huéspedes en casa.
  - (h) Beatriz a menudo visitaba en casa a Carmen, aunque ella no quería recibir huéspedes en casa.

6.
  - (a) Ana ha llevado las maletas de Beatriz, aunque ella padezca de artritis en una mano.
  - (b) Ana ha dejado llevar las maletas a Beatriz, aunque ella padezca de artritis en una mano.
  - (c) Ana ha llevado las maletas de Beatriz, aunque padezca de artritis en una mano.
  - (d) Ana ha dejado llevar las maletas a Beatriz, aunque padezca de artritis en una mano.
  - (e) Ana ha llevado las maletas de Beatriz, aunque ella padece de artritis en una mano.
  - (f) Ana ha dejado llevar las maletas a Beatriz, aunque ella padece de artritis en una mano.
  - (g) Ana llevaba las maletas de Beatriz, aunque ella padecía de artritis en una mano.
  - (h) Ana dejaba llevar las maletas a Beatriz, aunque ella padecía de artritis en una mano.
  
7.
  - (a) Carmen compra regalos caros para Diana, aunque ella esté endeudada hasta las cejas.
  - (b) Carmen recibe regalos caros de Diana, aunque ella esté endeudada hasta las cejas.
  - (c) Carmen compra regalos caros para Diana, aunque esté endeudada hasta las cejas.
  - (d) Carmen recibe regalos caros de Diana, aunque esté endeudada hasta las cejas.
  - (e) Carmen compra regalos caros para Diana, aunque ella está endeudada hasta las cejas.
  - (f) Carmen recibe regalos caros de Diana, aunque ella está endeudada hasta las cejas.
  - (g) Carmen compraba regalos caros para Diana, aunque ella estaba endeudada hasta las cejas.
  - (h) Carmen recibía regalos caros de Diana, aunque ella estaba endeudada hasta las cejas.
  
8.
  - (a) Beatriz ha comido el dulce de Carmen, aunque ella esté a dieta para adelgazar.
  - (b) Beatriz ha preparado un dulce para Carmen, aunque ella esté a dieta para adelgazar.
  - (c) Beatriz ha comido el dulce de Carmen, aunque esté a dieta para adelgazar.
  - (d) Beatriz ha preparado un dulce para Carmen, aunque esté a dieta para adelgazar.
  - (e) Beatriz ha comido el dulce de Carmen, aunque ella está a dieta para adelgazar.
  - (f) Beatriz ha preparado un dulce para Carmen, aunque ella está a dieta para adelgazar.
  - (g) Beatriz había comido el dulce de Carmen, aunque ella estaba a dieta para adelgazar.
  - (h) Beatriz había preparado un dulce para Carmen, aunque ella estaba a dieta para adelgazar.

9.
  - (a) Ana ha inmortalizado en un retrato muy bonito a Beatriz, aunque ella pinte solamente por gusto.
  - (b) Ana fue inmortalizada en un retrato muy bonito por Beatriz, aunque ella pinte solamente por gusto.
  - (c) Ana ha inmortalizado en un retrato muy bonito a Beatriz, aunque pinte solamente por gusto.
  - (d) Ana fue inmortalizada en un retrato muy bonito por Beatriz, aunque pinte solamente por gusto.
  - (e) Ana ha inmortalizado en un retrato muy bonito a Beatriz, aunque ella pinta solamente por gusto.
  - (f) Ana fue inmortalizada en un retrato muy bonito por Beatriz, aunque ella pinta solamente por gusto.
  - (g) Ana ha inmortalizado en un retrato muy bonito a Beatriz, aunque ella pintaba solamente por gusto.
  - (h) Ana fue inmortalizada en un retrato muy bonito por Beatriz, aunque ella pintaba solamente por gusto.
  
10.
  - (a) Carmen nunca responde a las preguntas de Diana, aunque ella conozca todas las respuestas.
  - (b) Carmen nunca hace preguntas a Diana, aunque ella conozca todas las respuestas.
  - (c) Carmen nunca responde a las preguntas de Diana, aunque conozca todas las respuestas.
  - (d) Carmen nunca hace preguntas a Diana, aunque conozca todas las respuestas.
  - (e) Carmen nunca responde a las preguntas de Diana, aunque ella conoce todas las respuestas.
  - (f) Carmen nunca hace preguntas a Diana, aunque ella conoce todas las respuestas.
  - (g) Carmen nunca respondía a las preguntas de Diana, aunque ella conocía todas las respuestas.
  - (h) Carmen nunca hacía preguntas a Diana, aunque ella conocía todas las respuestas.
  
11.
  - (a) Ana desempolva siempre la habitación de Beatriz, aunque ella sea alérgica al polvo y a los ácaros.
  - (b) Ana hace siempre desempolvar la casa a Beatriz, aunque ella sea alérgica al polvo y a los ácaros.
  - (c) Ana desempolva siempre la habitación de Beatriz, aunque sea alérgica al polvo y a los ácaros.
  - (d) Ana hace siempre desempolvar la casa a Beatriz, aunque sea alérgica al polvo y a los ácaros.
  - (e) Ana desempolva siempre la habitación de Beatriz, aunque ella es alérgica al polvo y a los ácaros.
  - (f) Ana hace siempre desempolvar la casa a Beatriz, aunque ella es alérgica al polvo y a los ácaros.
  - (g) Ana desempolvaba siempre la habitación de Beatriz, aunque ella era alérgica al polvo y a los ácaros.
  - (h) Ana hacía siempre desempolvar la casa a Beatriz, aunque ella era alérgica al polvo y a los ácaros.



12.
  - (a) Diana se irrita a menudo con Ema, aunque ella sea paciente generalmente con todos.
  - (b) Diana irrita a menudo a Ema, aunque ella sea paciente generalmente con todos.
  - (c) Diana se irrita a menudo con Ema, aunque sea paciente generalmente con todos.
  - (d) Diana irrita a menudo a Ema, aunque sea paciente generalmente con todos.
  - (e) Diana se irrita a menudo con Ema, aunque ella es paciente generalmente con todos.
  - (f) Diana irrita a menudo a Ema, aunque ella es paciente generalmente con todos.
  - (g) Diana se irritaba a menudo con Ema, aunque ella era paciente generalmente con todos.
  - (h) Diana irritaba a menudo a Ema, aunque ella era paciente generalmente con todos.
  
13.
  - (a) Ema recibe todos los días su medicina de Ana, aunque ella se queje dando berrinches.
  - (b) Ema administra todos los días la medicina a Ana, aunque ella se queje dando berrinches.
  - (c) Ema recibe todos los días su medicina de Ana, aunque se queje dando berrinches.
  - (d) Ema administra todos los días la medicina a Ana, aunque se queje dando berrinches.
  - (e) Ema recibe todos los días su medicina de Ana, aunque ella se queja dando berrinches.
  - (f) Ema administra todos los días la medicina a Ana, aunque ella se queja dando berrinches.
  - (g) Ema recibe todos los días su medicina de Ana, aunque ella se quejaba dando berrinches.
  - (h) Ema administra todos los días la medicina a Ana, aunque ella se quejaba dando berrinches.
  
14.
  - (a) María recibe a veces bofetadas de Ana, aunque ella no haga nada malo.
  - (b) María da a veces bofetadas a Ana, aunque ella no haga nada malo.
  - (c) María recibe a veces bofetadas de Ana, aunque no haga nada malo.
  - (d) María da a veces bofetadas a Ana, aunque no haga nada malo.
  - (e) María recibe a veces bofetadas de Ana, aunque ella no hace nada malo.
  - (f) María da a veces bofetadas a Ana, aunque ella no hace nada malo.
  - (g) María recibía a veces bofetadas de Ana, aunque ella no hacía nada malo.
  - (h) María daba a veces bofetadas a Ana, aunque ella no hacía nada malo.
  
15.
  - (a) Carmen pide siempre indicaciones a Beatriz, aunque ella conozca la ciudad bastante bien.
  - (b) Carmen da frecuentemente indicaciones a Beatriz, aunque ella conozca la ciudad bastante bien.
  - (c) Carmen pide frecuentemente indicaciones a Beatriz, aunque conozca la ciudad bastante bien.
  - (d) Carmen da frecuentemente indicaciones a Beatriz, aunque conozca la ciudad bastante bien.

- (e) Carmen pide frecuentemente indicaciones a Beatriz, aunque ella conoce la ciudad bastante bien.
  - (f) Carmen da frecuentemente indicaciones a Beatriz, aunque ella conoce la ciudad bastante bien.
  - (g) Carmen pedía siempre indicaciones a Beatriz, aunque ella conocía la ciudad bastante bien.
  - (h) Carmen daba frecuentemente indicaciones a Beatriz, aunque ella conocía la ciudad bastante bien.
- 16.
- (a) Antonio es atacado con violencia por Bernardo, aunque él no reaccione frente a las provocaciones.
  - (b) Antonio siempre ataca con violencia a Bernardo, aunque él no reaccione frente a las provocaciones.
  - (c) Antonio siempre es atacado con violencia por Bernardo, aunque no reaccione frente a las provocaciones.
  - (d) Antonio siempre ataca con violencia a Bernardo, aunque no reaccione frente a las provocaciones.
  - (e) Antonio siempre es atacado con violencia por Bernardo, aunque él no reacciona frente a las provocaciones.
  - (f) Antonio siempre ataca con violencia a Bernardo, aunque él no reacciona frente a las provocaciones.
  - (g) Antonio siempre era atacado con violencia por Bernardo, aunque él no reaccionaba frente a las provocaciones.
  - (h) Antonio siempre atacaba con violencia a Bernardo, aunque él no reaccionaba frente a las provocaciones.
- 17.
- (a) Bernardo goza de la confianza de Carlos, aunque él mienta sobre muchos asuntos.
  - (b) Bernardo confía ciegamente en Carlos, aunque él mienta sobre muchos asuntos.
  - (c) Bernardo goza de la confianza de Carlos, aunque mienta sobre muchos asuntos.
  - (d) Bernardo confía ciegamente en Carlos, aunque mienta sobre muchos asuntos.
  - (e) Bernardo goza de la confianza de Carlos, aunque él miente sobre muchos asuntos.
  - (f) Bernardo confía ciegamente en Carlos, aunque él miente sobre muchos asuntos.
  - (g) Bernardo gozaba de la confianza de Carlos, aunque él mentía sobre muchos asuntos.
  - (h) Bernardo confiaba ciegamente en Carlos, aunque él mentía sobre muchos asuntos.
- 18.
- (a) Carlos ha recibido acusaciones graves de Antonio, aunque él sea inocente según todos.
  - (b) Carlos ha acusado de manera grave a Antonio, aunque él sea inocente según todos.
  - (c) Carlos ha recibido acusaciones graves de Antonio, aunque sea inocente según todos.
  - (d) Carlos ha acusado de manera grave a Antonio, aunque sea inocente según todos.

- (e) Carlos ha recibido acusaciones graves de Antonio, aunque él es inocente según todos.
  - (f) Carlos ha acusado de manera grave a Antonio, aunque él es inocente según todos.
  - (g) Carlos recibía acusaciones graves de Antonio, aunque él era inocente según todos.
  - (h) Carlos acusaba de manera grave a Antonio, aunque él era inocente según todos.
- 19.
- (a) Bernardo aparece en muchas de las fotos de Diego, aunque él sea muy tímido frente a la cámara.
  - (b) Bernardo ha logrado hacer muchas fotos a Diego, aunque él sea muy tímido frente a la cámara.
  - (c) Bernardo aparece en muchas de las fotos de Diego, aunque sea muy tímido frente a la cámara.
  - (d) Bernardo ha logrado hacer muchas fotos a Diego, aunque sea muy tímido frente a la cámara.
  - (e) Bernardo aparece en muchas de las fotos de Diego, aunque él es muy tímido frente a la cámara.
  - (f) Bernardo ha logrado hacer muchas fotos a Diego, aunque él es muy tímido frente a la cámara.
  - (g) Bernardo aparecía en muchas de las fotos de Diego, aunque él era muy tímido frente a la cámara.
  - (h) Bernardo lograba hacer muchas fotos a Diego, aunque él era muy tímido frente a la cámara.
- 20.
- (a) Antonio ha aceptado jugar a tenis con Carlos, aunque él aborrezca todos los deportes.
  - (b) Antonio ha convencido de jugar a tenis a Carlos, aunque él aborrezca todos los deportes.
  - (c) Antonio ha aceptado jugar a tenis con Carlos, aunque aborrezca todos los deportes.
  - (d) Antonio ha convencido de jugar a tenis a Carlos, aunque aborrezca todos los deportes.
  - (e) Antonio ha aceptado jugar a tenis con Carlos, aunque él aborrece todos los deportes.
  - (f) Antonio ha convencido de jugar a tenis a Carlos, aunque él aborrece todos los deportes.
  - (g) Antonio aceptaba jugar a tenis con Carlos, aunque él aborrecía todos los deportes.
  - (h) Antonio convencía de jugar a tenis a Carlos, aunque él aborrecía todos los deportes.
- 21.
- (a) Carlos tiene el permiso de usar el coche de Diego, aunque él conduzca de manera temeraria.
  - (b) Carlos deja usar su coche a Diego, aunque él conduzca de manera temeraria.
  - (c) Carlos tiene el permiso de usar el coche de Diego, aunque conduzca de manera temeraria.
  - (d) Carlos deja usar su coche a Diego, aunque conduzca de manera temeraria.
  - (e) Carlos tiene el permiso de usar el coche de Diego, aunque él conduce de manera temeraria.

- (f) Carlos deja usar su coche a Diego, aunque él conduce de manera temeraria.
  - (g) Carlos tenía el permiso de usar el coche de Diego, aunque él conducía de manera temeraria.
  - (h) Carlos dejaba usar su coche a Diego, aunque él conducía de manera temeraria.
- 22.
- (a) Bernardo ha leído los poemas de Carlos, aunque él no entienda mucho de literatura.
  - (b) Bernardo ha hecho leer sus poemas a Carlos, aunque él no entienda mucho de literatura.
  - (c) Bernardo ha leído los poemas de Carlos, aunque no entienda mucho de literatura.
  - (d) Bernardo ha hecho leer sus poemas a Carlos, aunque no entienda mucho de literatura.
  - (e) Bernardo ha leído los poemas de Carlos, aunque él no entiende mucho de literatura.
  - (f) Bernardo ha hecho leer sus poemas a Carlos, aunque él no entiende mucho de literatura.
  - (g) Bernardo ha leído los poemas de Carlos, aunque él no entendía mucho de literatura.
  - (h) Bernardo ha hecho leer sus poemas a Carlos, aunque él no entendía mucho de literatura.
- 23.
- (a) Diego ha reparado el ordenador de Antonio, aunque él sepa poco en cuestión de electrónica.
  - (b) Diego ha hecho reparar su ordenador por Antonio, aunque él sepa poco en cuestión de electrónica.
  - (c) Diego ha reparado el ordenador de Antonio, aunque sepa poco en cuestión de electrónica.
  - (d) Diego ha hecho reparar su ordenador por Antonio, aunque sepa poco en cuestión de electrónica.
  - (e) Diego ha reparado el ordenador de Antonio, aunque él sabe poco en cuestión de electrónica.
  - (f) Diego ha hecho reparar su ordenador por Antonio, aunque él sabe poco en cuestión de electrónica.
  - (g) Diego reparó el ordenador de Antonio, aunque él sabía poco en cuestión de electrónica.
  - (h) Diego hizo reparar su ordenador por Antonio, aunque él sabía poco en cuestión de electrónica.
- 24.
- (a) Bernardo fue despedido hace poco por Antonio, aunque él sea el mejor en su trabajo.
  - (b) Bernardo despidió hace poco a Antonio, aunque él sea el mejor en su trabajo.
  - (c) Bernardo fue despedido hace poco por Antonio, aunque sea el mejor en su trabajo.
  - (d) Bernardo despidió hace poco a Antonio, aunque sea el mejor en su trabajo.
  - (e) Bernardo fue despedido hace poco por Antonio, aunque él es el mejor en su trabajo.
  - (f) Bernardo despidió hace poco a Antonio, aunque él es el mejor en su trabajo.
  - (g) Bernardo fue despedido hace poco por Antonio, aunque él era el mejor en su trabajo.

- (h) Bernardo despidió hace poco a Antonio, aunque él era el mejor en su trabajo.
- 25.
- (a) Carlos ha sido amonestado varias veces por Diego, aunque él se esté portando bien recientemente.
  - (b) Carlos ha amonestado varias veces a Diego, aunque él se esté portando bien recientemente.
  - (c) Carlos ha sido amonestado varias veces por Diego, aunque se esté portando bien recientemente.
  - (d) Carlos ha amonestado varias veces a Diego, aunque se esté portando bien recientemente.
  - (e) Carlos ha sido amonestado varias veces por Diego, aunque él se está portando bien recientemente.
  - (f) Carlos ha amonestado varias veces a Diego, aunque él se está portando bien recientemente.
  - (g) Carlos ha sido amonestado varias veces por Diego, aunque él se estaba portando bien recientemente.
  - (h) Carlos ha amonestado varias veces a Diego, aunque él se estaba portando bien recientemente.
- 26.
- (a) Bernardo recibe notas bajas de Carlos, aunque él estudie con mucha dedicación.
  - (b) Bernardo da notas bajas a Carlos, aunque él estudie con mucha dedicación.
  - (c) Bernardo recibe notas bajas de Carlos, aunque estudie con mucha dedicación.
  - (d) Bernardo da notas bajas a Carlos, aunque estudie con mucha dedicación.
  - (e) Bernardo recibe notas bajas de Carlos, aunque él estudia con mucha dedicación.
  - (f) Bernardo da notas bajas a Carlos, aunque él estudia con mucha dedicación.
  - (g) Bernardo recibía notas bajas de Carlos, aunque él estudiaba con mucha dedicación.
  - (h) Bernardo daba notas bajas a Carlos, aunque él estudiaba con mucha dedicación.
- 27.
- (a) Carlos fue apresado ayer por Diego, aunque él sea inocente según la opinión de muchos.
  - (b) Carlos apresó ayer a Diego, aunque él sea inocente según la opinión de muchos.
  - (c) Carlos fue apresado ayer por Diego, aunque sea inocente según la opinión de muchos.
  - (d) Carlos apresó ayer a Diego, aunque sea inocente según la opinión de muchos.
  - (e) Carlos fue apresado ayer por Diego, aunque él es inocente según la opinión de muchos.
  - (f) Carlos apresó ayer a Diego, aunque él es inocente según la opinión de muchos.
  - (g) Carlos fue apresado ayer por Diego, aunque él era inocente según la opinión de muchos.
  - (h) Carlos apresó ayer a Diego, aunque él era inocente según la opinión de muchos.
- 28.
- (a) Antonio hizo esperar durante dos horas a Bernardo, aunque él sea puntualísimo en las citas importantes.

- (b) Antonio tuvo que esperar durante dos horas a Bernardo, aunque él sea puntualísimo en las citas importantes.
  - (c) Antonio hizo esperar durante dos horas a Bernardo, aunque sea puntualísimo en las citas importantes.
  - (d) Antonio tuvo que esperar durante dos horas a Bernardo, aunque sea puntualísimo en las citas importantes.
  - (e) Antonio hizo esperar durante dos horas a Bernardo, aunque él es puntualísimo en las citas importantes.
  - (f) Antonio tuvo que esperar durante dos horas a Bernardo, aunque él es puntualísimo en las citas importantes.
  - (g) Antonio hacía esperar durante dos horas a Bernardo, aunque él era puntualísimo en las citas importantes.
  - (h) Antonio tenía que esperar durante dos horas a Bernardo, aunque él era puntualísimo en las citas importantes.
29. (a) Antonio fue acusado de la estafa por Bernardo, aunque él se declare totalmente inocente.
- (b) Antonio ha acusado de la estafa a Bernardo, aunque él se declare totalmente inocente.
  - (c) Antonio fue acusado de la estafa por Bernardo, aunque se declare totalmente inocente.
  - (d) Antonio ha acusado de la estafa a Bernardo, aunque se declare totalmente inocente.
  - (e) Antonio fue acusado de la estafa por Bernardo, aunque él se declara totalmente inocente.
  - (f) Antonio ha acusado de la estafa a Bernardo, aunque él se declara totalmente inocente.
  - (g) Antonio fue acusado de la estafa por Bernardo, aunque él se declaraba totalmente inocente.
  - (h) Antonio ha acusado de la estafa a Bernardo, aunque él se declaraba totalmente inocente.
30. (a) Bernardo se ha enterado de que tiene un tumor por Diego, aunque él no padezca ningún síntoma.
- (b) Bernardo ha diagnosticado un tumor a Diego, aunque él no padezca ningún síntoma.
  - (c) Bernardo se ha enterado de que tiene un tumor por Diego, aunque no padezca ningún síntoma.
  - (d) Bernardo ha diagnosticado un tumor a Diego, aunque no padezca ningún síntoma.
  - (e) Bernardo se ha enterado de que tiene un tumor por Diego, aunque él no padece ningún síntoma.
  - (f) Bernardo ha diagnosticado un tumor a Diego, aunque él no padece ningún síntoma.
  - (g) Bernardo se enteró de que tiene un tumor por Diego, aunque él no padecía ningún síntoma.
  - (h) Bernardo diagnosticó un tumor a Diego, aunque él no padecía ningún síntoma.
31. (a) Ana ha acertado los pantalones de Beatriz, aunque ella cosa mal a máquina.

- (b) Ana ha hecho acortar los pantalones a Beatriz, aunque ella cosa mal a máquina.
  - (c) Ana ha acortado los pantalones de Beatriz, aunque cosa mal a máquina.
  - (d) Ana ha hecho acortar los pantalones a Beatriz, aunque cosa mal a máquina.
  - (e) Ana ha acortado los pantalones de Beatriz, aunque ella cose mal a máquina.
  - (f) Ana ha hecho acortar los pantalones a Beatriz, aunque ella cose mal a máquina.
  - (g) Ana acortó muchos pantalones de Beatriz, aunque ella cosía mal a máquina.
  - (h) Ana hizo acortar muchos pantalones a Beatriz, aunque ella cosía mal a máquina.
- 32.
- (a) Beatriz recibe los elogios de Diana, aunque ella se porte mal en la escuela.
  - (b) Beatriz cubre de elogios a Diana, aunque ella se porte mal en la escuela.
  - (c) Beatriz recibe frecuentemente los elogios de Diana, aunque se porte mal en la escuela.
  - (d) Beatriz cubre frecuentemente de elogios a Diana, aunque se porte mal en la escuela.
  - (e) Beatriz recibe frecuentemente los elogios de Diana, aunque ella se porta mal en la escuela.
  - (f) Beatriz cubre frecuentemente de elogios a Diana, aunque ella se porta mal en la escuela.
  - (g) Beatriz recibía frecuentemente los elogios de Diana, aunque ella se portaba mal en la escuela.
  - (h) Beatriz cubriría frecuentemente de elogios a Diana, aunque ella se portaba mal en la escuela.
- 33.
- (a) Carmen ha recibido una nota alta de María, aunque ella no estudie mucho para sus exámenes.
  - (b) Carmen ha dado una nota alta a María, aunque ella no estudie mucho para sus exámenes.
  - (c) Carmen ha recibido una nota alta de María, aunque no estudie mucho para sus exámenes.
  - (d) Carmen ha dado una nota alta a María, aunque no estudie mucho para sus exámenes.
  - (e) Carmen ha recibido una nota alta de María, aunque ella no estudia mucho para sus exámenes.
  - (f) Carmen ha dado una nota alta a María, aunque ella no estudia mucho para sus exámenes.
  - (g) Carmen recibía notas altas de María, aunque ella no estudiaba mucho para sus exámenes.
  - (h) Carmen daba notas altas a María, aunque ella no estudiaba mucho para sus exámenes.
- 34.
- (a) Ana quiere ir a la fiesta de Beatriz, aunque ella no conozca a ninguno de los invitados.
  - (b) Ana quiere invitar a su fiesta a Beatriz, aunque ella no conozca a ninguno de los invitados.
  - (c) Ana quiere ir a la fiesta de Beatriz, aunque no conozca a ninguno de los invitados.
  - (d) Ana quiere invitar a su fiesta a Beatriz, aunque no conozca a ninguno de los invitados.

- (e) Ana quiere ir a la fiesta de Beatriz, aunque ella no conoce a ninguno de los invitados.
  - (f) Ana quiere invitar a su fiesta a Beatriz, aunque ella no conoce a ninguno de los invitados.
  - (g) Ana quería ir a la fiesta de Beatriz, aunque ella no conocía a ninguno de los invitados.
  - (h) Ana quería invitar a su fiesta a Beatriz, aunque ella no conocía a ninguno de los invitados.
- 35.
- (a) Diana ha dado consejos incluso a Ana, aunque ella no sepa nada de la cuestión.
  - (b) Diana ha recibido consejos incluso de Ana, aunque ella no sepa nada de la cuestión.
  - (c) Diana ha dado consejos incluso a Ana, aunque no sepa nada de la cuestión.
  - (d) Diana ha recibido consejos incluso de Ana, aunque no sepa nada de la cuestión.
  - (e) Diana ha dado consejos incluso a Ana, aunque ella no sabe nada de la cuestión.
  - (f) Diana ha recibido consejos incluso de Ana, aunque ella no sabe nada de la cuestión.
  - (g) Diana ha dado consejos incluso a Ana, aunque ella no sabía nada de la cuestión.
  - (h) Diana ha recibido consejos incluso de Ana, aunque ella no sabía nada de la cuestión.
- 36.
- (a) Ema obtiene a menudo un premio de Ana, aunque ella haga trampas durante las eliminatorias.
  - (b) Ema concede a menudo un premio a Ana, aunque ella haga trampas durante las eliminatorias.
  - (c) Ema obtiene a menudo un premio de Ana, aunque haga trampas durante las eliminatorias.
  - (d) Ema concede a menudo un premio a Ana, aunque haga trampas durante las eliminatorias.
  - (e) Ema obtiene a menudo un premio de Ana, aunque ella hace trampas durante las eliminatorias.
  - (f) Ema concede a menudo un premio a Ana, aunque ella hace trampas durante las eliminatorias.
  - (g) Ema obtenía a menudo un premio a Ana, aunque ella hacía trampas durante las eliminatorias.
  - (h) Ema concedía a menudo un premio de Ana, aunque ella hacía trampas durante las eliminatorias.
- 37.
- (a) Carmen ha derrotado a Diana en natación, aunque ella no esté entrenada desde hace mucho tiempo.
  - (b) Carmen fue derrotada por Diana en natación, aunque ella no esté entrenada desde hace mucho tiempo.
  - (c) Carmen ha derrotado a Diana en natación, aunque no esté entrenada desde hace mucho tiempo.
  - (d) Carmen fue derrotada por Diana en natación, aunque no esté entrenada desde hace mucho tiempo.



- (e) Carmen ha derrotado a Diana en natación, aunque ella no está entrenada desde hace mucho tiempo.
  - (f) Carmen fue derrotada por Diana en natación, aunque ella no está entrenada desde hace mucho tiempo.
  - (g) Carmen derrotaba a Diana en natación, aunque ella no estaba entrenada desde hace mucho tiempo.
  - (h) Carmen era derrotada por Diana en natación, aunque ella no estaba entrenada desde hace mucho tiempo.
- 38.
- (a) Beatriz ha obtenido un ascenso de Carmen, aunque ella sea inexperta para el nuevo trabajo.
  - (b) Beatriz ha dado un ascenso a Carmen, aunque ella sea inexperta para el nuevo trabajo.
  - (c) Beatriz ha obtenido un ascenso de Carmen, aunque sea inexperta para el nuevo trabajo.
  - (d) Beatriz ha dado un ascenso a Carmen, aunque sea inexperta para el nuevo trabajo.
  - (e) Beatriz ha obtenido un ascenso de Carmen, aunque ella es inexperta para el nuevo trabajo.
  - (f) Beatriz ha dado un ascenso a Carmen, aunque ella es inexperta para el nuevo trabajo.
  - (g) Beatriz obtuvo un ascenso de Carmen, aunque ella era inexperta para el nuevo trabajo.
  - (h) Beatriz dio un ascenso a Carmen, aunque ella era inexperta para el nuevo trabajo.
- 39.
- (a) Ana pasa más tiempo con su familia que Beatriz, aunque ella viaje mucho al extranjero por trabajo.
  - (b) Ana pasa menos tiempo con su familia que Beatriz, aunque ella viaje mucho al extranjero por trabajo.
  - (c) Ana pasa más tiempo con su familia que Beatriz, aunque viaje mucho al extranjero por trabajo.
  - (d) Ana pasa menos tiempo con su familia que Beatriz, aunque viaje mucho al extranjero por trabajo.
  - (e) Ana pasa más tiempo con su familia que Beatriz, aunque ella viaje mucho al extranjero por trabajo.
  - (f) Ana pasa menos tiempo con su familia que Beatriz, aunque ella viaje mucho al extranjero por trabajo.
  - (g) Ana pasaba más tiempo con su familia que Beatriz, aunque ella viajaba mucho al extranjero por trabajo.
  - (h) Ana pasaba menos tiempo con su familia que Beatriz, aunque ella viajaba mucho al extranjero por trabajo.
- 40.
- (a) Carmen logra preparar la cena para Maria, aunque ella tenga que salir de prisa todas las noches.
  - (b) Carmen hace preparar la cena a Maria, aunque ella tenga que salir de prisa todas las noches.
  - (c) Carmen logra preparar la cena para Maria, aunque tenga que salir de prisa todas las noches.
  - (d) Carmen hace preparar la cena a Maria, aunque tenga que salir de prisa todas las noches.

- (e) Carmen logra preparar la cena para Maria, aunque ella tiene que salir de prisa todas las noches.
  - (f) Carmen hace preparar la cena a Maria, aunque ella tiene que salir de prisa todas las noches.
  - (g) Carmen lograba preparar la cena para Maria, aunque ella tenía que salir de prisa todas las noches.
  - (h) Carmen hacía preparar la cena a Maria, aunque ella tenía que salir de prisa todas las noches.
- 41.
- (a) Beatriz ha cantado una canción para Diana, aunque ella cante totalmente desentonada.
  - (b) Beatriz ha hecho cantar una canción a Diana, aunque ella cante totalmente desentonada.
  - (c) Beatriz ha cantado una canción para Diana, aunque cante totalmente desentonada.
  - (d) Beatriz ha hecho cantar una canción a Diana, aunque cante totalmente desentonada.
  - (e) Beatriz ha cantado una canción para Diana, aunque ella canta totalmente desentonada.
  - (f) Beatriz ha hecho cantar una canción a Diana, aunque ella canta totalmente desentonada.
  - (g) Beatriz ha cantado una canción para Diana, aunque ella cantaba totalmente desentonada.
  - (h) Beatriz ha hecho cantar una canción a Diana, aunque ella cantaba totalmente desentonada.
- 42.
- (a) Carmen ha apoyado la causa de Ana, aunque ella no coincida en algunas de sus ideas.
  - (b) Carmen ha obtenido el apoyo de Ana, aunque ella no coincida en algunas de sus ideas.
  - (c) Carmen ha apoyado la causa de Ana, aunque no coincida en algunas de sus ideas.
  - (d) Carmen ha obtenido el apoyo de Ana, aunque no coincida en algunas de sus ideas.
  - (e) Carmen ha apoyado la causa de Ana, aunque ella no coincide en algunas de sus ideas.
  - (f) Carmen ha obtenido el apoyo de Ana, aunque ella no coincide en algunas de sus ideas.
  - (g) Carmen ha apoyado la causa de Ana, aunque ella no coincidía en algunas de sus ideas.
  - (h) Carmen ha obtenido el apoyo de Ana, aunque ella no coincidía en algunas de sus ideas.
- 43.
- (a) Ana está haciendo la dieta de Beatriz, aunque ella esté delgada y bastante en forma.
  - (b) Ana ha recomendado una dieta a Beatriz, aunque ella esté delgada y bastante en forma.
  - (c) Ana está haciendo la dieta de Beatriz, aunque esté delgada y bastante en forma.
  - (d) Ana ha recomendado una dieta a Beatriz, aunque esté delgada y bastante en forma.

- (e) Ana está haciendo la dieta de Beatriz, aunque ella está delgada y bastante en forma.
  - (f) Ana ha recomendado una dieta a Beatriz, aunque ella está delgada y bastante en forma.
  - (g) Ana hizo la dieta de Beatriz, aunque ella estaba delgada y bastante en forma.
  - (h) Ana recomendó una dieta a Beatriz, aunque ella estaba delgada y bastante en forma.
- 44.
- (a) Beatriz le relata muchos chismes a Carmen, aunque ella no cuente con precisión los detalles.
  - (b) Beatriz escucha los chismes de Carmen, aunque ella no cuente con precisión los detalles.
  - (c) Beatriz le relata muchos chismes a Carmen, aunque no cuente con precisión los detalles.
  - (d) Beatriz escucha los chismes de Carmen, aunque no cuente con precisión los detalles.
  - (e) Beatriz le relata muchos chismes a Carmen, aunque ella no cuenta con precisión los detalles,
  - (f) Beatriz escucha los chismes de Carmen, aunque ella no cuenta con precisión los detalles.
  - (g) Beatriz le relataba muchos chismes a Carmen, aunque ella no contaba con precisión los detalles.
  - (h) Beatriz escuchaba los chismes de Carmen, aunque ella no contaba con precisión los detalles.
- 45.
- (a) Beatriz se ocupará de las preguntas de Carmen, aunque ella conteste bruscamente a menudo.
  - (b) Beatriz tiene que hacer unas preguntas a Carmen, aunque ella conteste bruscamente a menudo.
  - (c) Beatriz se ocupará de las preguntas de Carmen, aunque conteste bruscamente a menudo.
  - (d) Beatriz tiene que hacer unas preguntas a Carmen, aunque conteste bruscamente a menudo.
  - (e) Beatriz se ocupará de las preguntas de Carmen, aunque ella contesta bruscamente a menudo.
  - (f) Beatriz tiene que hacer unas preguntas a Carmen, aunque ella contesta bruscamente a menudo.
  - (g) Beatriz se ocupará de las preguntas de Carmen, aunque ella contesta bruscamente a menudo.
  - (h) Beatriz tiene que hacer unas preguntas a Carmen, aunque ella contesta bruscamente a menudo.
- 46.
- (a) Antonio no quiere tomar prestado dinero de Bernardo, aunque él devuelva siempre todo puntualmente.
  - (b) Antonio no quiere prestar dinero a Bernardo, aunque él devuelva siempre todo puntualmente.
  - (c) Antonio no quiere tomar prestado dinero de Bernardo, aunque devuelva siempre todo puntualmente.
  - (d) Antonio no quiere prestar dinero a Bernardo, aunque devuelva siempre todo puntualmente.

- (e) Antonio no quiere tomar prestado dinero de Bernardo, aunque él devuelve siempre todo puntualmente.
  - (f) Antonio no quiere prestar dinero a Bernardo, aunque él devuelve siempre todo puntualmente.
  - (g) Antonio no quería tomar prestado dinero de Bernardo, aunque él devolvía siempre todo puntualmente.
  - (h) Antonio no quería prestar dinero a Bernardo, aunque él devolvía siempre todo puntualmente.
- 47.
- (a) Carlos fue invitado al cumpleaños de Diego, aunque él resulte antipático a toda la familia.
  - (b) Carlos ha invitado a sus cumpleaños a Diego, aunque él resulte antipático a toda la familia.
  - (c) Carlos fue invitado al cumpleaños de Diego, aunque resulte antipático a toda la familia.
  - (d) Carlos ha invitado a sus cumpleaños a Diego, aunque resulte antipático a toda la familia.
  - (e) Carlos fue invitado al cumpleaños de Diego, aunque él resulta antipático a toda la familia.
  - (f) Carlos ha invitado a sus cumpleaños a Diego, aunque él resulta antipático a toda la familia.
  - (g) Carlos fue invitado al cumpleaños de Diego, aunque él resultaba antipático a toda la familia.
  - (h) Carlos ha invitado a sus cumpleaños a Diego, aunque él resultaba antipático a toda la familia.
- 48.
- (a) Bernardo ha curado el dolor de cabeza de Carlos, aunque él esté especializado en otros tratamientos.
  - (b) Bernardo fue curado con éxito por Carlos, aunque él esté especializado en otros tratamientos.
  - (c) Bernardo ha curado el dolor de cabeza de Carlos, aunque esté especializado en otros tratamientos.
  - (d) Bernardo fue curado con éxito por Carlos, aunque esté especializado en otros tratamientos.
  - (e) Bernardo ha curado el dolor de cabeza de Carlos, aunque él está especializado en otros tratamientos.
  - (f) Bernardo fue curado con éxito por Carlos, aunque él está especializado en otros tratamientos.
  - (g) Bernardo ha curado el dolor de cabeza de Carlos, aunque él estaba especializado en otros tratamientos.
  - (h) Bernardo fue curado con éxito por Carlos, aunque él estaba especializado en otros tratamientos.
- 49.
- (a) Diego es el profesor menos apreciado por Carlos, aunque él enseñe una disciplina interesante.
  - (b) Diego detesta las clases de Carlos, aunque él enseñe una disciplina interesante.
  - (c) Diego es el profesor menos apreciado por Carlos, aunque enseñe una disciplina interesante.
  - (d) Diego detesta las clases de Carlos, aunque enseñe una disciplina interesante.

- (e) Diego es el profesor menos apreciado por Carlos, aunque él enseña una disciplina interesante.
  - (f) Diego detesta las clases de Carlos, aunque él enseña una disciplina interesante.
  - (g) Diego era el profesor menos apreciado por Carlos, aunque él enseñaba una disciplina interesante.
  - (h) Diego detestaba las clases de Carlos, aunque él enseñaba una disciplina interesante.
- 50.
- (a) Bernardo cuidará el cachorro de Antonio, aunque él sea alérgico a los pelos de perro.
  - (b) Bernardo dejará su cachorro a Antonio, aunque él sea alérgico a los pelos de perro.
  - (c) Bernardo cuidará el cachorro de Antonio, aunque sea alérgico a los pelos de perro.
  - (d) Bernardo dejará su cachorro a Antonio, aunque sea alérgico a los pelos de perro.
  - (e) Bernardo cuidará el cachorro de Antonio, aunque él es alérgico a los pelos de perro.
  - (f) Bernardo dejará su cachorro a Antonio, aunque él es alérgico a los pelos de perro.
  - (g) Bernardo cuidó el cachorro de Antonio, aunque él era alérgico a los pelos de perro.
  - (h) Bernardo dejó su cachorro a Antonio, aunque él era alérgico a los pelos de perro.
- 51.
- (a) Carlos ha pedido un salario más alto a Diego, aunque él produzca mucho menos que los otros empleados.
  - (b) Carlos ha subido el salario a Diego, aunque él produzca mucho menos que los otros empleados.
  - (c) Carlos ha pedido un salario más alto a Diego, aunque produzca mucho menos que los otros empleados.
  - (d) Carlos ha subido el salario a Diego, aunque produzca mucho menos que los otros empleados.
  - (e) Carlos ha pedido un salario más alto a Diego, aunque él produce mucho menos que los otros empleados.
  - (f) Carlos ha subido el salario a Diego, aunque él produce mucho menos que los otros empleados.
  - (g) Carlos ha pedido un salario más alto a Diego aunque él producía mucho menos que los otros empleados
  - (h) Carlos ha subido el salario a Diego, aunque él producía mucho menos que los otros empleados.
- 52.
- (a) Diego ha recibido unas multas de Antonio, aunque él conduzca siempre con cuidado.
  - (b) Diego ha puesto unas multas a Antonio, aunque él conduzca siempre con cuidado.
  - (c) Diego ha recibido unas multas de Antonio, aunque conduzca siempre con cuidado.
  - (d) Diego ha puesto unas multas a Antonio, aunque conduzca siempre con cuidado.

- (e) Diego ha recibido unas multas de Antonio, aunque él conduce siempre con cuidado.
  - (f) Diego ha puesto unas multas a Antonio, aunque él conduce siempre con cuidado.
  - (g) Diego ha recibido unas multas de Antonio, aunque él conducía siempre con cuidado.
  - (h) Diego ha puesto unas multas a Antonio, aunque él conducía siempre con cuidado.
- 53.
- (a) Antonio escucha a las mentiras de Bernardo, aunque él no crea ni siquiera a una palabra.
  - (b) Antonio cuenta mentiras a Bernardo, aunque él no crea ni siquiera a una palabra.
  - (c) Antonio escucha a las mentiras de Bernardo, aunque no crea ni siquiera a una palabra.
  - (d) Antonio cuenta mentiras a Bernardo, aunque no crea ni siquiera a una palabra.
  - (e) Antonio escucha a las mentiras de Bernardo, aunque él no cree ni siquiera a una palabra.
  - (f) Antonio le cuenta mentiras a Bernardo, aunque él no cree ni siquiera a una palabra.
  - (g) Antonio escuchaba las mentiras de Bernardo, aunque él no creía ni siquiera a una palabra.
  - (h) Antonio contaba mentiras a Bernardo, aunque él no creía ni siquiera a una palabra.
- 54.
- (a) Antonio recibe cartas de Diego, aunque él no sepa leer su caligrafía desordenada.
  - (b) Antonio escribe cartas a Diego, aunque él no sepa leer su caligrafía desordenada.
  - (c) Antonio recibe cartas de Diego, aunque no sepa leer su caligrafía desordenada.
  - (d) Antonio escribe cartas a Diego, aunque no sepa leer su caligrafía desordenada.
  - (e) Antonio recibe cartas de Diego, aunque él no sabe leer su caligrafía desordenada.
  - (f) Antonio escribe cartas a Diego, aunque él no sabe leer su caligrafía desordenada.
  - (g) Antonio recibía cartas de Diego, aunque él no sabía leer su caligrafía desordenada.
  - (h) Antonio escribía cartas a Diego, aunque él no sabía leer su caligrafía desordenada.
- 55.
- (a) Bernardo concedió una cita a Carlos, aunque él no reciba a los estudiantes en este periodo.
  - (b) Bernardo consiguió una cita con Carlos, aunque él no reciba a los estudiantes en este periodo.
  - (c) Bernardo concedió una cita a Carlos, aunque no reciba a los estudiantes en este periodo.
  - (d) Bernardo consiguió una cita con Carlos, aunque no reciba a los estudiantes en este periodo.

- (e) Bernardo concedió una cita a Carlos, aunque él no recibe a los estudiantes en este periodo.
  - (f) Bernardo consiguió una cita con Carlos, aunque él no recibe a los estudiantes en este periodo.
  - (g) Bernardo concedió una cita a Carlos, aunque él no recibía a los estudiantes en este periodo.
  - (h) Bernardo consiguió una cita con Carlos, aunque él no recibía a los estudiantes en este periodo.
- 56.
- (a) Carlos no logra educar a Diego, aunque él lo castigue muy duramente.
  - (b) Carlos desobedece frecuentemente a Diego, aunque él lo castigue muy duramente.
  - (c) Carlos no logra educar a Diego, aunque lo castigue muy duramente.
  - (d) Carlos desobedece frecuentemente a Diego, aunque lo castigue muy duramente.
  - (e) Carlos no logra educar a Diego, aunque él lo castiga muy duramente.
  - (f) Carlos desobedece frecuentemente a Diego, aunque él lo castiga muy duramente.
  - (g) Carlos no lograba educar a Diego, aunque él lo castigaba muy duramente.
  - (h) Carlos desobedecía frecuentemente a Diego, aunque él lo castigaba muy duramente.
- 57.
- (a) Antonio ha enseñado su proyecto a Bernardo, aunque él esconda casi todo acerca de su trabajo.
  - (b) Antonio ha visto el proyecto de Bernardo, aunque él esconda casi todo acerca de su trabajo.
  - (c) Antonio ha enseñado su proyecto a Bernardo, aunque esconda casi todo acerca de su trabajo.
  - (d) Antonio ha visto el proyecto de Bernardo, aunque esconda casi todo acerca de su trabajo.
  - (e) Antonio ha enseñado su proyecto a Bernardo, aunque él esconde casi todo acerca de su trabajo.
  - (f) Antonio ha visto el proyecto de Bernardo, aunque él esconde casi todo acerca de su trabajo.
  - (g) Antonio ha enseñado su proyecto a Bernardo, aunque él escondía casi todo acerca de su trabajo.
  - (h) Antonio ha visto el proyecto de Bernardo, aunque él escondía casi todo acerca de su trabajo.
- 58.
- (a) Bernardo ha recibido un regalo de Carlos, aunque él cumpla años dentro de unos meses.
  - (b) Bernardo ha comprado un regalo para Carlos, aunque él cumpla años dentro de unos meses.
  - (c) Bernardo ha recibido un regalo de Carlos, aunque cumpla años dentro de unos meses.
  - (d) Bernardo ha comprado un regalo para Carlos, aunque cumpla años dentro de unos meses.
  - (e) Bernardo ha recibido un regalo de Carlos, aunque él cumple años dentro de unos meses.
  - (f) Bernardo ha comprado un regalo para Carlos, aunque él cumple años dentro de unos meses.

- (g) Bernardo ha recibido un regalo de Carlos, aunque él cumplía años dentro de unos meses.
  - (h) Bernardo ha comprado un regalo para Carlos, aunque él cumplía años dentro de unos meses.
- 59.
- (a) Diego no ha sabido contestar a las preguntas de Antonio, aunque él sea un lumbrera en su sector.
  - (b) Diego no ha obtenido buenas respuestas de Antonio, aunque él sea un lumbrera en su sector.
  - (c) Diego no ha sabido contestar a las preguntas de Antonio, aunque sea un lumbrera en su sector.
  - (d) Diego no ha obtenido buenas respuestas de Antonio, aunque sea un lumbrera en su sector.
  - (e) Diego no ha sabido contestar a las preguntas de Antonio, aunque él es un lumbrera en su sector.
  - (f) Diego no ha obtenido buenas respuestas de Antonio, aunque él es un lumbrera en su sector.
  - (g) Diego no supo contestar a las preguntas de Antonio, aunque él era un lumbrera en su sector.
  - (h) Diego no obtuvo buenas respuestas de Antonio, aunque él era un lumbrera en su sector.
- 60.
- (a) Eduardo siempre deja morir las plantas de Carlos, aunque él riegue las macetas todos los días.
  - (b) Bruno siempre encuentra muertas las plantas dejadas a Carlos, aunque él riegue las macetas todos los días.
  - (c) Bruno siempre deja morir las plantas de Carlos, aunque riegue las macetas todos los días.
  - (d) Bruno siempre encuentra muertas las plantas dejadas a Carlos, aunque riegue las macetas todos los días.
  - (e) Bruno siempre deja morir las plantas de Carlos, aunque él riega las macetas todos los días.
  - (f) Bruno siempre encuentra muertas las plantas dejadas a Carlos, aunque él riega las macetas todos los días.
  - (g) Bruno siempre dejaba morir las plantas de Carlos, aunque él regaba las macetas todos los días.
  - (h) Bruno siempre encontraba muertas las plantas dejadas a Carlos, aunque él regaba las macetas todos los días.
- 61.
- (a) Ana no despierta nunca a Maria, aunque ella encienda la luz durante la noche.
  - (b) Ana no se despierta a causa de Maria, aunque ella encienda la luz durante la noche.
  - (c) Ana no despierta nunca a Maria, aunque encienda la luz durante la noche.
  - (d) Ana no se despierta a causa de Maria, aunque encienda la luz durante la noche.
  - (e) Ana no despierta nunca a Maria, aunque ella enciende la luz durante la noche.
  - (f) Ana no se despierta a causa de Maria, aunque ella enciende la luz durante la noche.



- (g) Ana no despertaba nunca a Maria, aunque ella encendía la luz durante la noche.
  - (h) Ana no se despertaba a causa de Maria, aunque ella encendía la luz durante la noche.
- 62.
- (a) Carmen fue seleccionada para el trabajo por Diana, aunque ella sea inexperta y poco cualificada.
  - (b) Carmen seleccionó para el trabajo a Diana, aunque ella sea inexperta y poco cualificada.
  - (c) Carmen fue seleccionada para el trabajo por Diana, aunque sea inexperta y poco cualificada.
  - (d) Carmen seleccionó para el trabajo a Diana, aunque sea inexperta y poco cualificada.
  - (e) Carmen fue seleccionada para el trabajo por Diana, aunque ella es inexperta y poco cualificada.
  - (f) Carmen seleccionó para el trabajo a Diana, aunque ella es inexperta y poco cualificada.
  - (g) Carmen fue seleccionada para el trabajo por Diana, aunque ella era inexperta y poco cualificada.
  - (h) Carmen seleccionó para el trabajo a Diana, aunque ella era inexperta y poco cualificada.
- 63.
- (a) Ana es una escritora muy amada por Beatriz, aunque ella escriba libros muy pesados.
  - (b) Ana ha leído todos los libros publicados por Beatriz, aunque ella escriba libros muy pesados.
  - (c) Ana es una escritora muy amada por Beatriz, aunque escriba libros muy pesados.
  - (d) Ana ha leído todos los libros publicados por Beatriz, aunque escriba libros muy pesados.
  - (e) Ana es una escritora muy amada por Beatriz, aunque ella escribe libros muy pesados.
  - (f) Ana ha leído todos los libros publicados por Beatriz, aunque ella escribe libros muy pesados.
  - (g) Ana era una escritora muy amada por Beatriz, aunque ella escribía libros muy pesados.
  - (h) Ana ha leído todos los libros publicados por Beatriz, aunque ella escribía libros muy pesados.
- 64.
- (a) Beatriz da miedo a Carmen, aunque ella sea amigable y muy accesible.
  - (b) Beatriz tiene miedo de Carmen, aunque ella sea amigable y muy accesible.
  - (c) Beatriz da miedo a Carmen, aunque sea amigable y muy accesible.
  - (d) Beatriz tiene miedo de Carmen, aunque sea amigable y muy accesible.
  - (e) Beatriz da miedo a Carmen, aunque ella es amigable y muy accesible.
  - (f) Beatriz tiene miedo de Carmen, aunque ella es amigable y muy accesible.
  - (g) Beatriz daba miedo a Carmen, aunque ella era amigable y muy accesible.
  - (h) Beatriz tenía miedo de Carmen, aunque ella era amigable y muy accesible.
- 65.
- (a) Carmen no goza de la confianza de Diana, aunque ella demuestre mucha madurez.

- (b) Carmen no se fía completamente de Diana, aunque ella demuestre mucha madurez.
  - (c) Carmen no goza de la confianza de Diana, aunque demuestre mucha madurez.
  - (d) Carmen no se fía completamente de Diana, aunque demuestre mucha madurez.
  - (e) Carmen no goza de la confianza de Diana, aunque ella demuestra mucha madurez.
  - (f) Carmen no se fía completamente de Diana, aunque ella demuestra mucha madurez.
  - (g) Carmen no gozaba de la confianza de Diana, aunque ella demostraba mucha madurez.
  - (h) Carmen no se fiaba completamente de Diana, aunque ella demostraba mucha madurez.
66. (a) A Diana fue recetado un medicamento por Ema, aunque ella esté sana como una manzana.
- (b) Diana ha recetado un medicamento a Ema, aunque ella esté sana cómo una manzana.
- (c) A Diana fue recetado un medicamento por Ema, aunque esté sana como una manzana.
- (d) Diana ha recetado un medicamento a Ema, aunque esté sana como una manzana.
- (e) A Diana fue recetado un medicamento por Ema, aunque ella está sana como una manzana.
- (f) Diana ha recetado un medicamento a Ema, aunque ella está sana como una manzana.
- (g) A Diana eran recetados medicamentos por Ema, aunque ella estaba sana como una manzana.
- (h) Diana recetaba medicamentos a Ema, aunque ella estaba sana como una manzana.
67. (a) Ema no será echada de casa por María, aunque ella robe de su cuarto.
- (b) Ema no echará de casa a María, aunque ella robe de su cuarto.
- (c) Ema no será echada de casa por María, aunque robe de su cuarto.
- (d) Ema no echará de casa a María, aunque robe de su cuarto.
- (e) Ema no será echada de casa por María, aunque ella roba de su cuarto.
- (f) Ema no echará de casa a María, aunque ella roba de su cuarto.
- (g) Ema no fue echada de casa por María, aunque ella robaba de su cuarto.
- (h) Ema no echó de casa a María, aunque ella robaba de su cuarto.
68. (a) Beatriz resume la trama de las películas a María, aunque ella olvide detalles importantes.
- (b) Beatriz escucha la trama de las películas de María, aunque ella olvide detalles importantes.
- (c) Beatriz resume la trama de las películas a María, aunque olvide detalles importantes.
- (d) Beatriz escucha la trama de las películas de María, aunque olvide detalles importantes.
- (e) Beatriz resume la trama de las películas a María, aunque ella olvida detalles importantes.
- (f) Beatriz escucha la trama de las películas de María, aunque ella olvida detalles importantes.

- (g) Beatriz resumía la trama de las películas a María, aunque ella olvidaba detalles importantes.
  - (h) Beatriz escuchaba la trama de las películas de María, aunque ella olvidaba detalles importantes.
- 69.
- (a) María ha recibido una petición de préstamo de Carmen, aunque ella no financie este tipo de proyectos.
  - (b) María ha pedido un préstamo a Carmen, aunque ella no financie este tipo de proyectos.
  - (c) María ha recibido una petición de préstamo de Carmen, aunque no financie este tipo de proyectos.
  - (d) María ha pedido un préstamo a Carmen, aunque no financie este tipo de proyectos.
  - (e) María ha recibido una petición de préstamo de Carmen, aunque ella no financia este tipo de proyectos.
  - (f) María ha pedido un préstamo a Carmen, aunque ella no financia este tipo de proyectos.
  - (g) María recibió una petición de préstamo de Carmen, aunque ella no financiaba este tipo de proyectos.
  - (h) María pidió un préstamo a Carmen, aunque ella no financiaba este tipo de proyectos.
- 70.
- (a) Beatriz será desahuciada de su piso por Ema, aunque ella pague el alquiler puntualmente.
  - (b) Beatriz quiere desahuciar de su piso a Ema, aunque ella pague el alquiler puntualmente.
  - (c) Beatriz será desahuciada de su piso por Ema, aunque pague el alquiler puntualmente.
  - (d) Beatriz quiere desahuciar de su piso a Ema, aunque pague el alquiler puntualmente.
  - (e) Beatriz será desahuciada de su piso por Ema, aunque ella paga el alquiler puntualmente.
  - (f) Beatriz quiere desahuciar de su piso a Ema, aunque ella paga el alquiler puntualmente.
  - (g) Beatriz fue desahuciada de su piso por Ema, aunque ella pagaba el alquiler puntualmente.
  - (h) Beatriz desahució de su piso a Ema, aunque ella pagaba el alquiler puntualmente.
- 71.
- (a) Bernardo no ha sido denunciado por Diego, aunque él lo pegue de vez en cuando.
  - (b) Eduardo ha decidido no denunciar a Bruno, aunque él lo pegue de vez en cuando.
  - (c) Eduardo no ha sido denunciado por Bruno, aunque lo pegue de vez en cuando.
  - (d) Eduardo ha decidido no denunciar a Bruno, aunque lo pegue de vez en cuando.
  - (e) Eduardo no ha sido denunciado por Bruno, aunque él lo pega de vez en cuando.
  - (f) Eduardo ha decidido no denunciar a Bruno, aunque él lo pega de vez en cuando.

- (g) Eduardo no ha sido denunciado por Bruno, aunque él lo pegaba de vez en cuando.
  - (h) Eduardo no ha denunciado nunca a Bruno, aunque él lo pegaba de vez en cuando.
- 72.
- (a) Antonio es escuchado siempre con atención por Carlos, aunque él hable a bocanadas y de manera confusa.
  - (b) Antonio escucha siempre con atención a Carlos, aunque él hable a bocanadas y de manera confusa.
  - (c) Antonio es escuchado siempre con atención por Carlos, aunque hable a bocanadas y de manera confusa.
  - (d) Antonio escucha siempre con atención a Carlos, aunque hable a bocanadas y de manera confusa.
  - (e) Antonio es escuchado siempre con atención por Carlos, aunque él habla a bocanadas y de manera confusa.
  - (f) Antonio escucha siempre con atención a Carlos, aunque él habla a bocanadas y de manera confusa.
  - (g) Antonio era escuchado siempre con atención por Carlos, aunque él hablaba a bocanadas y de manera confusa.
  - (h) Antonio escuchaba siempre con atención a Carlos, aunque él hablaba a bocanadas y de manera confusa.
- 73.
- (a) Bernardo en las fiestas de disfraces siempre es reconocido por Diego, aunque él se disfrace de manera perfecta.
  - (b) Bernardo en las fiestas de disfraces reconoce siempre a Diego, aunque él se disfrace de manera perfecta.
  - (c) Bernardo en las fiestas de disfraces siempre es reconocido por Diego, aunque se disfrace de manera perfecta.
  - (d) Bernardo en las fiestas de disfraces reconoce siempre a Diego, aunque se disfrace de manera perfecta.
  - (e) Bernardo en las fiestas de disfraces siempre es reconocido por Diego, aunque él se disfraza de manera perfecta.
  - (f) Bernardo en las fiestas de disfraces reconoce siempre a Diego, aunque él se disfraza de manera perfecta.
  - (g) Bernardo en las fiestas de disfraces siempre era reconocido por Diego, aunque él se disfrazaba de manera perfecta.
  - (h) Bernardo en las fiestas de disfraces reconocía siempre a Diego, aunque él se disfrazaba de manera perfecta.
- 74.
- (a) Carlos es localizado siempre por Antonio, aunque él no deje dicho nada a nadie.
  - (b) Carlos localiza siempre a Antonio, aunque él no deje dicho nada a nadie.
  - (c) Carlo es localizado siempre por Antonio, aunque no deje dicho nada a nadie.
  - (d) Carlo localiza siempre a Antonio, aunque no deja dicho nada a nadie.
  - (e) Carlo es localizado siempre por Antonio, aunque él no deja dicho nada a nadie.
  - (f) Carlo localiza siempre a Antonio, aunque él no deja dicho nada a nadie.
  - (g) Carlo era localizado siempre por Antonio, aunque él no dejaba dicho nada a nadie.
  - (h) Carlo localizaba siempre a Antonio, aunque él no dejaba dicho nada a nadie.

75. (a) Diego siempre ha despertado la admiración de Eduardo, aunque él no merezca toda esta atención.  
(b) Diego siempre ha profesado admiración por Eduardo, aunque él no merezca toda esta atención.  
(c) Diego siempre ha despertado la admiración de Eduardo, aunque no merezca toda esta atención.  
(d) Diego siempre ha profesado admiración por Eduardo, aunque no merezca toda esta atención.  
(e) Diego siempre ha despertado la admiración de Eduardo, aunque él no merece toda esta atención.  
(f) Diego siempre ha profesado admiración por Eduardo, aunque él no merece toda esta atención.  
(g) Diego siempre ha despertado la admiración de Eduardo, aunque él no merecía toda esta atención.  
(h) Diego siempre ha profesado admiración por Eduardo, aunque él no merecía toda esta atención.
76. (a) Antonio conseguirá una prórroga de Bernardo, aunque él pueda terminar el trabajo antes del plazo de entrega.  
(b) Antonio concederá una prórroga a Bernardo, aunque él pueda terminar el trabajo antes del plazo de entrega.  
(c) Antonio conseguirá una prórroga de Bernardo, aunque pueda terminar el trabajo antes del plazo de entrega.  
(d) Antonio concederá una prórroga a Bernardo, aunque pueda terminar el trabajo antes del plazo de entrega.  
(e) Antonio conseguirá una prórroga de Bernardo, aunque él puede terminar el trabajo antes del plazo de entrega.  
(f) Antonio concederá una prórroga a Bernardo, aunque él puede terminar el trabajo antes del plazo de entrega.  
(g) Antonio ha conseguido una prórroga de Bernardo, aunque él podía terminar el trabajo antes del plazo de entrega.  
(h) Antonio ha concedido una prórroga a Bernardo, aunque él podía terminar el trabajo antes del plazo de entrega.
77. (a) Eduardo se enfurece por culpa de Antonio, aunque él se calme siempre en poco tiempo.  
(b) Eduardo pone furioso cada día a Antonio, aunque él se calme siempre en poco tiempo.  
(c) Eduardo se enfurece por culpa de Antonio, aunque se calme siempre en poco tiempo.  
(d) Eduardo pone furioso cada día a Antonio, aunque se calme siempre en poco tiempo.  
(e) Eduardo se enfurece por culpa de Antonio, aunque él se calma siempre en poco tiempo.  
(f) Eduardo pone furioso cada día a Antonio, aunque él se calma siempre en poco tiempo.  
(g) Eduardo se enfurecía por culpa de Antonio, aunque él se calmaba siempre en poco tiempo.  
(h) Eduardo ponía furioso cada día a Antonio, aunque él se calmaba siempre en poco tiempo.

78. (a) Bernardo se desanima a causa de las críticas de Diego, aunque él se recobre rápidamente cada vez.  
(b) Bernardo desanima con sus críticas a Diego, aunque él se recobre rápidamente cada vez.  
(c) Bernardo se desanima a causa de las críticas de Diego, aunque se recobre rápidamente cada vez.  
(d) Bernardo desanima con sus críticas a Diego, aunque se recobre rápidamente cada vez.  
(e) Bernardo se desanima a causa de las críticas de Diego, aunque él se recobra rápidamente cada vez.  
(f) Bernardo desanima con sus críticas a Diego, aunque él se recobra rápidamente cada vez.  
(g) Bernardo se desanimaba a causa de las críticas de Diego, aunque él se recobraba rápidamente cada vez.  
(h) Bernardo desanimaba con sus críticas a Diego, aunque él se recobraba rápidamente cada vez.
79. (a) Carlos nunca se presenta en las fiestas de Bernardo, aunque él prometa presentarse cada vez.  
(b) Carlos no espera encontrar en las fiestas a Bernardo, aunque él prometa presentarse cada vez.  
(c) Carlos nunca se presenta en las fiestas de Bernardo, aunque prometa presentarse cada vez.  
(d) Carlos no espera encontrar en las fiestas a Bernardo, aunque prometa presentarse cada vez.  
(e) Carlos nunca se presenta en las fiestas de Bernardo, aunque él promete presentarse cada vez.  
(f) Carlos no espera encontrar en las fiestas a Bernardo, aunque él promete presentarse cada vez.  
(g) Carlos nunca se presentaba en las fiestas de Bernardo, aunque él prometía presentarse cada vez.  
(h) Carlos no esperaba encontrar en las fiestas a Bernardo, aunque él prometía presentarse cada vez.
80. (a) Antonio se despierta cada noche por culpa de Bernardo, aunque él duerma muy profundamente.  
(b) Antonio despierta cada noche a Bernardo, aunque él duerma muy profundamente.  
(c) Antonio se despierta cada noche por culpa de Bernardo, aunque duerma muy profundamente.  
(d) Antonio despierta cada noche a Bernardo, aunque duerma muy profundamente.  
(e) Antonio se despierta cada noche por culpa de Bernardo, aunque él duerme muy profundamente.  
(f) Antonio despierta cada noche a Bernardo, aunque él duerme muy profundamente.  
(g) Antonio se despertaba cada noche por culpa de Bernardo, aunque él dormía muy profundamente.  
(h) Antonio despertaba cada noche a Bernardo, aunque él dormía muy profundamente.

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## APPENDIX D

### Materials for experiments 4

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#### D.1 Italian Instructions

The same as in the Italian version of Experiment 2, Appendix B.3.

#### D.2 Experimental materials: Italian

1.
  - (a) Diana ha ricevuto il motorino da Beatrice, quando compiva sedici anni.
  - (b) Quando Diana ha ricevuto il motorino da Beatrice, compiva sedici anni.
  - (c) Diana ha regalato il motorino a Beatrice, quando compiva sedici anni.
  - (d) Quando Diana ha regalato il motorino a Beatrice, compiva sedici anni.
2.
  - (a) Emma riceveva bei voti da Maria, quando studiava sodo tutte le materie.
  - (b) Quando Emma riceveva bei voti da Maria, studiava sodo tutte le materie.
  - (c) Emma dava bei voti a Maria, quando studiava sodo tutte le materie.
  - (d) Quando Emma dava bei voti a Maria, studiava sodo tutte le materie.
3.
  - (a) Antonio mandava cartoline a Bernardo, quando era in viaggio per motivi di lavoro.
  - (b) Quando Antonio mandava cartoline a Bernardo, era in viaggio per motivi di lavoro.
  - (c) Antonio riceveva cartoline da Bernardo, quando era in viaggio per motivi di lavoro.
  - (d) Quando Antonio riceveva cartoline da Bernardo, era in viaggio per motivi di lavoro.
4.
  - (a) Bernardo può ascoltare le fiabe da Carlo, quando va a letto senza capricci.
  - (b) Quando Bernardo può ascoltare le fiabe da Carlo, va a letto senza capricci.
  - (c) Bernardo legge le fiabe a Carlo, quando va a letto senza capricci.
  - (d) Quando Bernardo legge le fiabe a Carlo, va a letto senza capricci.
5.
  - (a) Maria stava intervistando Beatrice, quando ha fatto domande particolarmente sgradevoli.
  - (b) Quando Maria stava intervistando Beatrice, ha fatto domande particolarmente sgradevoli.

- (c) Maria veniva intervistata da Beatrice, quando ha fatto domande particolarmente sgradevoli.
  - (d) Quando Maria veniva intervistata da Beatrice, ha fatto domande particolarmente sgradevoli.
- 6.
- (a) Emma ha ricevuto una visita di Maria, in ospedale quando era ricoverata in terapia intensiva.
  - (b) Quando Emma ha ricevuto una visita di Maria in ospedale, era ricoverata in terapia intensiva.
  - (c) Emma ha visitato Maria in ospedale, quando era ricoverata in terapia intensiva.
  - (d) Quando Emma ha visitato Maria in ospedale, era ricoverata in terapia intensiva.
- 7.
- (a) Carlo è stato investito da Dino, quando stava attraversando sulle strisce pedonali.
  - (b) Quando Carlo è stato investito da Dino, stava attraversando sulle strisce pedonali.
  - (c) Carlo ha investito Dino, quando stava attraversando sulle strisce pedonali.
  - (d) Quando Carlo ha investito Dino, stava attraversando sulle strisce pedonali.
- 8.
- (a) Antonio ha ricevuto un pugno da Bernardo, quando lo aveva provocato con molta insolenza.
  - (b) Quando Antonio ha ricevuto quel pugno da Bernardo, lo aveva provocato con molta insolenza.
  - (c) Antonio ha dato un pugno a Bernardo, quando lo aveva provocato con molta insolenza.
  - (d) Quando Antonio ha dato quel pugno a Bernardo, lo aveva provocato con molta insolenza.
- 9.
- (a) Anna usa la macchina di Beatrice, quando deve guidare per molte ore.
  - (b) Quando Anna usa la macchina di Beatrice, deve guidare per molte ore.
  - (c) Anna presta la sua macchina a Beatrice, quando deve guidare per molte ore.
  - (d) Quando Anna presta la sua macchina a Beatrice, deve guidare per molte ore.
- 10.
- (a) Carmen è svenuta davanti a Diana, quando era debilitata a causa dello stress.
  - (b) Quando Carmen è svenuta davanti a Diana, era debilitata a causa dello stress.
  - (c) Carmen ha visto svenire Diana, quando era debilitata a causa dello stress.
  - (d) Quando Carmen ha visto svenire Diana, era debilitata a causa dello stress.
- 11.
- (a) Bernardo ha ricevuto cure amorevoli da Carlo, quando era ammalato molto gravemente.
  - (b) Quando Bernardo ha ricevuto cure amorevoli da Carlo, era ammalato molto gravemente.
  - (c) Bernardo ha curato Carlo amorevolmente, quando era ammalato molto gravemente.
  - (d) Quando Bernardo ha curato Carlo amorevolmente era ammalato molto gravemente



12.
  - (a) Bernardo ha ottenuto l'appoggio di Carlo, quando si è candidato alle elezioni locali.
  - (b) Quando Bernardo ha ottenuto l'appoggio di Carlo, si è candidato alle elezioni locali.
  - (c) Bernardo ha dato il suo appoggio a Carlo, quando si è candidato alle elezioni locali.
  - (d) Quando Bernardo ha dato il suo appoggio a Carlo, si è candidato alle elezioni locali.
13.
  - (a) Anna ha preso in prestito il vestito da sera di Carmen, quando si è agghindata per la festa di gala.
  - (b) Quando Anna ha preso in prestito il vestito da sera di Carmen, si è agghindata per la festa di gala.
  - (c) Anna ha prestato il suo vestito da sera a Carmen, quando si è agghindata per la festa di gala.
  - (d) Quando Anna ha prestato il suo vestito da sera a Carmen, si è agghindata per la festa di gala.
14.
  - (a) Carmen ha fatto un ritratto ad Anna, quando dipingeva con un certo entusiasmo.
  - (b) Quando Carmen ha fatto un ritratto ad Anna, dipingeva con un certo entusiasmo.
  - (c) Carmen è stata immortalata in un ritratto da Anna, quando dipingeva con un certo entusiasmo.
  - (d) Quando Carmen è stata immortalata in un ritratto da Anna, dipingeva con un certo entusiasmo.
15.
  - (a) Bernardo aveva mangiato a casa di Carlo, quando ha avuto un'indigestione molto dolorosa.
  - (b) Quando Bernardo aveva mangiato a casa di Carlo, ha avuto un'indigestione molto dolorosa.
  - (c) Bernardo aveva cucinato la cena per Carlo, quando ha avuto un'indigestione molto dolorosa.
  - (d) Quando Bernardo aveva cucinato la cena per Carlo, ha avuto un'indigestione molto dolorosa.
16.
  - (a) Carlo ha subito accuse pesanti da Antonio, quando era innocente secondo tutti.
  - (b) Quando Carlo ha subito accuse pesanti da Antonio, era innocente secondo tutti.
  - (c) Carlo ha accusato pesantemente Antonio, quando era innocente secondo tutti.
  - (d) Quando Carlo ha accusato pesantemente Antonio, era innocente secondo tutti.
17.
  - (a) Beatrice ha ricevuto un aumento da Carmen, quando ha lavorato moltissimo per mesi.
  - (b) Quando Beatrice ha ricevuto un aumento da Carmen, ha lavorato moltissimo per mesi.
  - (c) Beatrice ha dato un aumento a Carmen, quando ha lavorato moltissimo per mesi.

- (d) Quando Beatrice ha dato un aumento a Carmen, ha lavorato moltissimo per mesi.
18. (a) A Diana è stata prescritta una medicina da Anna, quando era sana come un pesce.  
(b) Quando a Diana è stata prescritta una medicina da Anna, era sana come un pesce.  
(c) Diana ha prescritto una medicina ad Anna, quando era sana come un pesce.  
(d) Quando Diana ha prescritto una medicina ad Anna, era sana come un pesce.
19. (a) Carlo è stato sfrattato di casa da Diego, quando non ha pagato l'ultimo affitto.  
(b) Quando Carlo è stato sfrattato di casa da Diego, non ha pagato l'ultimo affitto.  
(c) Carlo ha sfrattato di casa Diego, quando non ha pagato l'ultimo affitto.  
(d) Quando Carlo ha sfrattato di casa Diego, non ha pagato l'ultimo affitto.
20. (a) Bernardo ha ricevuto una multa da Antonio, quando guidava in stato di ebbrezza.  
(b) Quando Bernardo ha ricevuto una multa da Antonio, guidava in stato di ebbrezza.  
(c) Bernardo ha dato una multa ad Antonio, quando guidava in stato di ebbrezza.  
(d) Quando Bernardo ha dato una multa ad Antonio, guidava in stato di ebbrezza.
21. (a) Carmen ha chiesto un prestito a Diana, quando aveva un bisogno disperato di denaro.  
(b) Quando Carmen ha chiesto un prestito a Diana, aveva un bisogno disperato di denaro.  
(c) Carmen ha concesso un prestito a Diana, quando aveva un bisogno disperato di denaro.  
(d) Quando Carmen ha concesso un prestito a Diana, aveva un bisogno disperato di denaro.
22. (a) Beatrice ha invitato al suo compleanno Carmen, quando compiva dodici anni.  
(b) Quando Beatrice ha invitato al suo compleanno Carmen, compiva dodici anni.  
(c) Beatrice ha ricevuto un invito al compleanno di Carmen, quando compiva dodici anni.  
(d) Quando Beatrice ha ricevuto un invito al compleanno di Carmen, compiva dodici anni.
23. (a) Diego ottiene l'attenzione di Antonio, quando gli spiega concetti molto difficili.  
(b) Quando Diego ottiene l'attenzione di Antonio, gli spiega concetti molto difficili.  
(c) Diego presta attenzione ad Antonio, quando gli spiega concetti molto difficili.  
(d) Quando Diego presta attenzione ad Antonio, gli spiega concetti molto difficili.

24.
  - (a) Diego è stato accompagnato in stazione da Bernardo, quando ha perso l'ultimo treno.
  - (b) Quando Diego è stato accompagnato in stazione da Bernardo, ha perso l'ultimo treno.
  - (c) Diego ha accompagnato in stazione Bernardo, quando ha perso l'ultimo treno.
  - (d) Quando Diego ha accompagnato in stazione Bernardo, ha perso l'ultimo treno.
  
25.
  - (a) Anna ascolta sempre i pettegolezzi di Beatrice, anche se non conosce le persone coinvolte.
  - (b) Anche se Anna ascolta sempre i pettegolezzi di Beatrice, non conosce le persone coinvolte.
  - (c) Anna racconta sempre pettegolezzi a Beatrice, anche se non conosce le persone coinvolte.
  - (d) Anche se Anna racconta sempre pettegolezzi a Beatrice, non conosce le persone coinvolte.
  
26.
  - (a) Diana appoggerà la causa di Emma, anche se non condivide alcune sue idee.
  - (b) Anche se Diana appoggerà la causa di Emma, non condivide alcune sue idee.
  - (c) Diana avrà l'appoggio di Emma, anche se non condivide alcune sue idee.
  - (d) Anche se Diana avrà l'appoggio di Emma, non condivide alcune sue idee.
  
27.
  - (a) Bernardo ha mostrato il suo progetto a Diego, anche se nasconde sempre tutto riguardo al suo lavoro.
  - (b) Anche se Bernardo ha mostrato il suo progetto a Diego, nasconde sempre tutto riguardo al suo lavoro.
  - (c) Bernardo ha visto il progetto di Diego, anche se nasconde sempre tutto riguardo al suo lavoro.
  - (d) Anche se Bernardo ha visto il progetto di Diego, nasconde sempre tutto riguardo al suo lavoro.
  
28.
  - (a) Bernardo non è stato denunciato da Diego, anche se ha rubato parecchi soldi.
  - (b) Anche se Bernardo non è stato denunciato da Diego, ha rubato parecchi soldi.
  - (c) Bernardo non vuole denunciare Diego, anche se ha rubato parecchi soldi.
  - (d) Anche se Bernardo non vuole denunciare Diego, ha rubato parecchi soldi.
  
29.
  - (a) Beatrice mette soggezione a Carmen, anche se è gentile sempre con tutti.
  - (b) Anche se Beatrice mette soggezione a Carmen, è gentile sempre con tutti.
  - (c) Beatrice ha soggezione di Carmen, anche se è gentile sempre con tutti.
  - (d) Anche se Beatrice ha soggezione di Carmen, è gentile sempre con tutti.
  
30.
  - (a) Maria ha concesso un appuntamento ad Anna, anche se non riceverà gli altri studenti.
  - (b) Anche se Maria ha concesso un appuntamento ad Anna, non riceverà gli altri studenti.
  - (c) Maria ha ottenuto un appuntamento da Anna, anche se non riceverà gli altri studenti.

- (d) Anche se Maria ha ottenuto un appuntamento da Anna, non riceverà gli altri studenti.
31. (a) Carlo non gode della fiducia di Diego, anche se dimostra molta maturità.  
(b) Anche se Carlo non gode della fiducia di Diego, dimostra molta maturità.  
(c) Carlo non ha fiducia in Diego, anche se dimostra molta maturità.  
(d) Anche se Carlo non ha fiducia in Diego, dimostra molta maturità.
32. (a) Antonio ha ottenuto un aumento da Diego, anche se lavora molto meno dei colleghi.  
(b) Anche se Antonio ha ottenuto un aumento a Diego, lavora molto meno dei colleghi.  
(c) Antonio concesso un aumento a Diego, anche se lavora molto meno dei colleghi.  
(d) Anche se Antonio ha concesso un aumento a Diego, lavora molto meno dei colleghi.
33. (a) Anna stima profondamente Maria, anche se non le affida faccende delicate.  
(b) Anche se Anna stima profondamente Maria, non le affida faccende delicate.  
(c) Anna gode della stima di Maria, anche se non le affida faccende delicate.  
(d) Anche se Anna gode della stima di Maria, non le affida faccende delicate.
34. (a) Beatrice ha già comprato un regalo per Maria, anche se glielo darà solo dopo la sua festa.  
(b) Anche se Beatrice ha già comprato un regalo per Maria, glielo darà solo dopo la sua festa.  
(c) Beatrice riceverà un bel regalo da Maria, anche se glielo darà solo dopo la sua festa.  
(d) Anche se Beatrice riceverà un bel regalo da Maria, glielo darà solo dopo la sua festa.
35. (a) Diego ripara sempre l'auto di Antonio, anche se fatica spesso a trovare i ricambi.  
(b) Anche se Diego ripara sempre l'auto di Antonio, fatica spesso a trovare i ricambi.  
(c) Diego fa riparare sempre la sua auto ad Antonio, anche se fatica spesso a trovare i ricambi.  
(d) Anche se Diego fa riparare sempre la sua auto ad Antonio, fatica spesso a trovare i ricambi.
36. (a) Antonio riceve continuamente lettere da Diego, anche se non riesce a leggere la sua calligrafia.  
(b) Anche se Antonio riceve continuamente lettere da Diego, non riesce a leggere la sua calligrafia.  
(c) Antonio spedisce continuamente lettere a Diego, anche se non riesce a leggere la sua calligrafia.  
(d) Anche se Antonio spedisce continuamente lettere a Diego, non riesce a leggere la sua calligrafia.
37. (a) Diana ascolta le bugie di Emma, anche se scopre sempre la verità.  
(b) Anche se Diana ascolta le bugie di Emma, scopre sempre la verità.  
(c) Diana racconta spesso bugie a Emma, anche se scopre sempre la verità.

- (d) Anche se Diana racconta spesso bugie a Emma, scopre sempre la verità.
- 38.
- (a) Anna si scoraggia per le critiche di Beatrice, anche se si riprende sempre velocemente.
  - (b) Anche se Anna si scoraggia per le critiche di Beatrice, si riprende sempre velocemente.
  - (c) Anna scoraggia con le sue critiche Beatrice, anche se si riprende sempre velocemente.
  - (d) Anche se Anna scoraggia con le sue critiche Beatrice, si riprende sempre velocemente.
- 39.
- (a) Diego dà sempre consigli ad Antonio, anche se non sa nulla dei suoi problemi.
  - (b) Anche se Diego dà sempre consigli ad Antonio, non sa nulla dei suoi problemi.
  - (c) Diego riceve sempre consigli da Antonio, anche se non sa nulla dei suoi problemi.
  - (d) Anche se Diego riceve sempre consigli da Antonio, non sa nulla dei suoi problemi.
- 40.
- (a) Carlo si infuria per il comportamento di Diego, anche se si calma abbastanza facilmente.
  - (b) Anche se Carlo si infuria per il comportamento di Diego, si calma abbastanza facilmente.
  - (c) Carlo fa infuriare col suo comportamento Diego, anche se si calma abbastanza facilmente.
  - (d) Anche se Carlo fa infuriare col suo comportamento Diego, si calma abbastanza facilmente.
- 41.
- (a) Maria si sveglia per i rumori di Carmen, anche se si riaddormenta senza difficoltà.
  - (b) Anche se Maria si sveglia per i rumori di Carmen, si riaddormenta senza difficoltà.
  - (c) Maria sveglia Carmen facendo rumore, anche se si riaddormenta senza difficoltà.
  - (d) Anche se Maria sveglia Carmen facendo rumore, si riaddormenta senza difficoltà.
- 42.
- (a) Diana vende molti prodotti a Emma, anche se non concede sconti a nessun cliente.
  - (b) Anche se Diana vende molti prodotti a Emma, non concede sconti a nessun cliente.
  - (c) Diana compra molti prodotti da Emma, anche se non concede sconti a nessun cliente.
  - (d) Anche se Diana compra molti prodotti da Emma, non concede sconti a nessun cliente.
- 43.
- (a) Carlo è stato condannato al carcere da Antonio, anche se si dichiara ancora innocente.
  - (b) Anche se Carlo è stato condannato al carcere da Antonio, si dichiara ancora innocente.

- (c) Carlo ha condannato al carcere Antonio, anche se si dichiara ancora innocente.
  - (d) Anche se Carlo ha condannato al carcere Antonio, si dichiara ancora innocente.
44. (a) Bernardo non ha risposto esaurientemente ad Antonio, anche se è un luminare nel suo campo.
- (b) Anche se Bernardo non ha risposto esaurientemente ad Antonio, è un luminare nel suo campo.
- (c) Bernardo non ha ottenuto risposte esaurienti da Antonio, anche se è un luminare nel suo campo.
- (d) Anche se Bernardo non ha ottenuto risposte esaurienti da Antonio, è un luminare nel suo campo.
45. (a) Carmen recita spesso quella poesia per Emma, anche se balbetta pronunciando alcuni versi.
- (b) Anche se Carmen recita spesso quella poesia per Emma, balbetta pronunciando alcuni versi.
- (c) Carmen fa recitare spesso quella poesia ad Emma, anche se balbetta pronunciando alcuni versi.
- (d) Anche se Carmen fa recitare spesso quella poesia ad Emma, balbetta pronunciando alcuni versi.
46. (a) Anna è stata incolpata delle perdite di Maria, anche se non risulta coinvolta in nessun modo.
- (b) Anche se Anna è stata incolpata delle perdite di Maria, non risulta coinvolta in nessun modo.
- (c) Anna ha incolpato Maria delle sue perdite, anche se non risulta coinvolta in nessun modo.
- (d) Anche se Anna ha incolpato Maria delle sue perdite, non risulta coinvolta in nessun modo.
47. (a) Carlo viene disobbedito spesso da Diego, anche se lo castiga sempre severamente.
- (b) Anche se Carlo viene disobbedito spesso da Diego, lo castiga sempre severamente.
- (c) Carlo disobbedisce spesso a Diego, anche se lo castiga sempre severamente.
- (d) Anche se Carlo disobbedisce spesso a Diego, lo castiga sempre severamente.
48. (a) Bernardo ha ricevuto una multa da Carlo, anche se ha guidato sempre con prudenza.
- (b) Anche se Bernardo ha ricevuto una multa da Carlo, ha guidato sempre con prudenza.
- (c) Bernardo ha dato una multa a Carlo, anche se ha guidato sempre con prudenza.
- (d) Anche se Bernardo ha dato una multa a Carlo, ha guidato sempre con prudenza.

### **D.3 Spanish Instructions**

The same as in the Spanish version of Experiment 2, Appendix [B.3](#).

## D.4 Experimental materials: Spanish

1.
  - (a) Ana recibió un ciclomotor de Beatriz, cuando cumplía dieciséis años.
  - (b) Cuando Ana recibió un ciclomotor de Beatriz, cumplía dieciséis años.
  - (c) Ana regaló un ciclomotor a Beatriz, cuando cumplía dieciséis años.
  - (d) Cuando Ana regaló un ciclomotor a Beatriz, cumplía dieciséis años.
2.
  - (a) Antonio enviaba postales a Bernardo, cuando estaba de viaje por razones de trabajo.
  - (b) Cuando Antonio enviaba postales a Bernardo, estaba de viaje por razones de trabajo.
  - (c) Antonio recibía postales de Bernardo, cuando estaba de viaje por razones de trabajo.
  - (d) Cuando Antonio recibía postales de Bernardo, estaba de viaje por razones de trabajo.
3.
  - (a) Ana ponía buenas notas a María, cuando estudiaba duramente todas las asignaturas.
  - (b) Cuando Ana ponía buenas notas a María, estudiaba duramente todas las asignaturas.
  - (c) Ana tomaba buenas notas de María, cuando estudiaba duramente todas las asignaturas.
  - (d) Cuando Ana tomaba buenas notas de María, estudiaba duramente todas las asignaturas.
4.
  - (a) Bernardo puede escuchar los cuentos de Carlos, cuando se va a la cama sin coger un berrinche.
  - (b) Cuando Bernardo puede escuchar los cuentos de Carlos, se va a la cama sin coger un berrinche.
  - (c) Bernardo lee los cuentos a Carlos, cuando se va a la cama sin coger un berrinche.
  - (d) Cuando Bernardo lee los cuentos a Carlos, se va a la cama sin coger un berrinche.
5.
  - (a) María estaba entrevistando a Beatriz, cuando ha preguntado cosas desagradables.
  - (b) Cuando María estaba entrevistando a Beatriz, ha preguntado cosas desagradables.
  - (c) María era entrevistada por Beatriz, cuando ha preguntado cosas desagradables.
  - (d) Cuando María era entrevistada por Beatriz, ha preguntado cosas desagradables.
6.
  - (a) Carlos fue atropellado por Diego, cuando cruzaba por el paso de cebra.
  - (b) Cuando Carlos fue atropellado por Diego, cruzaba por el paso de cebra.
  - (c) Carlos ha atropellado a Diego, cuando cruzaba por el paso de cebra.
  - (d) Cuando Carlos ha atropellado a Diego, cruzaba por el paso de cebra.
7.
  - (a) Ema recibió una visita de María en el hospital, cuando estaba hospitalizada en cuidados intensivos.
  - (b) Cuando Ema recibió una visita de María en el hospital, estaba hospitalizada en cuidados intensivos.

- (c) Ema visitó a María en el hospital, cuando estaba hospitalizada en cuidados intensivos.
  - (d) Cuando Ema visitó a María en el hospital, estaba hospitalizada en cuidados intensivos.
- 8.
- (a) Antonio recibió un puñetazo de Bernardo, cuando no había hecho nada malo.
  - (b) Cuando Antonio recibió un puñetazo de Bernardo, no había hecho nada malo.
  - (c) Antonio le dió un puñetazo a Bernardo, cuando no había hecho nada malo.
  - (d) Cuando Antonio le dió un puñetazo a Bernardo, no había hecho nada malo.
- 9.
- (a) Ana usa el coche de Beatriz, cuando tiene que conducir durante muchas horas.
  - (b) Cuando Ana usa el coche de Beatriz, tiene que conducir durante muchas horas.
  - (c) Ana presta su coche a Beatriz, cuando tiene que conducir durante muchas horas.
  - (d) Cuando Ana presta su coche a Beatriz, tiene que conducir durante muchas horas.
- 10.
- (a) Bernardo fue asistido pacientemente por Carlos, cuando estaba enfermo en la cama.
  - (b) Cuando Bernardo fue asistido pacientemente por Carlos, estaba enfermo en la cama.
  - (c) Bernardo se hizo cargo de Carlos, cuando estaba enfermo en la cama.
  - (d) Cuando Bernardo se hizo cargo de Carlos, estaba enfermo en la cama.
- 11.
- (a) Carmen se desmayó delante de Diana, cuando estaba debilitada a causa del estrés.
  - (b) Cuando Carmen se desmayó delante de Diana, estaba debilitada a causa del estrés.
  - (c) Carmen vió a Diana desmayarse, cuando estaba debilitada a causa del estrés.
  - (d) Cuando Carmen vió a Diana desmayarse, estaba debilitada a causa del estrés.
- 12.
- (a) Bernardo obtuvo el apoyo de Carlos, cuando se presentó como candidato para las elecciones.
  - (b) Cuando Bernardo obtuvo el apoyo de Carlos, se presentó como candidato para las elecciones.
  - (c) Bernardo le dió su apoyo a Carlos, cuando se presentó como candidato para las elecciones.
  - (d) Cuando Bernardo le dió su apoyo a Carlos, se presentó como candidato para las elecciones.
- 13.
- (a) Ana pudo tomar prestado el vestido de Carmen, cuando se atavió para la noche de gala.
  - (b) Cuando Ana pudo tomar prestado el vestido de Carmen, se atavió para la noche de gala.
  - (c) Ana prestó su vestido a Carmen, cuando se atavió para la noche de gala.
  - (d) Cuando Ana prestó su vestido a Carmen, se atavió para la noche de gala.



14.
  - (a) Bernardo había comido en casa de Carlos, cuando se puso malo toda la noche.
  - (b) Cuando Bernardo había comido en casa de Carlos, se puso malo toda la noche.
  - (c) Bernardo había cocinado la cena para Carlos, cuando se puso malo toda la noche.
  - (d) Cuando Bernardo había cocinado la cena para Carlos, se puso malo toda la noche.
15.
  - (a) Carmen ha hecho un retrato de Ana, cuando pintaba con cierto entusiasmo.
  - (b) Cuando Carmen ha hecho un retrato de Ana, pintaba con cierto entusiasmo.
  - (c) Carmen fue immortalizada en un retrato por Ana, cuando pintaba con cierto entusiasmo.
  - (d) Cuando Carmen fue immortalizada en un retrato por Ana, pintaba con cierto entusiasmo.
16.
  - (a) Carlos sufrió las fuertes acusaciones de Antonio, cuando era inocente según todos.
  - (b) Cuando Carlos sufrió las fuertes acusaciones de Antonio, era inocente según todos.
  - (c) Carlos acusó gravemente a Antonio, cuando era inocente según todos.
  - (d) Cuando Carlos acusó gravemente a Antonio, era inocente según todos.
17.
  - (a) Ana recibió un aumento de Carmen, cuando trabajó muchísimo durante unos meses.
  - (b) Cuando Ana recibió un aumento de Carmen, trabajó muchísimo durante unos meses.
  - (c) Ana dió un aumento a Carmen, cuando trabajó muchísimo durante unos meses.
  - (d) Cuando Ana dió un aumento a Carmen, trabajó muchísimo durante unos meses.
18.
  - (a) Carlos fue desahuciado de su piso por Diego, cuando no pagó el último alquiler.
  - (b) Cuando Carlos fue desahuciado de su piso por Diego, no pagó el último alquiler.
  - (c) Carlos desahució de su piso a Diego, cuando no pagó el último alquiler.
  - (d) Cuando Carlos desahució de su piso a Diego, no pagó el último alquiler.
19.
  - (a) A Diana le fue recetado un medicamento por Ema, cuando estaba sana como una manzana.
  - (b) Cuando Diana ha recibido una receta medica de Ema, estaba sana como una manzana.
  - (c) Diana le ha recetado un medicamento a Ema, cuando estaba sana como una manzana.
  - (d) Cuando Diana le ha recetado un medicamento a Ema, estaba sana como una manzana.
20.
  - (a) Bernardo recibió una multa de Antonio, cuando conducía bajo los efectos del alcohol.
  - (b) Cuando Bernardo recibió una multa de Antonio, conducía bajo los efectos del alcohol.

- (c) Bernardo impuso una multa a Antonio, cuando conducía bajo los efectos del alcohol.
  - (d) Cuando Bernardo impuso una multa a Antonio, conducía bajo los efectos del alcohol.
- 21.
- (a) Carmen pidió un préstamo a Diana, cuando necesitaba dinero desesperadamente.
  - (b) Cuando Carmen pidió un préstamo a Diana, necesitaba dinero desesperadamente.
  - (c) Carmen le concedió un préstamo a Diana, cuando necesitaba dinero desesperadamente.
  - (d) Cuando Carmen le concedió un préstamo a Diana, necesitaba dinero desesperadamente.
- 22.
- (a) Diego obtiene toda la atención de Antonio, cuando le explica conceptos difíciles.
  - (b) Cuando Diego obtiene toda la atención de Antonio, le explica conceptos difíciles.
  - (c) Diego presta atención a Antonio, cuando le explica conceptos difíciles.
  - (d) Cuando Diego presta atención a Antonio, le explica conceptos difíciles.
- 23.
- (a) Beatriz invitó a su cumpleaños a Carmen, cuando cumplía doce años.
  - (b) Cuando Beatriz invitó a su cumpleaños a Carmen, cumplía doce años.
  - (c) Beatriz ha recibido una invitación al cumpleaños de Carmen, cuando cumplía doce años.
  - (d) Cuando Beatriz ha recibido una invitación al cumpleaños de Carmen, cumplía doce años.
- 24.
- (a) Diego fue llevado a la estación por Bernardo, cuando perdió el último tren.
  - (b) Cuando Diego fue llevado a la estación por Bernardo, perdió el último tren.
  - (c) Diego llevó a la estación a Bernardo, cuando perdió el último tren.
  - (d) Cuando Diego llevó a la estación a Bernardo, perdió el último tren.
- 25.
- (a) Ana escucha siempre los chismes de Beatriz, aunque no conoce a las personas implicadas.
  - (b) Aunque Ana escucha siempre los chismes de Beatriz, no conoce a las personas implicadas.
  - (c) Ana relata siempre chismes a Beatriz, aunque no conoce a las personas implicadas.
  - (d) Aunque Ana relata siempre chismes a Beatriz, no conoce a las personas implicadas.
- 26.
- (a) Bernardo ha enseñado su proyecto a Diego, aunque esconde siempre todo sobre su trabajo.
  - (b) Aunque Bernardo ha enseñado su proyecto a Diego, esconde siempre todo sobre su trabajo.
  - (c) Bernardo ha visto el proyecto de Diego, aunque esconde siempre todo sobre su trabajo.
  - (d) Aunque Bernardo ha visto el proyecto de Diego, esconde siempre todo sobre su trabajo.

27. (a) Diana apoyará la candidatura de Ana, aunque no comparte algunas de sus ideas.  
(b) Aunque Diana apoyará la candidatura de Ana, no comparte algunas de sus ideas.  
(c) Diana conseguirá el apoyo de Ana, aunque no comparte algunas de sus ideas.  
(d) Aunque Diana conseguirá el apoyo de Ana, no comparte algunas de sus ideas.
28. (a) Bernardo no ha sido denunciado por Diego, aunque ha robado mucho dinero.  
(b) Aunque Bernardo no ha sido denunciado por Diego, ha robado mucho dinero.  
(c) Bernardo no quiere denunciar a Diego, aunque ha robado mucho dinero.  
(d) Aunque Bernardo no quiere denunciar a Diego, ha robado mucho dinero.
29. (a) Beatriz da miedo a Carmen, aunque es amable siempre con todos.  
(b) Aunque Beatriz da miedo a Carmen, es amable siempre con todos.  
(c) Beatriz tiene miedo de Carmen, aunque es amable siempre con todos.  
(d) Aunque Beatriz tiene miedo de Carmen, es amable siempre con todos.
30. (a) Carlos no inspira confianza a Diego, aunque demuestra mucha madurez.  
(b) Aunque Carlos no inspira confianza a Diego, demuestra mucha madurez.  
(c) Carlos no tiene confianza en Diego, aunque demuestra mucha madurez.  
(d) Aunque Carlos no tiene confianza en Diego, demuestra mucha madurez.
31. (a) María ha concedido una cita a Ana, aunque no recibirá los otros estudiantes.  
(b) Aunque María ha concedido una cita a Ana, no recibirá los otros estudiantes.  
(c) María ha conseguido una cita con Ana, aunque no recibirá los otros estudiantes.  
(d) Aunque María ha conseguido una cita con Ana, no recibirá los otros estudiantes.
32. (a) Antonio ha obtenido un aumento de Diego, aunque trabaja menos que sus colegas.  
(b) Aunque Antonio ha obtenido un aumento de Diego, trabaja menos que sus colegas.  
(c) Antonio ha concedido un aumento a Diego, aunque trabaja menos que sus colegas.  
(d) Aunque Antonio ha concedido un aumento a Diego, trabaja menos que sus colegas.
33. (a) Ana estima profundamente a María, aunque no le encarga asuntos delicados.  
(b) Aunque Ana estima profundamente a María, no le encarga asuntos delicados.  
(c) Ana goza de la estima de María, aunque no le encarga asuntos delicados.  
(d) Aunque Ana goza de la estima de María, no le encarga asuntos delicados.
34. (a) Diego repara siempre el coche de Antonio, aunque le cuesta a veces sacar los recambios.  
(b) Aunque Diego repara siempre el coche de Antonio, le cuesta a veces sacar los recambios.

- (c) Diego hace siempre reparar su coche por Antonio, aunque le cuesta a veces sacar los recambios.
  - (d) Aunque Diego hace siempre reparar su coche por Antonio, le cuesta a veces sacar los recambios.
- 35.
- (a) Ana ha comprado un regalo para María, aunque se lo dará después de su fiesta.
  - (b) Aunque Ana ha comprado un regalo para María, se lo dará después de su fiesta.
  - (c) Ana recibirá un regalo de María, aunque se lo dará después de su fiesta.
  - (d) Aunque Ana ha recibirá un regalo de María, se lo dará después de su fiesta.
- 36.
- (a) Antonio recibe continuamente cartas de Diego, aunque no logra leer su caligrafía.
  - (b) Aunque Antonio recibe continuamente cartas de Diego, no logra leer su caligrafía.
  - (c) Antonio envía continuamente cartas a Diego, aunque no logra leer su caligrafía.
  - (d) Aunque Antonio envía continuamente cartas a Diego, no logra leer su caligrafía.
- 37.
- (a) Diana escucha las mentiras de Ema, aunque intuye siempre la verdad.
  - (b) Aunque Diana escucha las mentiras de Ema, intuye siempre la verdad.
  - (c) Diana cuenta mentiras a Ema, aunque intuye siempre la verdad.
  - (d) Aunque Diana cuenta mentiras a Ema, intuye siempre la verdad.
- 38.
- (a) Diego siempre da consejos a Antonio, aunque no sabe nada sobre sus problemas.
  - (b) Aunque Diego siempre da consejos a Antonio, no sabe nada sobre sus problemas.
  - (c) Diego siempre recibe consejos de Antonio, aunque no sabe nada sobre sus problemas.
  - (d) Aunque Diego siempre recibe consejos de Antonio, no sabe nada sobre sus problemas.
- 39.
- (a) Ana se desanima a causa de las críticas de Beatriz, aunque se recobra siempre rápidamente.
  - (b) Aunque Ana se desanima a causa de las críticas de Beatriz, se recobra siempre rápidamente.
  - (c) Ana desanima con sus críticas a Beatriz, aunque se recobra siempre rápidamente.
  - (d) Aunque Ana desanima con sus críticas a Beatriz, se recobra siempre rápidamente.
- 40.
- (a) Carlos se enfurece por la conducta de Diego, aunque se calma muy fácilmente.
  - (b) Aunque Carlos se enfurece por la conducta de Diego, se calma muy fácilmente.
  - (c) Carlos pone furioso a Diego con su conducta, aunque se calma muy fácilmente.
  - (d) Aunque Carlos pone furioso a Diego con su conducta, se calma muy fácilmente.
- 41.
- (a) María se despierta por los ruidos de Carmen, aunque se vuelve a dormir sin problemas.
  - (b) Aunque María se despierta por los ruidos de Carmen, se vuelve a dormir sin problemas.
  - (c) María despierta a Carmen por sus ruidos, aunque se vuelve a dormir sin problemas.

- (d) Aunque María despierta a Carmen por sus ruidos, se vuelve a dormir sin problemas.
- 42.
- (a) Carlos ha sido condenado a la prisión por Diego, aunque se declara todavía inocente.
  - (b) Aunque Carlo ha sido condenado a la prisión por Diego, se declara todavía inocente.
  - (c) Carlos ha condenado a la prisión a Diego, aunque se declara todavía inocente.
  - (d) Aunque Carlo ha condenado a la prisión a Diego, se declara todavía inocente.
- 43.
- (a) Diana vende muchos productos a Ema, aunque tiene los precios más altos de la ciudad.
  - (b) Aunque Diana vende muchos productos a Ema, tiene los precios más altos de la ciudad.
  - (c) Diana compra muchos productos de Ema, aunque tiene los precios más altos de la ciudad.
  - (d) Aunque Diana compra muchos productos de Ema, tiene los precios más altos de la ciudad.
- 44.
- (a) Bernardo no ha contestado de manera exhaustiva a Antonio, aunque conoce el asunto perfectamente.
  - (b) Aunque Bernardo no ha contestado de manera exhaustiva a Antonio, conoce el asunto perfectamente.
  - (c) Bernardo no ha obtenido respuestas exhaustivas de Antonio, aunque conoce el asunto perfectamente.
  - (d) Aunque Bernardo no ha obtenido respuestas exhaustivas de Antonio, conoce el asunto perfectamente.
- 45.
- (a) Carmen recita frecuentemente este poema para Ema, aunque farfulla al pronunciar los versos.
  - (b) Aunque Carmen recita frecuentemente este poema para Ema, farfulla al pronunciar los versos.
  - (c) Carmen hace siempre recitar este poema a Ema, aunque farfulla al pronunciar los versos.
  - (d) Aunque Carmen hace siempre recitar este poema a Ema, farfulla al pronunciar los versos.
- 46.
- (a) Carlos no logra educar a Diego, aunque lo castiga siempre severamente.
  - (b) Aunque Carlos no logra educar a Diego, lo castiga siempre severamente.
  - (c) Carlos desobedece frecuentemente a Diego, aunque lo castiga siempre severamente.
  - (d) Aunque Carlos desobedece frecuentemente a Diego, lo castiga siempre severamente.
- 47.
- (a) Ana ha sido culpada por las pérdidas de Maria, aunque no parece implicada de ninguna manera.
  - (b) Aunque Ana ha sido culpada por las pérdidas de Maria, no parece implicada de ninguna manera.
  - (c) Ana ha inculpado a María de sus pérdidas, aunque no parece implicada de ninguna manera.

- (d) Aunque Ana ha inculpado a María de sus pérdidas, no parece implicada de ninguna manera.
- 48.
- (a) Bernardo ha recibido un multa de Carlos, aunque conducía siempre con cuidado.
  - (b) Aunque Bernardo ha recibido un multa de Carlos, conducía siempre con cuidado.
  - (c) Bernardo ha puesto una multa a Carlos, aunque conducía siempre con cuidado.
  - (d) Aunque Bernardo ha puesto una multa a Carlos, conducía siempre con cuidado.

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