Effects of Clefting and Left-Dislocation on Subject and Object Pronoun Resolution in Spanish

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1. Introduction

A general principle of human communication is that we tend to make our communicative interchanges as informative as necessary but not more informative than necessary (Grice, 1975; Levinson, 1987, 1991), This principle has major consequences for communication: As discourse unfolds, when we need to refer back to a previously-mentioned entity, we use shorter and less specific forms of reference (e.g. pronouns). Resolving the dependencies established between referring expressions and the entities they represent (their antecedents) is crucial for a successful communication.

Theories of reference that have been put forward to account for reference resolution (e.g. Ariel's 1990 *Accessibility Theory,* Grosz et al.'s 1995 *Centering Theory*, among others) have been predominantly concerned with the cognitive status of the antecedent in the interlocutors' current mental model in terms of availability (i.e. the probability of retrieving an antecedent for a pronoun) and accessibility (i.e. how fast this is done), and they all seem to agree upon the fact that the more reduced a referring expression is, the more salient or prominent its referent needs to be in the minds of the discourse participants. In other words, the more salient the antecedent, the more accessible it is in the interlocutors' minds and, consequently, the more likely it will be subsequently referred back to by a pronoun by the speaker, and the faster it will interpreted by the hearer as an antecedent of a given pronoun.

The conception of a salient antecedent as a "referent that is prominently represented in the mental models that the speakers and listeners construct in the course of a discourse" (Kaiser & Trueswell, 2011), or that is in the current focus of attention (Gundel et al., 1993) seems to be generally accepted. Crucially, however, defining the factors that make a referent more prominent or salient than others has proved to be the locus of a great deal of disagreement among researchers (see Frazier, 2012 for a recent overview). Factors like the order of mention (first mention > other positions, e.g. Carreiras et al., 1995; Gernsbacher, 1997; Gernsbacher & Hargreaves, 1988), the grammatical function (subject > object > other functions, e.g. Crawley et al., 1990; Gordon et al., 1999; Grober et al., 1978) and the discourse status (topic > focus, e.g. Arnold, 1999) of the antecedent are recurrent candidates. Unfortunately, in many of these studies, these factors have not been adequately teased apart.

In order to overcome this potential shortcoming, subsequent studies tried to disentangle these factors by manipulating the discourse status of antecedents in the experimental sentences with the ultimate goal of understanding what lies at the core of salience (e.g. Arnold, 1999; Colonna et al., 2010, 2012a; Cowles, 2003; Cowles et al., 2007). However, these studies have yielded mixed results (see section 2.3) and, consequently, further research is still in order.

The goal of the present study is to shed more light on the issue of salience and its role in pronoun resolution. For that, it makes use of a series of offline questionnaires that manipulate two syntactic constructions (left-dislocation and clefting), which have been argued to affect the discourse status of the antecedent (with left-dislocation to mark topics and clefts to mark focus) with respect to the resolution of null subject and object clitic pronouns in Spanish. This paper is organized as follows: Section 2 reviews previous literature on pronoun resolution in Spanish and on the role of discourse status in pronoun resolution; Section 3 presents the study and reports the results from three experiments; Section 4 discusses these results and their implications; finally, general conclusions are drawn in Section 5.

2. Previous work on salience and pronoun resolution
2.1. *The special status of the subject:* the Position of Antecedent Hypothesis

In the psycholinguistic tradition, previous research on pronoun resolution has shown that grammatical subjects enjoy a special status in discourse as they are usually mentioned first, they are often interpreted as the topic of the sentence/discourse and, therefore, they receive a high degree of prominence (e.g. Chafe, 1976). The special status of the subject in pronoun resolution has been accounted for by the *Subject Bias strategy* stating that a pronoun is preferably interpreted as co-referential with a subject antecedent in the preceding sentence or clause (Crawley et al., 1990; Gordon et al., 1999; Grober et al., 1978).

Carminati's (2002) investigations of the processing of null and overt Italian subject pronouns in intra-sentential pronoun resolution are of special interest for the purposes of the present study[1]. Carminati picks up the notion of the prominent status of the subject and proposes a processing hypothesis, the *Position of Antecedent Hypothesis* (PAH), based on the assumption that there is a division of labor in the processing of null and overt pronominal expressions, with the null pronoun preferring a more prominent antecedent than the overt one. She argues that, in intra-sentential pronoun resolution, antecedent prominence is determined by syntactic position, with the [Spec, IP] position (i.e. the canonical preverbal position of the subject[2]) being more prominent than other positions lower in the syntactic tree. In other words, Carminati claims that the processing of intra-sentential pronouns is guided primarily by structural information.

Carminati's main source of evidence in support of the PAH comes from a self-paced reading experiment that manipulated the structural position of the antecedent. The experiment consisted of semantically disambiguated sentences formed by a subordinate clause, introducing two human referents of the same gender, followed by a main clause starting with either a null or an overt subject pronoun that could co-refer with either the preceding subject or object, and followed by a statement that would bias the choice of referent towards the subject or towards the object. The four conditions tested in the experiment are shown in (1) below.

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[1] Previous accounts on null *versus* overt pronoun resolution from the generative tradition go back to Chomsky's (1981) *Avoid Pronoun Principle* and Montalbetti's (1984) *Overt Pronoun Constraint* that account for the interpretation of both types of pronouns in specific syntactic environments illustrated in (i) and (ii).

    (i)   John$_i$ would much prefer *his$_{*i/j}$/PRO$_i$* going to the movies.
    (ii)   Nadie$_i$ cree que *él$_{*i/j}$/pro$_{i/j}$* haya ganado la lotería.
       'Nobody thinks that he won the lotery'

[2] It is important to note here that the actual position of preverbal subjects in languages like Spanish has generated a substantial debate in the literature, with authors that defend that preverbal subjects in Spanish are hosted in [Spec, IP] (or more specifically in [Spec, TP]) (cf. Cardinaletti, 1996; Ortega-Santos, 2005; Suñer, 2003), others that defend that they occupy a left-peripheral position in the CP domain (cf. Alexiadou & Anagnostopoulou, 1998; Kato, 1999; Ordóñez & Treviño, 1999), and others who argue that preverbal subjects can occupy both positions (cf. Villa-García, in press). For the purposes of our study, however, the important distinction with regards to our experimental items is whether or not the subject antecedent is *preverbal* (be it in [Spec, IP/TP] or higher up in the syntactic tree) in a canonical SVO structure (i.e. it comes in first place and is susceptible of being interpreted as the topic of the utterance), as opposed to the object antecedent that comes after the verb. Properties of "subjects" in other positions (e.g. postverbal) may play a role in pronoun resolution. This is, however, beyond the scope of this paper.

Carminati measured reading times (RTs) for the second clause of each sentence and found a significant processing penalty (longer RTs) when a null subject pronoun was forced to retrieve an antecedent in object position (1d), and similarly when an overt subject pronoun was forced to retrieve an antecedent in subject position (1a). Carminati's results are taken as evidence in favor of the validity of the PAH for intra-sentential pronoun resolution in Italian and of the claim that antecedent prominence is determined by its syntactic position.

(1) **Subject-bias:** Quando Maria è andata a trovare Vanessa in ospedale,
    a. lei le ha portato un mazzo di fiori.
    b. ∅ le ha portato un mazzo di fiori.
    'When Maria went to visit Vanessa at the hospital, (she) brought her a bunch of flowers'
    Object-bias: Quando Maria è andata a trovare Vanessa in ospedale,
    c. lei era già fuori pericolo.
    d. ∅ era già fuori pericolo.
    'When Maria went to visit Vanessa at the hospital, (she) was already out of dander'

Several subsequent studies investigated the validity of the PAH for Spanish (Alonso-Ovalle et al, 2002; Filiaci, 2010; Jegerski et al., 2011; Keating et al., 2011). Alonso-Ovalle and colleagues claim that the PAH holds cross-linguistically and is also valid for inter-sentential pronominal dependencies in Peninsular Spanish. They used an offline questionnaire that required participants to identify the antecedent of subject pronouns in ambiguous sentences like (2).

(2) a. Juan pegó a Pedro. Él está enfadado.
    b. Juan pegó a Pedro. ∅ Está enfadado.
    'Juan hit Pedro. (He) is mad'

Their results show that, with a null subject pronoun (2b), participants identify the previous subject as the antecedent 73% of the time, but this preference drops to 50.2% with an overt subject (2a) yielding a highly significant difference. Interestingly, the results of the overt subject condition do not replicate Carminati's results for Italian: Antecedent preferences for overt subject pronouns are at chance level.

These results were closely replicated by Jegerski and colleagues (Jegerski et al., 2011; Keating et al., 2011) in their study of pronoun resolution by native speakers of different varieties of Spanish (Caribbean Spanish was deliberately excluded, however; cf. Toribio, 2000) and early and late bilingual speakers of Spanish. On average, their native speaker group (but not the bilingual groups) interpreted the preceding subject as the antecedent of the ambiguous null subject pronoun in sentences like (3) 73.68% of the times, while this preference only reached 53.79% of the antecedent choices for the overt subject pronoun.

(3) Juan vio a Pedro cuando (él) caminaba por la playa.
    'Juan saw Pedro when (he) was walking on the beach'

In line with the previous studies, Filiaci (2010) tested Carminati's materials (in Italian and adapted and translated into Spanish) in two self-paced reading tasks. Her results confirm the cross-linguistic validity of the PAH, but only with respect to the subject antecedent bias for null pronouns, as Alonso-Ovalle et al.'s results suggest. As for overt subject pronouns, in Italian, the experiment yields a significant processing penalty for sentences where an overt pronoun is forced to co-refer with the most prominent subject antecedent against its bias, confirming Carminati's results. However, the same construction in Spanish does not seem to produce any significant extra processing cost. From these results, Filiaci concludes that, while Italian overt subject pronouns seem to be a cue for switching to a less salient antecedent, Spanish overt subject pronouns do not seem to have such a strong connotation and are more compatible with a reading where antecedent salience or lack thereof do not play a strong role. Therefore, while in Italian both null and overt subject pronouns seem to be specialized in retrieving different types of antecedents; in (Peninsular) Spanish only null subject pronouns seem to show a bias. Filiaci hypothesizes that these cross-linguistic differences between Italian and Spanish might be due to differences in their pronominal systems, the nature of the verbal morphology in the two

languages and the interaction between both factors.

Summarizing, the main assumption behind the PAH is that the processor, in search for the antecedent of a pronoun, is guided mainly by syntactic (or structural/configurational) information (i.e. the most prominent antecedent, where prominence is determined by syntactic position), which implies that other factors do not influence the speakers' antecedent preferences for a pronoun to the same extent. It is important to note, however, that subjecthood, first-mention and topicality do not necessarily, albeit often, coincide and need, therefore, to be disentangled. A potential limitation of the studies reviewed above is, thus, that these three factors are not adequately teased apart, which represents a major problem for the investigation of salience. The studies reviewed in section 2.3 below try to address this potential shortcoming.

2.2. Object pronoun resolution: the Parallel Function Strategy

Most research done on pronoun resolution, like most of the studies reviewed here, has focused on subject pronoun resolution. Very few studies, however, have been devoted to object pronoun resolution and many of them assumed a pattern by which object pronouns are preferentially interpreted in a parallel structure, as in (4).

(4) John hit Harry and then Sarah hit him. (him= Harry)

This pattern was accounted for by the *Parallel Function Strategy* (PFS) (Sheldon, 1974), whereby pronouns prefer antecedent with parallel grammatical functions: subject pronouns would be interpreted as co-referential with a preceding subject antecedent, and (direct) object pronouns would be preferentially interpreted as co-referential with a preceding (direct) object antecedent. This pattern seems, however, to depend on coherence relations between the respective sentences or clauses (Kehler, 2002, 2005; Kehler et al., 2008). That is, parallel functions seem to play a role mostly when coherence is established by means of similarity or resemblance relations between clauses. Although a review of previous studies that investigated object pronoun resolution is beyond the scope of the present paper, it is important to note that most of these studies examined full object pronouns in English (e.g. Kehler, 2002, 2005; Tavano & Kaiser, 2008; Wolf et al., 2004). No previous study has been published to our knowledge that investigated ambiguous object clitic pronoun resolution.

2.3. Investigating the "salience puzzle": The role of discourse status in pronoun resolution

Arnold (1999) investigated how antecedent salience is influenced by their discourse status in two experiments. In Experiment 1, participants read three-sentence paragraphs, like in (5), and were asked to rate them for naturalness on a 7-point scale. The results for this experiment showed that participants considered stimuli that used pronouns more natural than stimuli that used names to refer to both the grammatical subject entity (*Ann* the sentence topic in 2a) and the focus of specificational copulative constructions (*Emily* the focused antecedent in the "the one" construction in 2b, following the analysis of Jackendoff, 1972). However, when the final sentence contained a reference to the non-subject or non-focus, they preferred stimuli with names to stimuli with pronouns (i.e. participants preferred when 2a was followed by 3b and 3c to continuations 3a and 3d, and likewise, they preferred when 2b was followed by 3a and 3d to continuations 3b and 3c).

(5) 1. The guests were nervously standing around in the living room, trying to decide which person to talk to.
2a. **Ann**$_{TOP}$ decided to say hi to Emily first.
2b. The one Ann decided to say hi to first was **Emily**$_{FOC}$.
3a. She looked like the friendliest person in the group.
3b. Emily looked like the friendliest person in the group.
3c. She hated to be in a room full of people where no-one was talking.
3d. Ann hated to be in a room full of people where no-one was talking.

In Experiment 2, a continuation task, participants were tape-recorded reading short texts like those in (6) and, at the end of each paragraph, they were asked to add a naturally-sounding continuation

sentence. The results of this experiment showed that pronouns were almost always used to refer to the first-mentioned referent (*Ron*), both when it was the subject (6b) and when it was the embedded subject (6a). In contrast, names were almost always used to refer to the second-mentioned referent (*Kysha*), both when it was the object (6b) and when it was the focus (6a). The type of utterance that preceded the continuation did not affect the form of reference.

(6) a. **Ron** was looking through his address book, trying to make up his mind. **He** had an extra ticket to the opera, but he didn't know which friend to invite. The one **he** decided on at last was Kysha.
b. **Ron** was looking through his address book, trying to make up his mind. **He** had an extra ticket to the opera, but he didn't know which friend to invite. At last **he** decided on Kysha.

Taken together, the results of Experiment 1 and 2 reported in Arnold (1999) show that referents realized as sentential topic or focus within a specificational copulative construction are both more salient than other referents. However, when a clearly established discourse topic is present, the focused referent is not as salient as when there is no clear discourse topic. Arnold concludes that "salience is a competitive property, such that the salience of one referent is sensitive to the salience of other competing referents in the discourse" (Arnold, 1999: 30).

Cowles et al. (2007) examined whether the status as a topic or focus influences the selection of the antecedent of a pronoun. They presented participants with three-sentence auditory discourses, like those in (7), that contained an entity that Cowles and colleagues defined as a discourse topic (*Anne* in (7.1) which is the antecedent introduced in the first sentence and repeated in the following sentences), a sentence topic (*Anne* in (7.2) where the discourse topic is *a new movie*), or a clefted focus (*Anne* in (7.3)) that could appear in initial position or later in the sentence, as well as a noun phrase that was not linguistically prominent (*Sarah*). Both the prominent and non-prominent noun phrases were syntactically and semantically plausible antecedents of a pronoun that occurred in the final sentence of the discourse. After encountering this pronoun, participants were asked to name a visually presented target that was related to either the prominent or non-prominent antecedent. Reaction times were collected as a measure of antecedent activation in the participants' working memory.

(7) 1. <u>Discourse topic</u>: **Anne** wanted to see the new movie with Sarah.
    a. First mention: So, **Anne** called Sarah.
    b. Second mention: When Sarah came home, **Anne** called.
2. <u>Sentence topic</u>: A new movie opened in town.
    c. First mention: So, **Anne** called Sarah.
    d. Second mention: When Sarah came home, **Anne** called.
3. <u>Clefted focus</u>: A new movie opened in town.
    e. First mention: It was **Anne** who called Sarah.
    f. Second mention: The one who called Sarah was **Anne**.
    <u>Target sentence</u>: But later that night, <u>she</u> couldn't go to the movies after all.

Their results showed that prominent targets were named faster than non-prominent targets (RTs: *Anne* < *Sarah*) regardless of whether it was a discourse topic, a sentence topic or a clefted focus, and of whether it was mentioned first or second in the sentence. These results suggest that, while order of mention does not seem to affect antecedent accessibility, the discourse status of the antecedent (topic/focus) seems to have a major effect. In particular, despite their theoretical differences, discourse/sentence topic and focus all have the same effect of making the respective referents cognitively salient. That is, they appear to enhance the prominence of the discourse referent.

Finally, Colonna et al. (2010, 2012a) investigated the role of the discourse status in pronoun resolution in French and German. They employed a series of offline questionnaires in which they manipulated the discourse status (topic, marked by means of left-dislocation[3] vs. focus, marked by means of clefting) and the grammatical function (subject vs. object) of the first-mentioned antecedent (NP1) in visually presented stimuli, like the French examples in (8).

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[3] Note that, contrary to the studies reviewed so far, Colonna et al. mark topic syntactically by means of left-dislocation, as the examples in (10) show.

The results of the French questionnaire study showed that participants preferred to interpret the ambiguous pronoun *il* as co-referential with NP1 most often when this was the object and topic of the utterance, followed by cases when NP1 was the subject and the topic, and followed by conditions where NP1 was clefted. This pattern of results suggests that the discourse status of NP1 guides the interpretation of the ambiguous pronoun, enhancing the accessibility of topic antecedents and often even reducing the accessibility of antecedents focused by means of clefting. Similar results where obtained for German with the exception that a general subject antecedent preference was attested in the baseline condition. Just like in the case of French, this baseline preference was, however, significantly altered by the manipulations of topic and focus structures in a highly similar way.

(8) a. **Baseline**: Le facteur va gifler le balayeur quand il sera à la maison.
b. **NP1 subject and topic**: Quant au facteur, il va gifler le balayeur quand il sera à la maison.
c. **NP1 object and topic**: Quant au facteur le balayeur, va le gifler quand il sera à la maison.
d. **NP1 subject and focus**: C'est le facteur qui va gifler le balayeur quand il sera à la maison.
e. **NP1 object and focus**: C'est le facteur que le balayeur va gifler quand il sera à la maison.
'The postman / As for the the postman, he / It is the postman who … is going to beat the street-sweeper when he gets home'

Taken together, the results of this set of experiments show that the discourse status of the antecedent influences the choice of antecedent and that French and German speakers prefer to interpret a pronoun as co-referential with the topic of the utterance, rather than with a focused antecedent. In other words, while topic antecedents seem to be more accessible, focusing by clefting decreases antecedent accessibility or has no effect on it, at least in intra-sentential pronoun resolution. Interestingly, the results also showed that, in the absence of explicit topicalization, French speakers tend to interpret the ambiguous pronoun as co-referential with the preceding object, rather than the subject. This pattern goes against the general finding in the literature of a consistent advantage for subject antecedents to be interpreted as potential referents for a subsequent ambiguous pronoun (as it is the case of German in this same study). This difference of French relative to other languages previously studied has already been attested in previous corpus and experimental studies (e.g. Baumann et al., 2011, for Portuguese; Hemforth et al., 2010, for French and German) and is often attributed to the existence of alternative constructions more suited for subject antecedents with non-expressed pronouns.

To conclude, the studies above demonstrate that grammatical function and order of mention alone cannot explain the observed patterns of results. However, the discourse status of the antecedent seems to play a major role in participants' choices. What is not so clear is the specific role that topic and focus play on pronoun resolution: Cowles et al. claim that both topic and focus increase antecedent accessibility, Arnold suggests that when a focus referent appears along with a well-established discourse topic, the latter is more salient than the former (i.e. topic enhances accessibility more than focus), and Colonna et al. find that, while topic seems to render antecedents more accessible, focus seems to have the opposite effect.

3. The present study

The present study makes use of a series of offline questionnaires to investigate the role of two syntactic constructions traditionally associated with the discourse status of an entity–*left-dislocation*[4] (to mark topic) and *it-clefting* (to mark focus)–on intra-sentential subject and object pronoun resolution in Spanish. The manipulations of these constructions will tease apart the effects of previously confounded factors (i.e. grammatical function, order of mention and discourse status) on pronoun resolution in Spanish.

Spanish allows for both null and overt subject pronouns, which are not in free alternation in the language. According to traditional accounts on this phenomenon, their expression or omission is regulated by both syntactic and discourse-pragmatic constraints, such as topic, focus, contrast or emphasis (e.g. Luján, 1985, 1986, 1987, 1999). For example, when there is no switch in reference between a series of sentences in discourse, overt subjects are pragmatically inappropriate. Similarly,

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[4] Clitic Left-dislocation (CLLD, Zagona, 2004) or Hanging Topic Left-dislocation (Olarrea, 2012)

null subjects seem infelicitous when a different referent (topic-shift) is introduced. And, while an exhaustive analysis of the nature and distribution of null and overt pronouns in Spanish is beyond the scope of the present study[5], it is important to note that recent experimental work on pronoun resolution (cf. studies reviewed in Section 2.1) has shown that the interpretation of null and overt pronouns in Spanish does not always obey these constraints and that other processing strategies might play a role in this domain.

Our study focuses on the resolution of third person singular null subject and object clitic pronouns. Depending on the syntactic constellation, third person pronouns can be interpreted via binding constraints (Principle B of Binding Theory, Chomsky, 1981) or via co-reference. There are certain contexts, however, where binding alone cannot account for the interpretation of pronouns. That is the case, for example, in sentences where more than one antecedent remains syntactically possible. Pronouns in our experimental items need to be interpreted via co-reference. The interesting question is, then, what factors contribute to establishing co-reference between the pronoun and one of the antecedents over the other. Our choice of pronominal expressions was additionally motivated by the robust bias for subject antecedents predicted by the PAH and that has been repeatedly reported in the literature for null pronouns Spanish. Given the lack of a clear bias in previous works (e.g. Alonso-Ovalle et al., 2002), overt subject pronouns were not part of the present study. As it was mentioned before, no previously published study has investigated how Spanish speakers interpret ambiguous object clitic pronouns to our knowledge[6].

3.1. Research questions

In light of the findings reviewed in Section 2, the following research questions guided the present study:

1. In canonical structures (here a baseline condition), will the same strategies elicited in previous studies be observed in subject and object pronoun resolution in Spanish (i.e. PAH for null subject pronouns; PFS for object clitic pronouns)?
2. Will the manipulation of the discourse status of the antecedents (by means of left-dislocation and clefting) affect the baseline preferences and in what way?

3.2. Experiment 1: Null subject pronouns

Experiment 1 tested how ambiguous null subject pronouns are resolved in canonical structures in Spanish and, in doing this, if previous proposals, like the PAH, can account for the pattern of results. In addition to this, in Experiment 1 we also investigated whether and to what extent left-dislocation and clefting had an effect on the resolution of ambiguous null subject pronouns in Spanish, as it was found for other languages.

3.2.1. Method

Twenty-two native speakers of Spanish completed a sentence interpretation task in the form of an offline questionnaire. Participants were of different origins (Spain, Mexico, Uruguay). Care was taken, however, to exclude participants that spoke a Caribbean variety of Spanish, which have been shown to have slightly different principles governing the distribution of null and overt pronouns (Toribio, 2000). One participant was excluded following this selection criterion. The remaining 21 participants completed the questionnaire via the Internet-based platform *IbexFarm*. They were instructed to read carefully a series of sentences, each of which was followed by a prompt with a gap, and to fill in the

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[5] For a more complete account of this phenomenon, see Jaeggli & Safir (1989), Luján (1985, 1986, 1987, 1999), among many others.
[6] Grüter et al. (2012) investigated whether Spanish-speaking children and adults process object clitic pronouns incrementally using a looking-while-listening eye-tracking paradigm. Their stimuli, however, are not ambiguous, as they are interested in the time-course of unambiguous resolution processes.

gap with an antecedent from the preceding sentence. Items appeared on the screen one by one. Rechecking of earlier items was not possible.

Twenty-five experimental items were constructed for this experiment. The experimental items were complex sentences consisting of a main clause that contained two human referents of the same gender followed by a subordinate temporal clause introduced by *cuando* ('when') featuring an ambiguous null pronoun that could refer to either of the two antecedents in the main clause. Thirteen items had masculine referents; the remaining 12 items had feminine referents. The critical prompt was the subordinate clause introduced by a gap.

The experimental items were presented in five different conditions: a baseline condition, two left-dislocation (subject or object) conditions, and two clefting (subject or object) conditions. The discourse status of the antecedents was operationalized following the design of previous studies. Left-dislocation structures were used to mark topic and were constructed by means of the prototypical topic particle *Hablando de* 'Speaking of' (Zagona, 2002). It-clefting structures were chosen for consistency reasons as the prototypical focus structure following previous studies (Colonna et al., 2010, 2012a; Cowles, 2003; Cowles et al., 2007). Sample items in the 5 different conditions are given in (9).

(9) a. Baseline: Eduardo llamó a Samuel cuando estaba en la oficina.
    b. Dislocated Subj.: Hablando de Eduardo, él llamó a Samuel cuando estaba en la oficina.
    c. Dislocated Obj.: Hablando de Samuel, Eduardo lo llamó cuando estaba en la oficina[7].
    d. Clefted Subj.: Fue Eduardo quien llamó a Samuel cuando estaba en la oficina.
    e. Clefted Obj.: Fue a Samuel a quien Eduardo llamó cuando estaba en la oficina.
    'Eduardo / Speaking of Eduardo / It was Eduardo who…called Samuel when (he) was in the office'
    PROMPT: _____ estaba en la oficina.

In addition to the experimental items, 50 filler items were included to distract participants from the phenomenon under study. Half of the filler items consisted of complex sentences with a main clause that introduced two potential antecedents in a complex NP for a subsequent ambiguous relative clause, as in (10). The other half consisted of sentences that contained either a post-verbal subject NP or a direct object NP preceded by the Differential Object Marker *a*, as in (11). Five presentation lists with 75 items and 4 practice items were constructed so that participants would only see the experimental items in one of the 5 critical conditions.

(10) El profesor habló con el padre del estudiante que se quejaba constantemente.
    'The teacher spoke with the father of the student who was always complaining'

(11) Como se sentía muy generoso esa noche, invitó (a) Lucas.
    'Since he was feeling generous that night, Lucas invited / (he) invited Lucas'

3.2.2. Results

Results of the three experiments are presented in percentages for clarity purposes in all Figures. For the statistical analyses, however, subject antecedents were assigned a 1 and object antecedents were assigned a 0 for a log-linear mixed-effects model analysis with Subjects and Items as random effects (cf. Baayen et al., 2008). All data were analyzed using R (R Development Core Team, 2009) and the R packages *lme4* (Bates & Maechler, 2009) and *languageR* (Baayen, 2008, 2009). In order to compare the different conditions to the baseline, we included Condition as a fixed effect (see Table 1 and Figures 1 and 2). The statistical comparison between the full and the reduced models yielded a highly significant effect ($\chi^2(4)=33.457$, $p<.001$), which indicates that our experimental manipulations had a systematic effect on participants' choices. In particular, the results show that clefting subjects and objects (*CleftSubj – CleftObj*) reduced choices of the clefted antecedent significantly compared to the baseline condition. Left-dislocating objects (*DislocObj*) increased choices of the left-dislocated

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[7] We are aware of the fact that in those varieties of Spanish were the phenomenon of *leísmo* prevails, "le llamó" would be more frequent than "lo llamó". Given the nature of the study and the phenomenon under study, this fact should not have any bearings on the results.

antecedent significantly, whereas left-dislocation of subjects (*DislocSubj*) did not change preferences reliably. Interestingly, in the baseline condition, participants did not show any preference for either antecedent as they selected a subject antecedent 47.62% of the times, and an object antecedent 52.38% of the times. As the statistical values for the Intercept in Table 1 indicate, this difference was not statistically significant.

Table 1: Fixed effect values of linear mixed-effects model for Experiment 1.

	Estimate	**Std. Error**	**z-value**	**Pr(>|z|)**
(Intercept)	-0.04117	0.25997	-0.158	0.87416
CleftObj	0.75457	0.30688	2.459	0.01394 *
CleftSubj	-0.86204	0.30625	-2.815	0.00488 **
DislocObj	-0.64168	0.29797	-2.154	0.03128 *
DislocSubj	-0.09463	0.29628	-0.319	0.74943

Figure 1: Percentage of antecedent choices for null subject pronouns in the left-dislocation condition
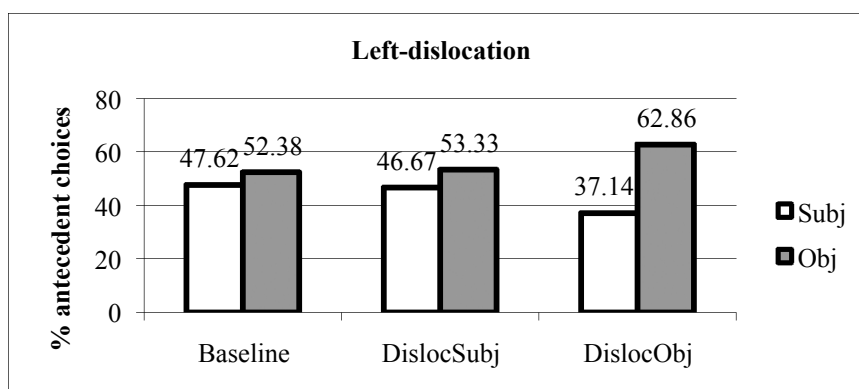

Figure 2: Percentage of antecedent choices for null subject pronouns in the clefting condition
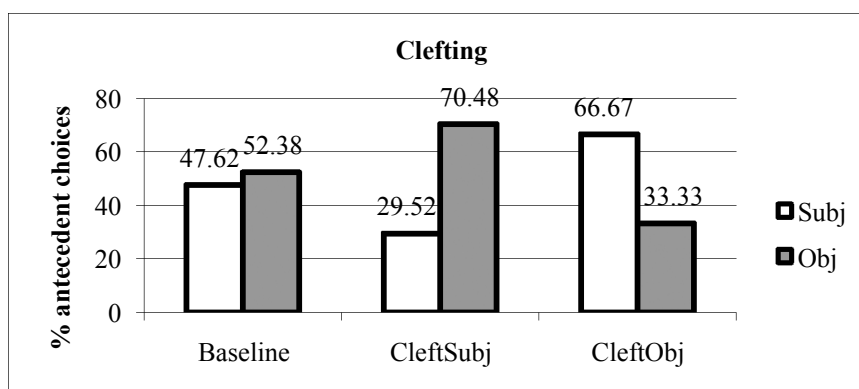
In order to test the role of the two syntactic constructions affecting the discourse status of the antecedents (left-dislocation vs. clefting) and their grammatical function (subject vs. object), we ran a second log-linear mixed-effects model analysis with Subjects and Items as random effects and Syntactic Construction and Grammatical Function as fixed effects, excluding the baseline condition. Once again, to assess the validity of the mixed-effects analyses, we performed likelihood ratio tests comparing the full models with all fixed effects to reduced models. The analyses revealed no significant effect of Syntactic Construction ($\chi^2(1)=2.0936$, p>.05). However, as Figure 3 shows, there was a higher number of left-dislocated than clefted antecedent choices (54.76% for left-dislocated

antecedents vs. 31.42% for clefted antecedents). There was, however, a significant effect of grammatical function ($\chi^2(1)$=6.1198, p<.05) as a result of a slight advantage for object antecedents (45.5 % for subject antecedents vs. 54.5 % for object antecedents). The interaction between our experimental factors turned out to be highly significant ($\chi^2(1)$=23.882, p<.001).

Figure 3: Percentage of choices of subject and object antecedents for null subject pronouns as a function of syntactic construction
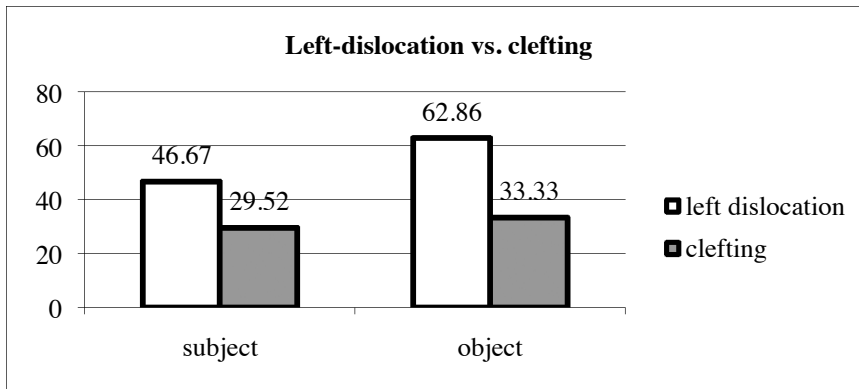
3.2.3. Discussion

To summarize the results of Experiments 1, no clear preference for either the subject or the object antecedent was observed for the ambiguous null subject pronoun in the baseline condition. This pattern changed significantly, however, as a result of the experimental manipulations of the discourse status of the antecedents: The number of object antecedent selections increased significantly when the object antecedent was left-dislocated and, crucially, the number of subject and object antecedent selections decreased significantly when these antecedents were in a clefted position. The number of subject antecedent choices for the null subject pronoun did not increase when the subject was left-dislocated. These results will be discussed in more detail in light of the results from Experiment 2 below.

3.3. Experiment 2: Object clitic pronouns

In Experiment 2, we investigated whether and in how far left-dislocation and clefting show comparable effects for object clitic pronouns as for null subject pronouns in Spanish. Given that baseline preferences are expected to be different for object clitics if participants follow a *Parallel Function Strategy,* preference patterns as a result of our experimental manipulations might turn out to be very different from those in Experiment 1.

3.3.1. Method

Thirty-four native speakers of Peninsular Spanish completed the same type of sentence interpretation task employed in Experiment 1 with the sole difference that the questionnaire was administered in paper-and-pencil format at the University of Valladolid (Spain). Participants were instructed to read carefully a series of sentences followed by a prompt with a gap and to fill in the gap with an antecedent from the preceding sentence.

Like for Experiment 1, 25 experimental items were constructed for this experiment. The experimental items were complex sentences consisting of a main clause that contained two human referents of the same gender followed by a subordinate temporal clause introduced by *antes de que* ('before') that featured a third human referent of the opposite sex to the two previous referents and an ambiguous object clitic pronoun that could ambiguously refer to either of the two antecedents in the main clause. Thirteen items featured masculine referents; the remaining 12 items featured feminine referents. The critical prompt was a paraphrase of the subordinate clause with a gap after the main verb (in the canonical direct object position).

The same critical conditions manipulated in Experiment 1 were used for this experiment. Sample items in the 5 different conditions are given in (12). In addition to the experimental items, the same 50 filler items included in Experiment 1 were used in this experiment. Five presentation lists with 75 items and 4 practice items were constructed so that participants would only see the experimental items in one of the 5 critical conditions.

(12) a. Baseline: Eduardo vio a Samuel antes de que María lo llamara.
    b. Dislocated Subj: Hablando de Eduardo, él vio a Samuel antes de que María lo llamara.
    c. Dislocated Obj: Hablando de Samuel, Eduardo lo vio antes de que María lo llamara.
    d. Clefted Subj: Fue Eduardo quien vio a Samuel antes de que María lo llamara.
    e. Clefted Obj: Fue a Samuel a quien Eduardo vio antes de que María lo llamara.
    'Eduardo / Speaking of Eduardo / It was Eduardo … who saw Samuel before María called him'
   PROMPT: María llamó a _____ .

3.3.2. Results

Just like for Experiment 1, in order to compare the different conditions to the baseline, we included Condition as a fixed effect in a log-linear mixed-effects model analysis with Subjects and Items as random effects (see Table 2 and Figures 4 and 5). The statistical comparison between the full and the reduced models yielded a highly significant effect ($\chi^2(4)=103.05$, $p<.001$), which indicates that our experimental manipulations had a systematic effect on participants' choices. In particular, clefting objects (*CleftObj*) significantly reduced choices of the clefted antecedent compared to the baseline condition, whereas clefting subjects (*CleftSubj*) did not change preferences reliably. On the other hand, left-dislocating subjects and objects (*DislocSubj – DislocObj*) significantly increased choices of the left-dislocated antecedents. Contrary to the results of Experiment 1, in the baseline condition, participants showed a strong preference for the object antecedent, which was selected 64.71% of the times. As the statistical values for the intercept in Table 2 indicate, the difference between subject and object antecedent selections in the baseline condition was statistically significant.

Table 2: Fixed effect values of linear mixed-effects model for Experiment 2.

	Estimate	Std. Error	z-value	Pr(>|z|)
(Intercept)	-0.63287	0.20236	-3.127	0.001764 **
CleftObj	0.85328	0.22909	3.725	0.000196 ***
CleftSubj	-0.05081	0.23367	-0.217	0.827878
DislocObj	2.13822	0.25984	8.229	< 2e-16 ***
DislocSubj	0.64291	0.22826	2.817	0.004854 **

Figure 4: Percentage of antecedent choices for object clitic pronouns in the left-dislocation condition
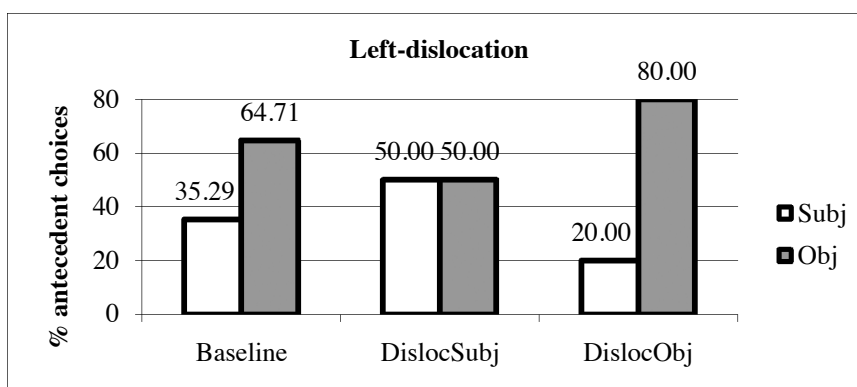
Figure 5: Percentage of antecedent choices for object clitic pronouns in the clefting condition
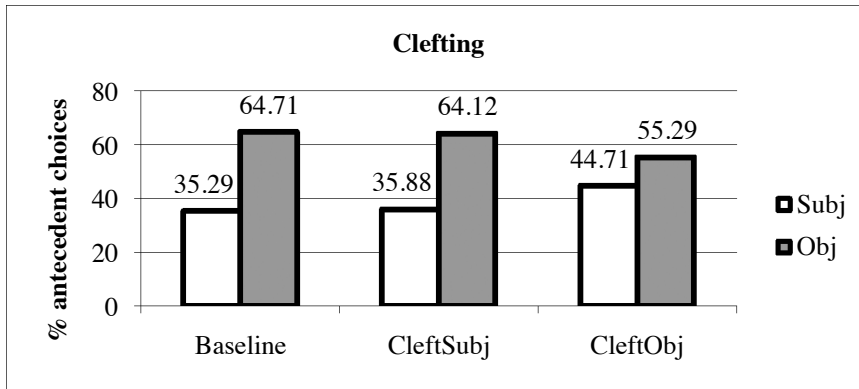
In order to test the role of Syntactic Construction (left-dislocation vs. clefting) and Grammatical Function (subject vs. object), we ran a subsequent log-linear mixed-effects model analysis with Subjects and Items as random effects and Syntactic Construction and Grammatical Function as fixed effects, excluding again the baseline condition as in Experiment 1. To assess the validity of the mixed effects analyses, we performed likelihood ratio tests comparing the full models with all fixed effects to reduced models. The analysis revealed a highly significant effect of Syntactic Construction ($\chi^2(1)=32.173$, p<.001; see Figure 6) due to a higher number of left-dislocated than clefted antecedent choices (65% for left dislocated antecedents vs. 45.6% for clefted antecedents) and also a highly significant effect of Grammatical Function ($\chi^2(1)=49.444$, p<.001) as a result of a strong advantage for object antecedents (37.6% for subject antecedents vs. 62.4% for object antecedents). The interaction between our experimental factors turned out to be marginally significant ($\chi^2(1)=3.068$, p<.08).

Figure 6: Percentage of choices of subject and object antecedents for object clitic pronouns as a function of syntactic construction
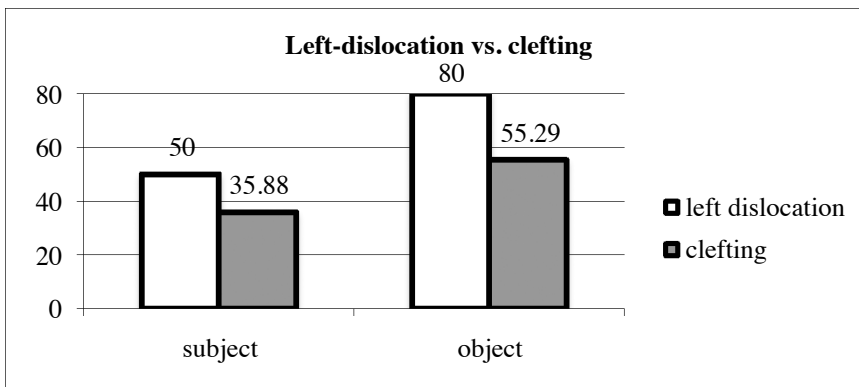
3.4. Discussion

To summarize the results of Experiments 2, a strong object antecedent preference was elicited for object clitic pronouns in the baseline condition. This pattern changed significantly, however, as a result of the experimental manipulations of the discourse status of the antecedents (operationalized by left-dislocating and clefting a potential antecedent): the number of subject and object antecedent selections increased significantly when these antecedents were left-dislocated and, crucially, the number of subject and object antecedent selections remained the same or decreased significantly respectively when these antecedents were in a clefted position.

The significant increase in the number of subject and object antecedent choices of left-dislocated antecedents that was elicited for both types of pronouns is line with previous results (Arnold, 1999;

Colonna et al., 2010, 2012a; Cowles et al., 2007) and has been related to the notion of *topic-continuity* (Colonna et al., 2012; Givón, 1983): participants selected the *explicitly* established sentence topic as the antecedent of the ambiguous pronoun because selecting the other available antecedent would break this continuity, affecting, therefore, the coherence of the current discourse. The fact that the number of subject antecedent choices for the null subject pronoun did not increase when the subject was left-dislocated does not necessarily go against the claims above: if the subject is interpreted as the default topic of the sentence (cf. Alexiadou & Anagnostopoulou, 1998; Ordóñez & Treviño, 1999; Kato, 1999), assuming a Parallel Structure bias, explicit topicalization via left-dislocation might not make a big difference in the case of subject pronouns, hence the lack of a significant difference between the baseline condition and the dislocated-subject condition (cf. Repp & Grenhaus, 2011 for similar results and claims for German).

Critically, the results of the clefting condition go against the results from previous studies on the role of focus in inter-sentential pronoun resolution (cf. Cowles et al., 2007) but are, nevertheless, concordant with the results for intra-sentential pronoun resolution in French and German (cf. Colonna et al., 2010, 2012a). These results are also in line with the notions of topic continuity and discourse coherence: referring back to a focused antecedent, which might constitute potentially (non-topic) new information (Erteschik-Shir, 1997), violates continuity and seems to be dispreferred, at least in intra-sentential pronoun resolution.

Summarizing, the results of the Experiments 1 and 2 show that the manipulations of the discourse status of the antecedent by means of left-dislocation and clefting have a systematic effect on participants' choices of antecedents for ambiguous subject and object pronouns in Spanish. However, these effects are not the same for the two syntactic constructions tested: while pronouns in the subordinate clause show an increased preference for left-dislocated antecedents, clefting does not affect or even decreases the accessibility of the clefted antecedent for ambiguous pronouns in the subordinate clause. Figures 3 and 6 above illustrate these results.

To conclude, in line with the predictions of the PFS, the results of the baseline condition in Experiment 2 show a robust object antecedent bias for object clitic pronouns in Spanish. The lack of a clear preference for either antecedent in the baseline condition in Experiment 1 (null subject pronouns), on the other hand, are surprising in light of results from previous studies that reported a robust subject antecedent bias for null subject pronouns in Spanish (cf. Alonso-Ovalle et al., 2002; Filiaci, 2010; Jegerski et al., 2011; Keating et al., 2011). These results suggest that, at least in certain contexts, the null subject pronoun can take an object antecedent as easily as a subject antecedent from a preceding clause.

Before making any claims on the lack of a subject antecedent preference for null subject pronouns, however, some potential methodological issues need to be explored. One possibility could be that our materials were biased against such a preference either semantically or because, for example, our fillers primed an NP2 preference. However, it has to be noted that the items used in the present study where highly parallel to those used in previous studies (e.g. Filiaci, 2010; Jegersky et al., 2011; Keating et al., 2011). The only difference between our study and previous studies is the combination of experimental conditions manipulated: while the present study investigated only null subject pronouns, the other studies investigated the resolution of both null and overt subject pronouns. In other words, in our study participants only "saw" null pronouns embedded in five different conditions, while in the other studies participants saw both null and overt pronouns. The question that follows is: could the robust subject antecedent bias for null pronouns be at least partly due to a metalinguistic strategy on the participants' part? Experiment 3 tries to shed light on this question.

3.5. Experiment 3: Null vs. overt subject pronouns

Given that we did not find the subject preference for null subject pronouns repeatedly attested in the literature and predicted by the PAH, we wanted to find out whether our materials might have been biased against such a preference or alternatively whether the lack of a subject preference could be due to the fact that most experiments showing such a bias tested null and overt pronouns at the same time. This combination of conditions may have caused metalinguistic strategies on the part of the participants, as they may have, more or less consciously, differentiated the function of null and overt pronouns. In Experiment 1, we only presented null pronouns in different contexts so that not such

strategy could have been developed. In Experiment 3, we presented participants with both types of pronouns to test this potential limitation.

3.5.1 Method

Twenty-four native speakers of Spanish of various countries (Spain, Mexico, Colombia) completed the same type of sentence interpretation task employed in Experiments 1 and 2. The questionnaire was administered via the Internet-based platform *IbexFarm*, as in Experiment 1. Participants were instructed to read carefully a series of sentences followed by a prompt with a gap and to fill in the gap with an antecedent from the preceding sentence.

Twenty-four experimental items used in Experiment 1 were used for this experiment in two conditions: null subject pronoun and overt subject pronoun. Sample items are given in (13). In addition to the experimental items, 48 of the filler items included in Experiments 1 and 2 were used in this experiment to keep the experimental contexts as similar as possible. Two presentation lists with 72 items and 4 practice items were constructed so that participants would only see the experimental items in only one of the 2 experimental conditions.

(13) a. Null: Eduardo llamó a Samuel cuando estaba en la oficina.
    b. Overt: Eduardo llamó a Samuel cuando él estaba en la oficina.
    PROMPT: _____ estaba en la oficina.

3.5.2. Results

Just like for Experiments 1 and 2, we ran a log-linear mixed-effects model analysis with Condition as a fixed effect and Subjects and Items as random effects (see Table 3 and Figure 7). To assess the validity of the mixed effects analyses, we performed likelihood ratio tests comparing the full models with the fixed effect to a reduced model. The analysis revealed a highly significant effect of the type of pronoun ($\chi^2(1)$=13.202, p<.001). In particular, the results of Experiment 3 show a clear antecedent bias as a consequence of the nature of the pronoun: with a null pronoun, participants selected a subject antecedent significantly more often than an object antecedent; likewise, with an overt pronoun, participants selected an object antecedent significantly more often than a subject antecedent. The results for null subject pronouns replicate the results from previous studies (cf. Alonso-Ovalle et al, 2002; Filiaci, 2010; Jegerski et al., 2011; Keating et al., 2011) and are in line with the predictions of the PAH: the null subject pronoun prefers a more prominent subject antecedent, while the overt subject pronoun prefers a less prominent object antecedent. Crucially, however, as Figure 7 shows, the results of Experiment 3 for null subject pronouns do not replicate those from the baseline condition of Experiment 1, despite the fact that the same stimuli were used in both experiments.

**Table 3**: Fixed effect values of linear mixed-effects model for Experiment 3.

	Estimate	**Std. Error**	**z-value**	**Pr(>|z|)**
(Intercept)	0.7610	0.1986	3.832	0.000127 ***
Overt	-1.4735	0.3504	-4.206	2.6e-05 ***

3.5.3. Discussion

The same stimuli elicited no antecedent bias when only null subject pronouns were tested (Experiment 1) and a clear antecedent bias (null pronoun-subject antecedent, overt pronoun-object antecedent) when both types of pronouns were tested (Experiment 3). Note that this pattern is similar to what Filiaci (2010) reported for Italian, but not for Spanish, with respect to the object preference for overt pronouns. These results indicate, first of all, that our materials were not biased for either antecedent. It seems to be more likely that, in previous studies, the presence of both types of pronouns might have resulted in participants being aware of the critical manipulation and consciously differentiating between those stimuli with a null pronoun and those with an overt pronoun. This would be indicative of a metalinguistic strategy contributing to the effect. If this were true, these results would

suggest that the bias of null subject pronouns for subject antecedents might be less robust than has been reported in the literature. It should be added, however, that we do by no means deny the existence of a preference pattern consistent with the PAH for null subject pronouns. It just seems to be the case that the strength of the effect is partly due to metalinguistic strategies.

Figure 7: Results from the baseline condition of Experiment 1 (only null subject pronouns) and from Experiment 3 (null and overt subject pronouns)
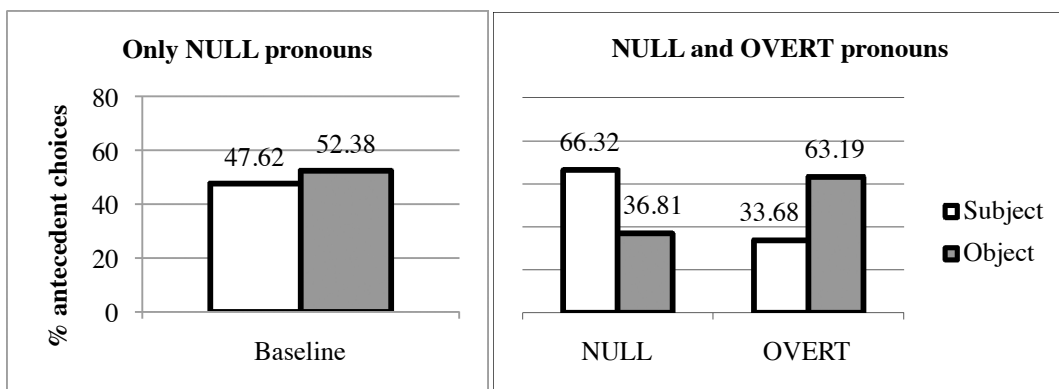
4. General discussion

The following research questions guided the present study:

1. In canonical structures, will the same strategies elicited in previous studies be observed in subject and object pronoun resolution in Spanish (i.e. PAH for null subject pronouns; PFS for object clitic pronouns)?

The results of the baseline condition in Experiment 1 do not confirm the predictions of the PAH since there was no subject antecedent bias for null subject pronoun; the frequencies of subject and object antecedent choices did not differ in our experiment. The results of Experiment 3 showed, however, that this robust bias reported in previous studies may be reinforced by a strategy on the participants' part due to the experimental manipulations. The results of both experiments combined suggest that even null subject pronouns in Spanish, like previous studies found for overt subject pronouns, can take object antecedents as well as subject antecedents in certain contexts. In addition to this, these results show that pronoun interpretation does not always obey traditional accounts on the distribution and interpretation of null and overt pronouns in Spanish.

The results of the baseline condition in Experiment 2, on the other hand, are in line with the predictions of the PFS as they show a strong general object antecedent bias for direct object clitic pronouns in Spanish. This outcome is to be expected from Kehler et al.'s (2008) predictions on parallel/similar coherence relations. In most of our materials, the matrix clause and the subordinate clause are fairly parallel at least with respect to argument structure. This finding complements previous work on languages with full pronouns in that we find effects of the PFS even for object clitics, which do not appear in the same position as the post-verbal object antecedent but have, nevertheless, the same grammatical function.

2. Will the manipulation of the discourse status of the antecedents (by means of left-dislocation and clefting) affect the baseline preferences and in what way?

The answer to the first part of the question is affirmative: the results of Experiments 1 and 2 show that the baseline preferences, or lack thereof in the case of null subject pronouns, are systematically altered by the experimental manipulations of the discourse status of the potential antecedents. This effect, however, is not the same for the two syntactic constructions tested. In particular, left-dislocation seems to render an antecedent more accessible compared to antecedents in their canonical position.

This pattern was found for both types of pronouns irrespective of their baseline preferences. Crucially, clefting seems to render antecedents less accessible for subsequent pronouns for both null subject and object clitic pronouns. These results are in line with previous findings on intra-sentential pronoun resolution in French and German (Colonna et al., 2010, 2012a) but go against previous findings on inter-sentential pronoun resolution in English where both topic and focus served as enhancing mechanisms of potential antecedents for subsequent ambiguous pronouns (Arnold, 1999, Cowles, 2003; Cowles et al., 2007). It was argued that these divergent effects of left-dislocation and clefting on intra-sentential pronoun resolution might be due the discourse functions that these two mechanisms serve: while referring back to a (topicalized) left-dislocated antecedent contributes to topic continuity and, in turn, to discourse coherence (Givón, 1983; Zubizarreta, 1998, 2012), referring back to a (focused) clefted antecedent, which can be seen as potentially new information, does not contribute to discourse continuity and coherence and, therefore, seems to be dispreferred within the same sentence ("anti-focus effect" in Colonna et al., 2012).

However, if topic continuity is behind our participants' choices of antecedents for an ambiguous pronoun, we still have to account for the object preference for object clitics in the baseline condition. If topic continuity does affect antecedent accessibility, subject antecedents should generally be preferred for both subject and object pronouns across languages in canonical sentences. As Experiment 2 shows, this is not the case. Our data are better accounted for by a preference for parallel functions as well as for explicit topics, established by means of left-dislocation.

The divergent pattern of results observed for clefted antecedents in inter-sentential vs. intra-sentential pronoun resolution remains unexplained. In a recent study, Colonna, Schimke, & Hemforth (2012b) compare the role of clefts in inter and intra-sentential pronoun resolution in French and German and provide evidence suggesting that the dispreference attested within sentences disappears across sentence boundaries, where this tendency is actually replaced by a bias for clefted antecedents. This suggests, that the origin of the intra-sentential dispreference may actually lie in the syntactic and/or semantic structure of clefts and less in the discourse status of the antecedent. Cleft sentences can be decomposed into an asserted part (the cleft) and a presupposed or given part. What has been referred to as an "anti-focus effect" may, thus, be a preference for presupposed antecedents, which at a certain level may overlap with the notion of sentence/discourse topic. Recent data in Spanish, English, and French corroborate this hypothesis (de la Fuente & Hemforth, 2013). Across sentences, however, clefted antecedents may be taken to introduce new topics, which would explain the differences in antecedent preferences within and between sentences (Huber, 2006).

To sum up, going back to the question of what makes an antecedent salient, the results of the present study show that neither grammatical function, nor order of mention, nor a general preference for antecedents prominently marked for their discourse status can explain the patterns observed. First mentioned antecedents were not chosen systematically more often than second mentioned antecedents. Preferences for a specific grammatical function seem to depend on the type of pronoun, with no preference (Experiment 1) or, depending on the experimental manipulation, a subject preference (Experiment 3) for null pronouns and a robust preference for object antecedents for object clitics. We can, thus, conclude that the grammatical function of the antecedent seems to play a certain role in pronoun resolution, which may vary across structures and cross-linguistically (e.g. Colonna et al., 2010, 2012a; Hemforth et al., 2010). In addition to this, the present results indicate that discourse prominence as a mechanism to enhance antecedent accessibility does not account for the elicited patterns either: while left-dislocation seems to render antecedents more accessible, clefting either does not affect participants' interpretations or renders antecedents less accessible for subsequent pronouns. At least within sentences, our results suggest that it is not prominence per se what makes an antecedent more accessible, but rather explicit topicalization by left-dislocation. These results are compatible with a resolution strategy whereby antecedents explicitly topicalized (by means of left-dislocation) are more prominent and accessible in the discourse models that speakers and listeners construct in the course of language comprehension (Kaiser & Trueswell, 2011).

5. Conclusion

Previous work on pronoun resolution has been concerned with the role of antecedent salience in this process. A problematic point is, however, that most of these studies did not define salience adequately and did not tease apart certain factors that were claimed to contribute to salience, such as

grammatical function, order of mention and discourse status. The present study, like other studies did before for other languages, investigated the role of syntactic constructions affecting the discourse status of potential antecedents (in particular left-dislocation and it-clefting) in ambiguous null subject and object clitic pronouns in Spanish with the goal of disentangling these factors. In combination, Experiments 1 and 2 show that both, grammatical function as well as left-dislocation and clefting influence participants' choices of antecedents. Our results indicate that the preference for left-dislocated antecedents as well as the dispreference for clefted antecedents which have been established for subject pronouns in French and in German (Colonna et al., 2012a) in intra-sentential pronoun resolution also generalize to null pronouns and object clitic pronouns in Spanish. The differences between left-dislocation and clefting have been argued to be a consequence of a preference for topic continuity. We suggest that the semantic and syntactic structure of cleft sentences may provide a better explanation for our observations. Further research will be necessary to shed more light on this question.

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