Null vs. overt pronouns and the Topic-Focus articulation in Spanish

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Carminati (2002) shows that the existence of both phonetically full and phonetically null pronouns (*pro*) in Italian reflects a division of labor with respect to anaphora resolution. *pro* prefers to link to prominent antecedents more than its phonetically overt counterpart does (where prominence is determined by syntactic position in intrasentential anaphora cases).

We first report the results of three written questionnaire studies showing that the Position of Antecedent Hypothesis (PAH) of Carminati (2002) correctly predicts the anaphoric behavior of Spanish pronouns both in intra- and intersentential anaphora cases. In two-sentence discourses where two potential antecedents (one in preverbal subject position and another in object position) exist, *pro* is linked 73.2% of the time to the subject (which is syntactically more prominent than the object) whereas the phonetically overt pronoun links to the subject only 50.2% of the time. When there is only a subject antecedent available, sentences containing *pro* are rated as more natural than sentences containing an overt pronoun, thus suggesting that the anaphoric preference is not simply due to ambiguity of antecedent resolution. Essentially the same contrast obtains in cases of variable binding, where *pro* links to the subject 86.9% of the time and the pronoun only 63.3% of the time.

Two written questionnaire studies corroborate that the Topic-Focus articulation of the sentence containing a pronoun affects the general anaphoric preferences predicted by the PAH. We report evidence confirming that, in Spanish, preverbal subjects are interpreted as sentential Topics. Then we show that when phonetically overt pronouns are preverbal subjects they tend to pick up prominent (subject) antecedents, thus overriding the general preferences encoded in the PAH. This fact suggests that the preferences encoded in the PAH come about as a result of the interpretation associated with the syntactic position that pronouns occupy. [1]

1. Introduction

An explanatory theory of language must face two tasks. First, it must explicitly characterize the class of possible grammars. Second, it must explain how grammars are put to use: how language users produce and comprehend the sentences a grammar generates.

Language processing relies on grammatical properties and, for that reason, it is not always easy to discern which principles guiding

it belong to the grammar and which to the processor proper. Anaphora resolution is a case at hand. Possible grammars differ with respect to the type of anaphoric devices they allow. Some grammars, as is the case within Romance languages, allow for phonetically null pronouns (henceforth *pro*) as well as phonetically overt pronouns (henceforth pronouns). Within Montalbetti's 1984 theory, the existence of both pronouns and *pro* within a grammar correlates with a grammatical principle (the Overt Pronoun Constraint) that disallows the use of pronouns as bound variables in those syntactic configurations where *pro* is licensed. Carminati (2002) offers a theory of anaphora comprehension in Italian that also sees a division of labor in anaphora resolution between *pro* and pronouns. In contrast to Montalbetti, however, she shows it to be a consequence of a processing principle.

Comparative pyscholinguistics investigates the extent to which the principles that guide sentence production and comprehension are common to all possible grammars. This paper belongs to that enterprise. Part of what we do is ask whether the processing principle that governs anaphora comprehension in Italian extends to a closely related language: Spanish. We show that it does. The empirical data we present are inconsistent with the Overt Pronoun Constraint. They strengthen Carminati' s hypothesis.

At least since the early eighties, linguistic theory has been deeply concerned with the anaphoric properties of phonetically null pronouns. However, despite considerable advances on the Topic (see, e.g. Montalbetti 1984), a fundamental question remains largely unanswered: why do those languages whose pronominal inventory includes *pro* also have phonetically overt pronouns? What justifies the existence of both covert and overt pronominals in one and the same grammar? Carminati (2002) shows that, in Italian, the existence of both pronouns and *pro* reflects a division of labor with respect to anaphora resolution in that *pro* prefers to link to prominent antecedents more than its overt counterpart does. In intrasentential anaphora cases, syntactic position determines prominence:

(1)   *Position of Antecedent Hypothesis (PAH) for intra-sentential anaphora.*
       pro prefers to retrieve an antecedent in the (highest) Spec IP, whereas pronouns prefer an antecedent in a lower syntactic position.

The PAH makes the important prediction that configurational properties guide the processor in searching for the antecedent of a

pronoun. The referential status of the antecedent does not matter; neither does its morphological properties, nor the lexical content of the pronoun itself. Non-canonical dative subjects are as good as canonical nominative subjects as long as they are in the same syntactic position.

The goal of this paper is twofold. First, we show that the PAH makes correct predictions beyond Italian. It correctly predicts the behavior of Spanish pronouns both in intra and intersentential anaphora cases. Second, we report evidence that the Topic-Focus articulation of the sentence containing a pronoun affects the general anaphoric preferences predicted by the PAH. This suggests that the preferences encoded in the PAH come about as a result of the interpretation associated with the syntactic position that pronouns occupy.

The organization of the paper runs as follows: section 2 presents the results of three written questionnaire studies confirming that the anaphoric behavior of Spanish pronouns is determined by the PAH. Experiment 1 shows that, in intersentential anaphora, *pro* prefers an antecedent in [Spec, IP] more than pronoun does. Experiment 2 shows that the division of labor inherent to the PAH is independent of any ambiguity in antecedent resolution. Experiment 3 indicates that the PAH also predicts the behavior of Spanish pronouns when interpreted as bound variables. In section 3 we report the results of two written questionnaire studies revealing an interaction between the preferences encoded in the PAH and the Topic-Focus articulation of the sentence. Experiment 4 confirms the widespread assumption that (nonpronominal) preverbal subjects are interpreted in Spanish as sentential Topics. Experiment 5 shows that when overt pronouns are preverbal subjects, they tend to pick up prominent (subject) antecedents, thus overriding the general preferences encoded in the PAH.

2. *Testing the PAH in Spanish*

We start by reporting evidence confirming that the PAH predicts the anaphoric behavior of Spanish pronouns. We will first discuss intersentential anaphora.

Consider the two-sentence discourse in (2).

(2) a. Juan pegó a Pedro.   (*pro*) Está enfadado.
         Juan hit   Pedro   he   is   angry

153

b. Juan pegó   a Pedro.   Él   está   enfadado.
    Juan   hit   Pedro   he   is   angry
    'Juan hit Pedro. He is angry.'

According to the PAH, *pro* prefers a subject [Spec,IP] antecedent over an object antecedent. Then, if the PAH is on the right track, when native speakers are asked to assign a referent to the subject of the second sentence, (2a) should elicit a majority of Juan responses and more Juan responses should occur for (2a) than for (2b). This prediction was tested in a written questionnaire study, which we describe next.

2.1. Experiment 1

2.1.1. Method
Materials. Twelve two-sentence discourses were constructed. Each occurred in two forms, one with *pro* and another with a pronoun, as illustrated in (2a) and (2b), respectively. Both *pro* and pronoun could legitimately refer to either of the two proper names in the first sentence (in particular, its reference was not disambiguated by gender). Each discourse was followed by a question eliciting the referent of the second sentence subject (*¿Quién está cansado?*, 'Who is tired?'). Four counterbalanced forms of the questionnaire were constructed. In each, half the items contained *pro* and half contained a pronoun. The resulting twelve discourses were combined with another twenty-four filler items following the written instructions and two practice items. A single randomization of each form was constructed.

Participants and procedure. Eighty students at the Universidad Complutense de Madrid participated in the experiment in a single group. The participants were given written instructions, read aloud by the experimenter, who asked them to read each item carefully and write down the answer to the question that followed it, without any time constraints.

2.1.2. Results
When *pro* was the subject of the second sentence, as in (2a), a majority of responses (73.2%) chose the subject of the first sentence as antecedent. In contrast, when the subject of the second sentence was a pronoun, as in (2b), the percentage of responses choosing the subject of the first sentence as antecedent dropped to 50.2%. The dif-

154

ference was highly significant (F1(1, 79) = 65.28; F2(1, 11) = 43.38, p < .001).

2.1.3. Discussion

The results show that Spanish exhibits the basic difference Carminati (2002) observed for Italian: *pro* prefers a subject [Spec,IP] antecedent, while the pronoun does not. As an illustration, we will consider the results of two written questionnaire studies she reports. In the first one, subjects were asked to assign a referent to the pronominal subject of an embedded temporal or conditional clause.

(3) | Marta | scriveva | frequentemente | a | Piera | quando | *pro*/lei |
     |-------|----------|----------------|----|-------|--------|-----------|
     | Marta | wrote | frequently | to | Piera | when | pro/she |
     | era | negli | Stati Uniti. | | | | |
     | was | in the | United States | | | | |

Subjects chose the higher subject as antecedent for *pro* 80.72% of the time, but only 16.67% of the time for the overt pronoun. In another written questionnaire study, subjects were asked to choose between a bound and obviative (outside the discourse) interpretation for the pronominal subject of a clause embedded under verbs of reporting (*say, confirm, announce*) and belief (*think*).

(4) | Gregorio | ha | detto | che | *pro*/lui | sarà | presente | al |
     |----------|-----|-------|------|-----------|---------|----------|--------|
     | Gregorio | has | said | that | he | will be | present | at the |
     | matrimonio | di | Maria. | | | | | |
     | wedding | of | Maria | | | | | |

They chose the higher subject as referent of the embedded subject 96.56% of the time when the embedded subject was *pro* and 85.79% when it was a pronoun.

Whether the effects in Spanish and Italian differ is difficult to say, because Carminati focused on intrasentential anaphora, whereas the pronoun and antecedent occurred in separate sentences in Experiment 1. However, in studying expletive subjects, Carminati (2002:98-113) tested intersentential anaphora cases. She reports the results of a written questionnaire study in which subjects were asked to rate how natural two clause discourses of type in (5) were. (5a-b) consist of an embedded clause followed by a matrix clause whose subject was either *pro* or a pronoun. Both clauses are independent in (5c).

155

(5) a. [$_{CP}$ When Ø$_{expletive}$ [John]], *pro* / pronoun

  b. [$_{CP}$ When [John]], *pro* / pronoun

  c. [$_{CP}$ Ø$_{expletive}$ John] [CP *pro* / pronoun]

The sentences in (6) exemplify with a raising verb the contrasts at issue:

(6) a. [$_{CP}$ Siccome Ø$_{expletive}$ sembra che [Alda] sia brava in
        Since it seems that Alda is clever at
      matematica], *pro*/lei è stata scelta come tesoriere.
      math she has been chosen as a treasurer

  b. [$_{CP}$ Siccome Alda sembra essere brava in matematica],
        Since Alda seems to be clever at math
      pro/lei è stata scelta come tesoriere.
      she has been chosen as a treasurer

  c. [$_{CP}$ Ø$_{expletive}$ sembra che Alda sia brava in matematica]
        It seems that Alda is clever at math.
      [$_{CP}$ Per questo *pro*/lei è stata scelta come tesoriere.]
        For this (reason) she has been chosen as a treasurer.

Subjects rated the continuations in a five point scale (1 = very natural, 5 = very awkward). Continuations with *pro* in (5a) were rated 2.47, vs. 3.66 when the continuation contained a pronoun. The continuation with *pro* in (5b) was rated 1.55, whereas the continuation with pronoun was rated 3.68.

Interestingly enough, in the intersentential cases like (5c), the continuation with *pro* was rated 1.68, and the continuation with the pronoun 2.89. In short, Carminati observed a similar set of biases to those found intrasententially, though the biases were milder in the separate sentence studies. So one possibility is that the weaker preference observed in Spanish is simply due to the intersentential nature of the Experiment 1 materials.

2.2. Experiment 2

The division of labor hypothesis that is inherent in the PAH leads us to expect that the differences between *pro* and the overt pronoun are not simply due to ambiguity resolution preferences. It should be more natural in Spanish to use *pro* to refer to a subject

even when there is no ambiguity. This aspect of the PAH was tested in Experiment 2.

Two-sentence discourses like (7) were tested in a written questionnaire. In (7) there is no ambiguity of reference. Participants were asked to rate the continuations for their naturalness. If *pro* is rated as more natural than the pronoun, this could not be attributed to any principle that is concerned exclusively with ambiguity resolution.

(7) Teresa llegó   al   aeropuerto tarde. (*pro*)/Ella estaba cansada.
     Teresa arrived at the airport   late   she   was   tired

2.2.1. Method

Materials. Sixteen two-sentence discourses were constructed. The first sentence introduced a subject antecedent. The second sentence contained either *pro* or pronoun, which presumably referred to the antecedent mentioned in the first sentence. Two questionnaire forms were constructed, each of which contained all sixteen items, half with *pro* and half with a pronoun. The assignment of type of pronominal to item was counterbalanced across lists. The sixteen experimental items were combined with forty-eight filler items (half of which were experimental items for Experiment 3 and half of them from Experiment 5) and randomized once for each form.

Participants and Procedures. A group of seventy-two students of Psychology in the Universidad Complutense de Madrid participated at the experiment for course credit. The procedure was similar to that used in Experiment 1, except that the participants were asked to rate each item on a five-point scale. The subject was to choose between 1 and 5 judging the naturalness of the second sentence, where 1 was defined as "odd" and 5 as "natural".

2.2.2. Results

The mean rating for sentences containing *pro* was 4.19, and 3.57 for sentences containing a pronoun. The difference was highly significant ($F_1(1, 71) = 63.32$, $p < .001$; $F_2(1, 15) = 44.02$, $p < .001$).

2.2.3. Discussion

The results confirm that the PAH makes correct predictions even when there is no need to disambiguate between two possible antecedents. According to the results of Experiments 1 and 2, the PAH correctly predicts the behavior of Spanish pronouns in cases of intersentential anaphora.[2] *pro* finds its preferred antecedent in the

157

subject [Spec, IP] position, regardless of the presence or absence of ambiguity. Spanish thus behaves very much as predicted by the PAH. In Experiments 1 and 2 the antecedent is a proper name, a referential item, and the anaphoric link amounts to coreference between it and either *pro* or the full pronoun. The PAH applies regardless of the referential nature of the antecedent. It does not distinguish between pure coreferential readings and bound variable ones. Consequently, it remains to be seen whether the PAH makes the correct predictions for cases of variable binding. Experiment 3 investigates whether Spanish also behaves like Italian in cases of variable binding, as we would expect according to the PAH.

2.3. Variable binding: Experiment 3

Consider cases of variable binding like (8), on the interpretation "for no x, x a student, x thinks that x passed the exam".

(8)	a.	Ningún	estudiante	cree	que	(*pro*)	pasó	el	examen.
		No	student	believes	that	he	passed the		exam
	b.	Ningún	estudiante	cree	que	el	pasó	el	examen.
		No	student	believes	that	he	passed the		exam

Since the PAH applies regardless of the referential nature of the antecedent, in (8a) *pro* should prefer to take the subject as its antecedent in the first stage of reference resolution, leading to a bound variable interpretation rather than picking up an extra-sentential antecedent. The preference for subject as antecedent should not be as strong for the overt pronoun of (8b). This should permit (8b) to receive more obviative (outside the sentence) responses. Notice that this prediction contrasts sharply to the predictions made by grammatical principles such as Montalbetti's Overt Pronoun Constraint (OPC), which disallows a bound variable reading for a pronoun appearing in a position where a *pro* may occur (Montalbetti 1984). The OPC predicts that *pro* will have more bound variable responses than the pronoun, but it predicts that no bound variable responses at all should occur for the pronoun. The predictions of the PAH were tested in a written questionnaire study.

2.3.1. Method
Materials. Sixteen sentences with a quantifier in subject position (cada, 'each' or ningún, 'no') were constructed. Each had two forms,

one with pro and another with a pronoun, as illustrated in (8a) and (8b). A question regarding the interpretation of the sentence was constructed for each sentence, giving a choice between two interpretations ((9a) and (9b)), where choice of (9a) indicates an obviative reading (in which the antecedent for the pronoun is found outside the sentence) and (9b) indicates a bound variable reading.

(9)   a. Hay   una persona no mencionada de la   que   ningún
           There is a person   not mentioned   such   that   no
           estudiante piensa que   pasó   el   examen.
           student   think   that   he passed the   exam

       b. Ningún estudiante sabe que él mismo pasó   el examen.
           No   student   knows that he himself passed the exam

Six counterbalanced forms of the questionnaire were constructed, in each of which half the sentences contained *pro* and half contained an overt pronoun. These sentences were combined with fifty-eight fillers. A single randomization of each list was made.

Participants and procedure. The subjects for this experiment were seventy-two students of Psychology at the Universidad Complutense de Madrid, the same tested in Experiment 2. They were tested in a group, and course credit was given for participation. The procedures used were similar to those used in Experiments 1 and 2. A single question with two alternative answers (as in 9a and 9b) followed each sentence. Participants were instructed to choose the answer that fit their initial, intuitive understanding of the sentence.

2.3.2. Results

The sentences with *pro* received bound variable interpretations 86.1% of the cases. Sentence with an overt pronoun received a bound variable interpretation a significantly smaller 63.3% of the time ($F1(1,71) = 46.187$, $p < 0.001$, and $F2(1,15) = 34.16$, $p < 0.001$).

2.3.3. Discussion

As predicted by both the PAH and the OPC, more bound variable responses were observed for *pro* (86%) than for the pronoun (64%). However, there were a substantial number of bound variable responses for the pronoun, consistent with the PAH, but in sharp contrast to the predictions of the OPC.

Carminati (2002:211-215) notes that Italian overt pronouns can

be in fact bound variables. In a self-paced reading study, subjects were asked to read sentences consisting of a matrix clause followed by a VP-complement clause:

(10) Al   colloquio per il posto di assistente di volo ogni candidata
      At the interview for the post   of air steward   every   candidate
      ha detto che *pro*/lei vorrebbe prendere le ferie ad agosto.
      has said   that *pro*/she would like to have   vacation in August

Each sentence was followed by a question probing the resolution of the pronouns:

(11) a. Chi vorrebbe fare   le   ferie   ad agosto?
          Who   would like to take (his) vacation in August?

      b. Ognuna   delle   candidate
          Every one   of the   candidates

      c. Un'altra   persona
          A different   person

Overt pronouns had a bound variable interpretation 75% of the time (vs. 95% for *pro*). When the quantifier was a bare quantifier, the percentage of overt pronoun bound variable responses dropped to 54% (90% for *pro*). We attested a similar behavior in Spanish, the language used to motivate the OPC.

Pérez-Leroux and Glass (1992) report the results of two written production studies involving both native and non-native speakers of Spanish. In the first study, subjects were asked to translate the last sentence of a story written in English. The sentence consisted of a subject quantifier and an embedded pronominal subject and was biased to either a bound variable or a deictic interpretation of the pronoun. When the story biased towards a bound variable interpretation of the pronoun, native speakers used overt pronouns 15.61% of the time and *pro* 75% of the time. Pérez-Leroux and Glass attribute the contrast to the OPC. However, if the OPC were a grammatical principle, as Montalbetti (1984) proposes, we expect no bound variable responses for pronouns in the cases where they alternate with *pro*, contra the evidence presented by Carminati and our previous experiment. This evidence indicates that the OPC cannot actually be a grammatical principle and should be subsumed under the PAH.

So far our discussion has closely followed Carminati's proposal and the experiments reported above have demonstrated that the pre-

dictions of her principles are confirmed in Spanish too, at least in Iberian Spanish. Carminati tested a wide variety of circumstances beyond those tested here. Of particular interest is the fact that she tested noncanonical subjects (such as dative subjects of psyche verbs, expletives and postverbal subjects). She found that those in [Spec,IP] were preferred antecedents for *pro*, as predicted by the PAH, and those which were not in [Spec,IP] were not. What she did not test was the effect of placing the pronoun, as opposed to the antecedent, in different positions. However, there are reasons to believe that the position of the subject pronoun might interfere with the general preferences encoded in the PAH, because subject position correlates in Spanish with the Topic-Focus articulation of the sentence and the focal status of a pronoun is known to influence its general anaphoric properties. The Topic-Focus articulation of the sentence – the topic to which we now turn – might then be expected to matter.

3. The interaction of the PAH and the Topic-Focus articulation of the sentence.

Why does pro prefer to link to prominent antecedents more than pronoun does? Is this preference encoded in the semantics of *pro* itself or does it come about as a result of the syntactic position it occupies? If the preference for prominent antecedents were linked to the interpretation of certain syntactic positions, we expect changes in syntactic position to possibly override the PAH.

Obviously, we cannot manipulate the syntactic position of *pro*, but we can easily manipulate the syntactic position of a pronoun to determine if there is indeed such a correlation. It is widely aknowledged (see Zubizarreta 1996) that subject position in Spanish correlates with the Topic-Focus articulation of the sentence. Following Von Fintel 1995 and others, we assume that a constituent is a sentential Topic if it carries a marking that signals that the properties of its denotation are under discussion.

Now consider the question-answer pairs in (12):

(12) a. ¿Quién   vino?   A. Vino Juan. / B. Juan vino
          Who   came?   came John /   John came

      b. ¿Qué   sucedió   con Juan?   A. Vino Juan. / B. Juan vino
          What   happened   with John   came John /   John came

Under a Hamblin-Karttunen semantics, questions denote sets of propositions (Hamblin 1971, Karttunen 1977). Propositions of the form "there is an x such that x came" are in the denotation of the wh-question in (12a). Propositions attributing one property or another to Juan are in the denotation of the question in (12b). If preverbal position signals that the subject is a sentential Topic, then it is expected that only B will be felicitous as an answer to (12b). We designed Experiment 4 in order to test whether preverbal subjects are indeed preferred as sentential Topics.

3.1. Experiment 4: non-pronominal preverbal subjects are sentential topics

3.1.1 Method
Materials. Twelve question-answer pairs were constructed. Each item had one question, which could denote a set of propositions of the form "there is some x such that x came" (*¿Quién vino?*, 'Who came?') or a set of propositions attributing one property or another to a given individual (*¿Qué sucedió con Juan?*, 'What happened with John?'), as in (12a) vs. (12b). Two different potential answers were offered for each question, one with the order Verb–Subject and the other with the order Subject–Verb, as illustrated in the A vs the B answers to (12), respectively.

Four counterbalanced forms of a questionnaire were constructed. In each one, half the items contained the first type of question (the narrow Focus question) and the other half, the second (the broad Focus question). Each item was followed by the two possible answers. These twelve items were combined with twenty-four other items as fillers and a single randomization was made of each form.

Participants and procedures. The participants were the same eighty students from Experiment 1, who received course credit for participating in the experiment. They were tested in a single group using the same procedures as the earlier experiments.

3.1.2. Results
If the question was a broad Focus item, e.g. (12b) (*¿Qué sucedió con Juan?*, 'What happened with John?) the overwhelmingly preferred answer (92.83%) was the one with a preverbal subject. When the question was a narrow Focus item, e.g. (12a) (*¿Quién vino?*, 'Who came?'), the preferred answer was the one with a postverbal subject, in 48.5% of the cases. The difference between these two values was

highly significant (F1(1,79) = 207.3 p< 0.001; F2(1,11) = 221.05 p < 0.001).

3.1.3. Discussion

If the properties of a subject are under discussion, then the subject must be preverbal. There is a clear association between preverbal subjects and topichood.

A widespread notion of Focus marking specifies that when a constituent is Focus marked in a sentence A, it triggers the presupposition that the context contains a set of propositions minimally differing from the one expressed by A in just the value of the Focus marked constituent (Rooth 1992). Consider again (12). (12a) denotes a set of propositions of the form "there is an x such that that x came". If postverbal subjects were focused, we expect them to be felicitously uttered after (12a), rather than (12b). They are. The data obtained in Experiment 4 square well with the fact that postverbal subjects are focused.

Having demonstrated that subject position correlates with the Topic-Focus articulation of the sentence, we may ask whether changing the syntactic position of a subject pronoun can override the preferences encoded in the PAH.

3.2. Experiment 5

Consider the examples in (13). The pronominal subject of the embedded sentence can have Pedro as a referent or else have an obviative reading.

(13) a. Pedro   piensa   que   está   cansado   él.
          Peter   thinks   that   is   tired   he

      b. Pedro   piensa   que   él   está   cansado.
          Peter   thinks   that   he   is   tired

      c. Pedro   piensa   que   ÉL   está   cansado.
          Peter   thinks   that   HE   is   tired
          'Peter thinks that he is tired'.

The syntactic position of the pronoun determines whether it is topical or not. If the position matters, then we might expect more Pedro responses in (13b) than in (13a). If this is correct, then the properties of *pro* may be due only in part to its lexical nature (being

163

pro rather than an overt pronoun with features). In part its properties may be due to the fact that the *pro* tested (and most *pros*) occur in preverbal subject position, as argued for in Cardinaletti (1997). A slightly different alternative analysis notes that a postverbal pronoun is not only nontopical, it is likely to be focused. Perhaps Focus (or its absence) affects the preferred interpretation of a pronoun. To test this, we included sentences like (13c) where a preverbal pronoun was presented in uppercase letters, to suggest contrastive Focus on the subject. If contrastive Focus rather than topichood (or structurally defined preverbal position) matters, (13c) should behave like (13a).

3.2.1. Method

Materials. Eighteen experimental sentences were constructed, each in three versions, as illustrated in (13). The three conditions were postverbal pronoun, preverbal pronoun and preverbal uppercase (contrastively focused) pronoun. Each sentence was followed by a question asking for the referent of the pronoun, giving the participant two choices: the matrix subject (*Pedro*, in (13)) vs. *Una persona no mencionada* ('Somebody not mentioned [in the sentence]'). Choice of the former indicates that the pronoun was interpreted as bound to the matrix subject; choice of the latter corresponds to an obviative interpretation of the pronoun.

The eighteen sentence-question pairs were added to fifty-eight filler items. Six counterbalanced questionnaire forms were constructed such that six items occurred in each of the three conditions in each form. One randomized order of each form was created.

Subjects and procedure. Seventy-two students of psychology at the Universidad Complutense de Madrid were tested in a single group for course credit. The fillers for this experiment are the experimental items from Experiment 2 and 3.

3.2.2. Results

Participants chose the matrix subject (bound) interpretation of the pronoun 42.1% of the time when the pronoun occurred in postverbal position (13a), 70.1% of the time when it occurred preverbally in lowercase (13b)) and 69.6% when it occurred preverbally in uppercase (13c). The difference among these three means was highly significant (F1(2, 70) = 21.64; F2(2, 16) = 51.14, p < .001). A pronoun in preverbal position was interpreted as bound to ther matrix subject more frequently than one in postverbal position. Contrastive Focus, as manipulated by printed letter case, did not affect choices, perhaps

164

because the pronoun in preverbal position is already somewhat focused or emphatic.

3.2.3. Discussion

Carminati (2002) investigates the influence of the Topic-Focus articulation on the antecedents. We report evidence that the Topic-Focus articulation of the sentence containing a pronoun influences the general division of labor encoded in the PAH. The fact that, when in topical position, pronouns take prominent antecedents suggests that part of the reason why *pro* prefers to link to prominent antecedents is because it is always in such a position. However, both lexical form and syntactic position matter. If syntactic position were all that matters, then the results in Experiments 1 and 2 for *pro* and pronoun should be the essentially the same. They are not.

4. Conclusions

Carminati (2002) shows that there is a division of labor with respect to anaphora resolution in Italian in that *pro* prefers more prominent antecedent than the overt pronoun (where syntactic position determines prominence in intrasentential anaphora). We have shown that the PAH is valid beyond Italian. It predicts the behavior of Spanish pronouns in intersentential and intrasentential anaphora cases. We have also shown that the PAH proves superior to Montalbetti's 1984 OPC in predicting the anaphoric behavior of bound variable (overt pronouns) in Spanish.

Finally, we have also shown that the anaphoric preferences encoded in the PAH interact with the Topic-Focus articulation of the sentence. The results of our investigation of this interaction suggest that the preferences encoded in the PAH should not be understood only as lexically encoded – which would be consistent with the widespread view according to which *pro* and pronoun differ structurally (see Cardinaletti and Starke 1999) –, but also, in part, as the result of the interpretation associated with the syntactic position that pronouns occupy.

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Appendix: experimental items

Experiment 1:
1. Juan pegó a Pedro. (*pro*/Él)Está enfadado.
2. María saludó a Ana. (*pro*/Ella) Está contenta.
3. Sara abrazó a Teresa. (*pro*/Ella) está emocionada.
4. Antonio gritó a Javier. (*pro*/Él) está estresado.
5. Maite entretuvo a Elena. (*pro*/Ella) está cansada.
6. Tomás se enfrentó a Luis. (*pro*/Él) está alterado.
7. Elías vio a Jaime. (*pro*/Él) me lo dijo ayer.
8. Daniela asustó a Marta. (*pro*/Ella) se lo dijo a Miguel.
9. Arturo hirió a Ernesto. (*pro*/Él) est contándoselo a Reyes.
10. Carmen escribió a Leonor. (*pro*/Ella) está en el pueblo.
11. Mario avisó a Miguel. (*pro*/Él) está asustado.
12. Gabriel persiguió a José. (*pro*/Él) se lo contó a María hoy.

Experiment 2:
1. Pedro salió. (*pro*/Él) volvió anoche.
2. Juan llegó anoche. (*pro*/Él) salió por la mañana.
3. María compró un coche. (*pro*/Ella) se arruinó.
4. Alicia vio la película. (*pro*/Ella) se aburrió.
5. Blas cocinó paella. (*pro*/Él) la comió toda.
6. Juana escribió una carta. (*pro*/Ella) la envió tarde.
7. Mario leyó el periódico. (*pro*/Él) lo tiró a la basura
8. Azucena fue a clase. (*pro*/Ella) regresó por la noche
9. Luis compró un ordenador. (*pro*/Él) está contento.
10. Nuria viajó a Puerto Rico. (*pro*/Ella) se divirtió.
11. Manuel visitó a su famila. (*pro*/Él) se emocionó mucho.
12. Manoli compró una enciclopedia. (*pro*/Ella) la devolvió pronto.
13. Javier escribió una novela. (*pro*/Él) la vendió a una productora de cine.
14. Sandra comió un pastel. (*pro*/Ella) después fue al cine.
15. Jesús viajó en autobús. (*pro*/Él) llegó tarde.
16. Lidia bailó mucho. (*pro*/Ella) está cansada.

Experiment 3:
1. Cada estudiante piensa que (*pro*/él) es inteligente.
2. Cada profesor piensa que (*pro*/él) sabe francés.
3. Cada enfermero piensa que (*pro*/él) es capaz de hacerlo.
4. Cada albail reconoce que (*pro*/él) es un buen trabajador.
5. Cada portugués reconoce que (*pro*/el) es un poco chulo.
6. Cada pintor reconoce que (*pro*/él) está anticuado.
7. Cada japonés dice que (*pro*/él) sabe jugar al béisbol.
8. Cada librero dice que (*pro*/él) gana poco.
9. Ningún estudiante piensa que (*pro*/él) aprobó.
10. Ningún camarero piensa que (*pro*/él) va a tener vacaciones.
11. Ningún francés piensa que (*pro*/él) tiene dinero.
12. Ningún comerciante reconoce que (*pro*/él) tiene licencia.
13. Ningún jugador reconoce que (*pro*/él) tiene una lesión.
14. Ningún conductor dice que (*pro*/él) tiene prisa.

15. Ningún traductor dice que (*pro*/él) está nervioso.
16. Ningún eslovaco dice que (*pro*/él) toma el té.

Experiment 4:
1. ¿Quién vino? /¿Qué sucedió con Juan?
    a. Vino Juan
    b. Juan vino
2. ¿Quién aprobó? /¿Qué sucedió con Marisa?
    a. Aprobó Marisa
    b. Marisa aprobó
3. ¿Quién ganó?/ ¿Qué sucedió con Alberto?
    a. Ganó Alberto
    b. Alberto ganó
4. ¿Quién llamó?/ ¿Qué sucedió con Lorena?
    a. Llamó Lorena
    b. Lorena llamó
5. ¿Quién gritó?/ ¿Qué sucedió con Jaime?
    a. Gritó Jaime
    b. Jaime gritó
6. ¿Quién llegó?/ ¿Qué sucedió con Mónica?
    a. Llegó Mónica
    b. Mónica llegó
7. ¿Quién protestó?/ ¿Qué sucedió con Tomás?
    a. Protestó Tomás
    b. Tomás protestó
8. ¿Quién saludó?/ ¿Qué sucedió con Laura?
    a. Saludó Laura
    b. Laura saludó
9. ¿Quién saltó?/ ¿Qué sucedió con Daniel?
    a. Saltó Daniel
    b. Daniel saltó
10. ¿Quién escapó?/ ¿Qué sucedió con Ana?
    a. Escapó Ana
    b. Ana escapó
11. ¿Quién cantó?/ ¿Qué sucedió con Manolo?
    a. Cantó Manolo
    b. Manolo cantó
12. ¿ Quién tropezó?/ ¿Qué sucedió con Josefina?
    a. Tropezó Josefina
    b. Josefina tropezó

Experiment 5:
1. Pedro piensa que (él/ÉL) está cansado (él).
2. Nuria piensa que (ella/ELLA) sabe inglés (ella).
3. Pablo piensa que (él/ÉL) viste mal (él).
4. Andrea piensa que (ella/ ELLA) está desplazada del grupo (ella).
5. Andrés piensa que (él/ÉL) necesita zapatillas (él).
6. Luisa piensa que (ella/ELLA) habla ruso (ella).
7. Alberto dice que (él/ÉL) está borracho (él).
8. Paloma dice que (ella/ELLA) está preparada (ella).

167

9.   Julia dice que (ella/ELLA) comprará zapatos nuevos (ella).
10. Federico dice que (él/ÉL) odia la ópera (él).
11. Ana dice que (ella/ELLA) viste a la moda (ella).
12. Juan dice que (él/ÉL) juega bien al fútbol (él).
13. Antonio reconoce que (él/ÉL) sabe acerca del tema (él).
14. Pedro reconoce que (él/ÉL) bebe cerveza (él).
15. Paula reconoce que (ella/ELLA) no cocina mal (ella).
16. Carmen reconoce que (ella/ELLA) baila bien (ella).
17. David reconoce que (él/ÉL) es un buen analista (él).
18. Violeta reconoce que (ella/ELLA) es una fan del rock (ella).

Notes

[2]   There are non trivial differences among different Spanish dialects. In particular, Caribbean Spanish is known to differ from Iberian Spanish in that the use of a pronoun is more similar to the use of *pro*. Here and in what follows, we focus on Iberian Spanish. Data are to be contrasted with other varieties of Spanish in further research.

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