

Understanding Partiality in *pro*-Drop Languages: An Information-Structure Approach

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Abstract. This article explores the *acceptability* and *interpretation* of referential null subjects in several varieties of Spanish (both Peninsular and American varieties) in different syntactic contexts (matrix and embedded) and distinct clause types (under bridge verbs, under factive verbs, and in adverbial clauses). Based on the results of an original online survey, completed by almost 300 respondents all over the world, it is shown that, in contrast with a consistent-*pro*-drop language like Italian, some Spanish varieties exhibit partial-*pro*-drop properties; this contributes to a recent line of research dealing with partiality in consistent-*pro*-drop languages. We argue that such variation can be accounted for within an information-structure approach, in which the Topic Criterion (Frascarelli 2007), the formation of topic chains, and the existence of silent topics play a crucial role. Degrees of partiality are attributed to an interface condition that combines information-structure requirements with PF visibility of overt copies in topic chains. Partial-*pro*-drop properties can then be explained by reference to independent syntactic conditions, such as the preference for overt minimal links and the sensitivity to islands.


1. Introduction

In its original formulation (Perlmutter 1971), the *pro*-drop parameter was aimed at capturing the empirical observation that in some languages a definite, referential, pronominal subject in a finite clause must be expressed overtly.¹ This observation was taken up, extended, and reworked by Chomsky (1982) in the form of the Extended-Projection Principle (EPP), a basic tenet in generative grammar. Since then, many works have been dedicated to the *pro*-drop parameter, defining the formal properties that determine the setting of its different options, which yield consistent-, partial-, radical-, semi-, and non-*pro*-drop languages (for discussion and references, see Biberauer et al. 2010, Cognola & Casalicchio 2018).

Since the seminal work carried out by Jaeggli (1982) and Rizzi (1986), the null-subject parameter has been claimed to be dependent on the ϕ features that are specified or encoded in the relevant licensing head (i.e., the Inflectional head node). Criticism of this approach was soon elaborated (see Jaeggli & Safir 1989, Huang 1989), and an alternative analysis has recently been proposed in the Minimalist framework by

Earlier versions of this article were presented at the fourth Cambridge Comparative Syntax conference in the UK, at the 26th Colloquium on Generative Grammar in Spain, and at the seventh Encuentro de Gramática Generativa in Argentina. We thank all the audiences for their encouraging comments. We are especially grateful to the *Syntax* reviewers for their challenges, which definitely have contributed to the improvement of the article. The research here has been partially funded by research project FFI2013-41509-P of Spain's Ministry of Economy and Enterprise (MINECO), by research project PGC2018-093774-B-I00 of Spain's Ministry of Science, Innovation, and Universities (MICINN), and by research project 2018/00000491 of the seventh Plan Propio of the Universidad de Sevilla. The order of authors is alphabetical.

¹ In this work we concentrate on null subjects that are referential; other types, such as arbitrary and expletive null subjects, are left to one side.

Dispatch: 6.7.19	CE: Wiley
No. of pages: 37	PE: Rajasekaran S.
WILEY	
12184	Manuscript No.
S Y N T	Journal Code
	

1 Holmberg (2005), according to which the licensing of a null subject (hereafter, NS)
2 depends on the presence of a D feature in T. (See also Camacho 2013, 2016, Saab 2016,
3 and Ticio 2018 on the occurrence of this D feature in T in different Spanish varieties.)

4 From a different perspective, Frascarelli (2007) shifts the focus of analysis from
5 licensing to the *interpretation* of licensed NSs. Assuming with Holmberg that the
6 licensing mechanism requires matching between interpretable and uninterpretable
7 features in Agr⁰, Frascarelli concentrates on how a licensed *pro* can be correctly given
8 a referential index and interpreted as intended in the discourse. As a matter of fact, ϕ
9 features only provide functional information about the person, number, and gender of
10 a *pro*; they do not explain how its discourse linking (D linking) is established in
11 *syntactic terms* in a consistent-*pro*-drop language.

12 Based on interface analysis of naturalistic spoken corpora, Frascarelli argues for an
13 *information-structure strategy*. Specifically, she provides evidence that the interpretation
14 of a referential NS depends on a matching relation (“Agree” in Minimalist terms) between it
15 and a *specific type* of topic. Based on Italian (spontaneous) data, she identifies the latter as
16 the *aboutness-shift topic* (A-Topic) of Frascarelli & Hinterhölzl 2007 (see section 2.1 for
17 details, and see Jiménez-Fernández 2016 for a similar analysis based on Spanish data). The
18 A-Topic combines the [aboutness] feature (which Frascarelli proposes as an “extended
19 EPP feature”) with the [shift] feature, which is the property that A-Topics have of moving
20 the conversation from one topic to another, updating the discourse context (see Bianchi &
21 Frascarelli 2010). A-Topics are present in every predicative sentence to establish “what the
22 sentence is about” and, *when overtly realized*, to shift the topic across sentences. Frascarelli
23 puts forth a Topic Criterion that correlates core grammar with discourse requirements:

24
25 (1) Topic Criterion

- 26 a. [+aboutness] is connected with an (extended) EPP feature in the high topic
27 field that yields a specific discourse-related property, namely “aboutness.”
28 b. The [+aboutness] topic matches with an argument in the main clause
29 through Agree.
30 c. When continuous, the A-Topic can be null (i.e., silent).

31
32 The Topic Criterion implies that every sentence contains a position in its C domain
33 endowed with the [aboutness] feature. However, since a shift is not realized in every
34 sentence, it is crucial to assume that, within discourse, predication can imply a
35 *multiclausal domain* in which chains of clauses are combined and refer to an
36 established A-Topic, whose [aboutness] feature is kept *continuous*.

37 Topic continuity is enabled across sentences by the presence of low-toned copies (G-
38 Topics, pronouns) and silent copies (null topics, NSs) of the established A-Topic, heading
39 a so-called *topic chain* (see also Frascarelli 2018). In this picture, the established A-Topic
40 is kept silent until a new A-Topic is proposed (breaking the previous topic chain).²

41
42
43 ² A topic-oriented approach to NSs can also be found in previous works (among others, Givón 1983 and
44 more recently Adli 2011, Camacho 2013, and Pešková 2014). The crucial difference in the present approach
45 is the fact that the relation between NS and topic is not “inferred from the context” but is part of discourse
grammar and, as such, implies specific formal requirements.

1 Finally—given the (empirically based) assumptions that the interpretation of an NS
 2 depends on an Agree relation with the current A-Topic (cf. (1b); this relation is *local*,
 3 following Minimalist tenets) and that A-Topics are only associated with clauses
 4 endowed with illocutionary force (cf. the Interface Root Restriction in section 2.3)—
 5 the following condition must be added to the Topic Criterion.
 6

7 (2) Topic-Chain Condition (Frascarelli 2018:(19))

- 8 a. An A-topic chain can only be started from a root (or root-like) C domain.
 9 b. The A-Topic heading the topic chain can be silent.

10
 11 Indeed, the relevance of silent categories is a major issue in recent analyses, and
 12 substantial evidence has been provided to establish that, echoing Kayne's (2016:1)
 13 words, "many more elements in the sentential projection line (and elsewhere) must be
 14 taken to be silent than is usually thought." In this respect, see also Sigurðsson 2004.

15 The central role of topics in discourse is widely discussed and acknowledged in the
 16 literature (see, among many others, Kuroda 1965, Givón 1983, Lambrecht 1994).
 17 Topics have different functions, however. In this picture, it is important to emphasize
 18 that Frascarelli's (2007) proposal (which we adopt) treats topics as an *entity*, one that
 19 is endowed with the discourse-semantic property of aboutness (following Reinhart
 20 1981), and this property is captured by a formal feature as an extended EPP
 21 requirement. Furthermore, although Frascarelli 2007 focuses on consistent-NS
 22 languages, Frascarelli 2018 provides evidence that the Topic Criterion (1) can be
 23 considered a macroparameter that also accounts for *partial*-NS languages (see
 24 section 3.2).

25 As a matter of fact, there is a general consensus in the relevant literature that
 26 an NS language of the Italian, Spanish, and Greek type may change gradually
 27 into a non-NS language like English and French (see Holmberg 2010, Saab
 28 2016). Based on a number of properties, such as the preference for preverbal
 29 subjects over postverbal subjects, the overt use of pronominal subjects, and the
 30 impact of *c*-command in the interpretation of NSs, there are languages that have
 31 been claimed to be changing into partial-NS languages, including Portuguese
 32 and, to a lesser extent, Spanish (see Kato 2000, Modesto 2000, Rodrigues 2004,
 33 and Barbosa, Duarte & Kato 2005, which deal with Brazilian Portuguese, and
 34 Comínguez 2018 and Camacho 2016, which deal with Caribbean varieties of
 35 Spanish). Nevertheless, the discussion on this topic is still lively and open
 36 (especially for Caribbean Spanish: see Camacho 2013, 2016, Comínguez 2018,
 37 Ticio 2018; from a different perspective, see Posio 2012, taking into account
 38 usage-based sociolinguistics).

39 In the present work we contribute to this hot topic by discussing the syntactic and
 40 interpretative properties of NSs (and, to a lesser extent, overt pronominal subjects) in
 41 two consistent-NS languages, Italian and Spanish. We present experimental results
 42 from several Spanish varieties, and we examine whether they support the claim that
 43 (i) some Spanish varieties (not only Caribbean Spanish) are becoming partial-NS
 44 languages, like Brazilian Portuguese, or that (ii) Spanish varieties are still consistent-
 45

1 NS languages but some of them, even so, show partial-NS properties, supporting the
 2 idea that partiality in the character of languages is a matter of degrees.³

3 Frascarelli (2007) discusses this question and provides multiple arguments for the
 4 advantages of an information-structure analysis. Among other things, she provides
 5 evidence that NSs cannot be treated on a par with overt pronouns in an NS language
 6 like Italian, and she provides data involving quantified DPs that clearly indicate the
 7 necessity of a formal theory that includes some *abstraction*, such as null topics. In this
 8 respect, consider for instance the Italian and Spanish scope facts in (3)–(5).
 9

- 10 (3) Ogni angolo della banca era sorvegliato da **una guardia**. \forall, \exists
 11 Cada esquina del banco estaba vigilado por **un policía**.
 12 each corner of.the bank be.PST.3SG guarded by a police.officer
 13 ‘Every corner of the bank was guarded by a police officer.’
 14

15 As indicated, the DP *una guardia/un policía* ‘a police officer’ can have a narrow- or
 16 wide-scope reading. However, if we continue (3) with a sentence like (4), only an
 17 existential reading is available.
 18

- 19 (4) *pro* fumava come un matto! $*\forall, \exists$
 20 *pro* fumaba como un loco!
 21 smoke.PST.3SG like a mad
 22 ‘He smoked like a lunatic!’
 23

24 We take this to be evidence that the NS in (4) does not take as its antecedent the DP
 25 *una guardia* in (3) but rather a silent topic in its own local C domain. This null topic is
 26 specific by definition and only allows for an existential reading:⁴
 27

- 28 (5) ... sorvegliato da una guardia. [(*La/questa guardia*_k) [*pro*_k
 29 ... guarded by a police.officer the/this police.officer
 30 fumava come un matto]].
 31 smoke.PST.3SG like a mad
 32

33 As we will see, silent topics will play an important role in our formalization of the
 34 interpretation of NSs.

35 The article is organized as follows. In section 2 we present the typology of topics
 36 that is put forth in Frascarelli & Hinterhölzl 2007, discuss the role of the A-Topic in
 37 conversational dynamics, and illustrate its function and relevance at the syntax–
 38

39 ³ We believe that our information-structure approach to the encoding of D linking has advantages over a
 40 pragmatic approach to anaphora resolution. A pragmatic theory, claiming that coreferent readings are
 41 preferred unless a disjoint reading is implicated (based on the Gricean maxim of quantity; see Levinson
 42 1991), cannot fully account for the complexity of this phenomenon; an integrated approach is required. For
 43 discussion, see Van der Sandt 1992.

44 ⁴ Additional evidence for the specific interpretation of the null topic in these sentence types comes from
 45 the fact that, whenever the topic is given an explicit spellout, it must be specific. This explains why only a
 definite DP like *la/questa guardia* ‘the/this police officer’ can be overtly realized in the C domain of (3)–(5)
 (see also Jiménez-Fernández 2016 for Spanish).

discourse interface as the element heading topic chains. In section 3, we first provide some background on the differences between consistent- and partial-NS properties and then introduce our experiment and the relevant methodology. In section 4 the experimental data are presented and discussed in detail. Based on the results obtained, section 5 gives an information-structure analysis of the data and defends the present proposal, aiming at a comprehensive explanation of the crosslinguistic variation attested.

2. Different Types of Topics, A-Topic Chains, and the Avoid-Pronoun Principle

Based on an interface analysis of naturalistic spoken corpora from Italian and German, Frascarelli & Hinterhölzl (2007) provide substantial evidence for the existence of a systematic correlation between the formal properties of (different types of) topics and their functions in discourse. Specifically, they distinguish between the aboutness-shift topic (A-Topic), the contrastive topic (C-Topic), and the familiar/given topic (G-Topic). The distinct function of each is encoded in a dedicated position in the C domain, in line with a cartographic and Minimalist approach to grammar (see Rizzi 1997 and subsequent works):⁵

(6) [_{ForceP} [_{ShiftP} [_{ContrP} [_{FocP} [_{FamP} [_{FinP} [_{IP}

For the purposes of the present analysis, we will specifically deal with A-Topics and G-Topics, which are briefly described in the following two subsections.

2.1. A-Topics

As previewed in section 1, the A-Topic connects Reinhart's (1981) aboutness with the property of being newly introduced or reintroduced and *changed to*—hence, with a shifting function in the discourse. In a cartographic approach, in which discourse properties are encoded in syntax in the form of formal (functional) features, the Shift⁰ head is thus assumed to be endowed with a specification for interpretable [aboutness] and [shift] features. Since the [aboutness] feature is proposed as an extended EPP feature (see the Topic Criterion in (1)), Spec,ShiftP is a *criterial* position (Rizzi 2006) and must be filled in every predicational sentence.

Though this notion might seem reminiscent of Lambrecht's (1994) *sentence topic*, the central difference is that, adopting Reinhart's approach, the A-Topic is an entity with a specific role in conversational dynamics: an *updating* effect leading to a new context. Following this line of analysis, the discourse context includes a *structured repository* of shared information (propositions publicly accepted by the participants), and the discourse referent denoted by the A-Topic constitutes the “address” (or *file*

⁵ The cartographic approach, in which features are assumed to be merged in dedicated projections, is fully compatible with the Minimalist Program, though it may not seem that way at first sight. As Cinque & Rizzi (2008) note, we can take the two approaches to have a different focus. Minimalism focuses on the elementary mechanisms involved in syntactic computation, while cartography deals with the details of the syntactic structure; they are not mutually exclusive (Mao & Meng 2016, Tanaka 2016).

card, in the terms of Heim 1982) under which the proposition conveyed by the assertion will be stored. This conversational move updates the interlocutor's common ground, in which propositions are stored under defining entries.

Syntactically, the A-Topic is merged in the highest topic position in the C domain (Spec,ShiftP), and it cannot be iterated. As for intonation, the A-Topic has been shown to be associated with a complex L*+H tone in a number of typologically different languages (see Frascarelli 2007, Frascarelli & Hinterhölzl 2007, Frascarelli & Puglielli 2009). However, since the prosodic interface is not part of the present investigation, intonational properties will not be further mentioned.

As an illustration of a topic shift, consider the example in (7) (from corpus data in Frascarelli 2007), in which a student is talking about computer skills with a friend. The topic constituent(s) under examination are boldfaced.

- (7) A: **Il computer**_{k[A-Topic 1]} tu lo_k avevi già usato qualche
 the computer you it have.PST.2SG already used any
 volta?
 time
 'Did you ever use **a computer** before?'
 B: Sì mi è capitato però *pro*_k era MacIntosh.
 yes to.me be.3SG happened but was Mac
 'Yes, I've experienced that, but it was a Mac.'
 Ho sempre avuto un approccio di base ...
 have.1SG always had a approach of base
 'I only had basic skills ...'
 Ecco, **il CD-ROM**_{z[A-Topic 2]} non l'_z avevo mai
 well the CD-ROM not it have.PST.1SG never
 usato—*pro*_z è utilissimo!
 used be.3SG very.useful
 'Well, I had never used **a CD-ROM**—it is very useful!'

As shown, the topic proposed by speaker A is *il computer* (a dislocated direct object resumed by the clitic *lo*), but then speaker B shifts the topic to a specific tool, namely *il CD-ROM*. Note that the NS following this topic shift is unambiguously related to the DP *il CD-ROM* and cannot be linked to *il computer*. This is evidence that topic shifts create new topic chains.

2.2. G-Topics

Quite differently from A-Topics, the discourse function of G-Topics is the retrieval of given information in the discourse. The G-Topic can therefore be considered a D-linked constituent, either in a "strong" sense (Heim 1982) or in a weak/familiar sense (Roberts 2003).

According to Frascarelli & Hinterhölzl's (2007) theory, the retrieval of given information can satisfy two different discourse requirements. On the one hand, a G-Topic can appear as part of a topic chain, and in this case it is a "low copy" of an

1 established A-Topic, serving a continuity function. On the other hand, the G-Topic
 2 can retrieve given information that is part of the background but is not linked to the
 3 current A-Topic. The former type of G-Topics are defined as *aboutness G-Topics*, the
 4 latter as *background G-Topics*.

5 Given this discourse characterization of G-Topics, Frascarelli & Hinterhölzl
 6 assume that the head of FamP is endowed with the [aboutness] feature, which is
 7 however *uninterpretable* in this position. By Minimalist tenets, the property of (un)
 8 interpretability is the driving force behind the establishment of a syntactic dependency
 9 (Chomsky 1995:277); accordingly, we assume, as Adger & Svenonius (2011:34) do,
 10 that “uninterpretable features are those that drive the derivation, while the
 11 interpretable ones are those that are used, in the final representation, to connect
 12 with the semantic systems or the phonological ones” (i.e., with interface levels). The
 13 distinction between the two types of G-Topics thus depends on their syntactic
 14 derivation. When a G-Topic moves to Spec,FamP, as illustrated in (8), it enters an
 15 Agree relation with Shift⁰ and Fam⁰, which are endowed with, respectively, the
 16 interpretable features [shift; aboutness; ref] and the uninterpretable features [about-
 17 ness; ref]. We assume that the NS’s features are unvalued but interpretable (a possible
 18 dissociation offered by Pesetsky & Torrego 2007). As a consequence of this Agree
 19 relation, the G-Topic’s interpretable [aboutness] feature is valued in the syntax and
 20 then interpreted accordingly at the interfaces. This constituent is thus part of a topic
 21 chain and is interpreted as an aboutness G-Topic.

- 22
 23 (8) [_{ShiftP} A-Topic_z [_{Shift'} Shift⁰_[shift; aboutness; ref] [_{FamP} G-Topic/*pro*_z_[aboutness; ref]
 24 [_{Fam'} Fam⁰_[aboutness; ref] [_{TP} *t*_z T [_{VP} V+V]]]]]]

25
 26 Notice that, besides [shift] and [aboutness], the Agree relation under examination also
 27 allows for the interpretation of the [ref] of the NS. The Shift head, with interpretable
 28 [aboutness], [shift], and [ref] features, thus plays a crucial role in interface
 29 interpretation by acting as a probe.

30 In contrast, when a G-Topic is not endowed with the unvalued interpretable
 31 [aboutness] feature, movement to Spec,FamP is not triggered and an Agree relation
 32 with Shift⁰ is not realized. Since FamP is not needed, it does not project. In this case
 33 the G-Topic gets a “background” realization and is not part of a topic chain. To
 34 account for the background reading of the G-Topic, we propose—as an addition to
 35 Frascarelli & Hinterhölzl’s (2007) theory—that a background G-Topic is interpreted
 36 in Spec,TP (drawing on Jiménez-Fernández & Miyagawa 2014). This is illustrated in
 37 (9). The G-Topic does not refer back to the A-Topic.

- 38
 39 (9) [_{ShiftP} A-Topic_z [_{Shift'} Shift⁰_[shift; aboutness; ref] [_{TP} G-Topic T [_{VP} V+V...]]]]

40
 41
 42 **2.3. Discourse Categories, Conversational Dynamics, and Topic Chains**

43 Discourse categories have different functions in conversational dynamics. In this
 44 respect Bianchi & Frascarelli (2010:51), adopting Krifka’s (2007) framework for the
 45 common ground that distinguishes between common-ground *management* and

common-ground *content*, provide evidence that a discourse category that triggers an update of the discourse context must occur in a clause endowed with context-update potential. They propose the following restriction.

- (10) Interface Root Restriction (Bianchi & Frascarelli 2010:(8))
Information-structure phenomena that affect the conversational dynamics (common-ground management) must occur in clauses endowed with illocutionary force that implement a conversational move.

Evaluated in terms of this restriction, A-Topics implement a conversational move, and as such they belong to the dimension of common-ground management and are restricted to root (or root-like) clauses. By contrast, since givenness is calculated on the basis of the common-ground content, G-Topics do not depend on illocutionary force and can be found in any type of clause (adverbials included).

Finally, remember that topic continuity implies the presence of *silent* A-Topics, whose existence is independently required by the extended EPP (see (1)). Hence, when no new topic is proposed in a sequence of discourse-related sentences, the Spec, ShiftP position is filled by a silent A-Topic, as is the case in the embedded clause in (11) (angle brackets indicate silent copies). In this case the embedded Shift⁰ is endowed only with [aboutness] and [ref], and it enters the Agree relation discussed in section 2.2 for constituents moving to Spec,FamP.⁶

- (11) [_{ShiftP} Leo_k [_{FamP} pro_k [_{TP} t_k pensa [_{ForceP} che [_{ShiftP} <Leo_k>
Leo think.3SG that Leo
[_{FamP} pro_k/lui_k [_{TP} t_k comprerà una casa]]]]]]].
he buy.FUT.3SG a house
'Leo_k thinks that he_k will buy a house.'

Notice that NSs and weak pronouns (of the aboutness kind) share a topic-continuity function in the discourse and can freely alternate in a topic chain (in parametric variation across languages and language varieties). In particular, the spellout of low-toned copies can be considered a conversational device in consistent-NS languages, plausibly connected with style, processing necessities (distance, memory burden), and dialects (microvariation). Since the realization of (c)overt subject pronouns is associated with the Avoid Pronoun condition, this theory also allows for a reformulation of that condition based on information-structure considerations, as is proposed by Frascarelli (2007:(32)):

- (12) Avoid Pronoun
Avoid using a strong pronoun, whenever it would agree with the local A-Topic.

⁶ The example in (11) is taken from the set of sentences used in our experiment.

3. Comparing Consistent- and Partial-NS Languages: Some Background and the Experiment

3.1. Some Background on the Differences between Consistency and Partiality

It is very difficult to state what a partial-NS language is, since there is no general consensus on exactly what features such a language should show. Different partial-NS properties have been proposed in the literature (see references in section 1), with different importance across languages. In this uneven scenario, Holmberg, Nayudu & Sheehan's (2009) proposal is often taken as a landmark; on this basis, we can assume that a partial-NS language is characterized by (i) sensitivity to locality, (ii) sensitivity to syntactic control, (iii) considerable use of explicit pronouns, and (iv) a preference for preverbal subjects.

In their analysis of consistent- and partial-NS languages, Holmberg, Nayudu & Sheehan concentrate on the first two of these properties, and they argue that in partial-NS languages a *pro* is only allowed if controlled (i.e., c-commanded) by an antecedent in a higher clause.⁷ They illustrate this condition with data such as (13), from Brazilian Portuguese, a language that is generally acknowledged to instantiate partial *pro* drop (though, for a different view, see Kato 2011).

- (13) O João_i disse [que os moleques_k the João say.PST.3SG that the children
acham [que *(ele_i) é esperto]]. think.3PL that he be.3SG smart
'João_i said that the kids think he_i is smart.' (Holmberg, Nayudu & Sheehan 2009:82)

They argue that partial-NS languages do not allow a control relation across another subject, even if the intervening subject has incompatible features with the NS. This is why Brazilian Portuguese prefers the explicit pronoun *ele* 'he' in (13), so as to comply with the strictly-local-control property that characterizes partial *pro* drop (whereas an NS is used to obtain coreference with an antecedent that is internal to the sentence domain where the NS occurs).

A different type of c-command-based restriction is also proposed for Spanish embedded NSs, specifically to distinguish Standard Spanish and Caribbean varieties of Spanish (see Camacho 2013, 2016, Gupton & Lowman 2013), based on Montalbetti's (1986) effects on quantifier binding that depend on whether the pronominal subject is overt or covert. Consider the example in (14) and the possible interpretations of null and overt subject pronouns in the embedded clause.

⁷ The authors deal with NSs in the complements of bridge and perception verbs, as well as in adjunct clauses and indirect questions. Notice that the claim that NSs in Brazilian Portuguese are subject to a c-command requirement is already made by Modesto (2000).

- 1 (14) Cada candidato_i cree que *pro*_{i/*}/él_{i/j} Caribbean Spanish
 2 each candidate think.3SG that he
 3 va a ganar la elección.
 4 go.3SG to win.INF the election
 5 ‘Each candidate_i thinks that he_i/he_{i/j} is (Gupton & Lowman 2013:341)
 6 going to win the election.’
 7

8 Gupton & Lowman (2013) conclude that, on a par with other partial-NS languages, in
 9 Caribbean Spanish an external reference for *pro* in the context of quantifier binding is
 10 excluded. This is a subtype of antecedent preference. By contrast, in the experimental
 11 study carried out by Chamorro (2018) on Peninsular (Iberian) Spanish, speakers did
 12 not show any preference regarding possible antecedents of NSs in contexts involving
 13 a subordinate clause. This is contrary to Carminati’s (2002) hypothesis, according to
 14 which speakers establish an interpretative link between an NS and the closest subject,
 15 as opposed to overt pronouns, which may refer to either a subject or some other
 16 constituent (see also Filiaci, Sorace & Carreiras 2013). In Peninsular Spanish, the NS
 17 in (14) can refer back to the subject in the main clause or to an external entity, as
 18 Chamorro’s experimental work has shown. On this basis, we can conclude that some
 19 varieties of Spanish (Caribbean Spanish, in particular) exhibit a specific inclination
 20 toward a c-commanding subject as the best antecedent for an NS, a conclusion
 21 independently arrived at by Comínguez (2018) in his survey of Puerto Rican Spanish.
 22

23 There are quite a few authors who have explored different properties of the licensing
 24 of NSs in Caribbean Spanish (especially Puerto Rican and Dominican varieties),
 25 properties that are typical of partial-NS languages (even though no consensus has been
 26 reached on this point). In what follows we address some of these properties.

27 A crucial factor distinguishing between consistent- and partial-NS languages is the
 28 latter’s greater tendency toward preverbal subjects. The contrast in (15) is an example.

- 29 (15) a. ¿Qué tú dices? Caribbean Spanish
 30 what you say.2SG
 31 ‘What do you say?’
 32 b. *¿Qué tú dices? Peninsular Spanish
 33

34 Toribio (2000) and Ordóñez & Olarrea (2006), among others, hold that Caribbean
 35 preverbal subjects in questions like (15a) must be pronominal, but Comínguez (2018,
 36 in line with Gutiérrez-Bravo 2008) has also detected examples of full DPs in Puerto
 37 Rican Spanish in preverbal position:
 38

- 39 (16) ¿Qué Pedro hace? Puerto Rican Spanish
 40 what Pedro make.3SG
 41 ‘What does Pedro do?’
 42

43 In connection with the relative position of subjects, Ticio (2018) argues that
 44 consistent-NS languages use postverbal subjects in certain clause types (especially in
 45

1 declaratives), while non-NS languages do not. In this respect, Puerto Rican Spanish
 2 patterns with non-NS languages, since it shows a certain preference for preverbal
 3 subjects, as in (17a). Postverbal subjects are still used, but never in final position, as
 4 the contrast between (17b,c) shows.

- 5
 6 (17) a. Juan compró el carro. SVO
 7 Juan buy.PST.3SG the car
 8 'John bought the car.'
 9 b. *Compró el carro Juan. *VOS
 10 c. Compró Juan el carro. VSO
 11

12 Another property distinguishing consistent- and partial-NS languages is the binding
 13 interpretation of NSs, as we mentioned earlier. As Ticio (2018) shows, Puerto Rican
 14 Spanish allows for the binding of an overt pronominal subject by a quantifier,
 15 contrary to what Montalbetti's (1986) Overt-Pronoun Constraint predicts. Both (18)
 16 and (19) are acceptable in Puerto Rican Spanish, on the interpretation indicated,
 17 whereas (19) is not acceptable in Standard Spanish.

- 18
 19 (18) Muchos chicos_i dijeron que *pro*_i no lo habían hecho.
 20 many children say.PST.3PL that NEG CL.ACC.SG have.PST.3PL done
 21 'Many children_i said they_i didn't do it.'
 22
 23 (19) Muchos chicos_i dijeron que **ellos**_i no lo habían hecho.
 24 many children say.PST.3PL that they NEG CL.ACC.SG have.PST.3PL done
 25

26 It is common practice to divide Spanish into two broad categories, namely American
 27 Spanish (AS) and Peninsular Spanish (PS) (Alvar 1996a,b). We stick to this tradition in
 28 Hispanic studies, fully aware of the heterogeneous character of these macrovarieties. As
 29 a consequence, when talking about PS and AS it has to be clear that both display
 30 uniformity and heterogeneity. This heterogeneity has led us to analyze the use of null
 31 and explicit pronominal subjects in a number of varieties from both PS and AS. As
 32 detailed in the next subsection, we carried out a systematic comparative analysis of these
 33 varieties with Italian, in order to check for partial-NS properties in them.

34 The partitioning of each macrovariety into individual varieties is based on both
 35 geographical and linguistic features, with the awareness that an area may contain
 36 subareas where grammatical features are very different from one another. For
 37 example, Colombia has many dialects, and at least some are more like Andean
 38 Spanish whereas others are more like Caribbean Spanish. To make things precise, we
 39 will very briefly describe the specific origin of informants for each variety.

40 For PS we collected data from Andalusian Spanish (Anda; specifically from
 41 Seville, Cádiz, and Huelva), Castilian Spanish (Cast; especially from Madrid,
 42 Asturias, and Castile-La Mancha), Catalanian Spanish (Cat; basically from
 43 Barcelona), and Extremaduran Spanish (Ext; from both Cáceres and Badajoz).

44 For AS varieties we dealt with Caribbean Spanish (Carib; specifically from Cuba,
 45 Caribbean Venezuela, Yucatan, and the Dominican Republic), Peruvian Spanish (Per;

specifically from Lima), Central American Spanish (Centr; specifically from Costa Rica, Nicaragua, and El Salvador), Mexican Spanish (Mex; from Mexico City), and Riverplate Spanish (Riv; from Argentina, especially Buenos Aires, and from Uruguay).

3.2. *The Experiment: Structure and Methodology*

The present experiment is intended to replicate the comparative study presented by Frascarelli (2018) for Italian and Finnish, in which the acceptability and interpretation of NSs is evaluated in different syntactic contexts.

Taking Italian as a model of *pro*-drop consistency, Frascarelli's analysis was aimed at understanding if and to what extent the Topic Criterion (1) and the Topic-Chain Condition (2) could be said to account for partial-*pro*-drop languages; the results that emerged from informants' judgments led Frascarelli to conclude that the interpretation of *pro* relies on topic chains in partial-*pro*-drop languages as well. Frascarelli thus proposes the Topic Criterion as a "macroparameter" (see Biberauer et al. 2010) of NS languages in general. Furthermore, she argues that partiality of *pro* drop is not a clear-cut property and that degrees of partiality must be accounted for in terms of a "graded analysis" based on an Interface-Visibility Condition (Frascarelli's (41)), according to which "Minimal (and semantically eligible) overt links optimize the interpretation of topic chains at the (PF, LF) interfaces." This condition reconceives and reexamines locality as an information-structural requirement operating at the interpretive level (not excluding long-distance antecedence).

Frascarelli's conclusion has been validated by results emerging from similar analyses carried out on Russian (Bizzarri 2015) and Romanian (Frascarelli 2017), and we now apply the same analysis to Spanish varieties with the same objective: to provide a *systematic comparison* with Italian, juxtaposing Spanish varieties with a consistent-*pro*-drop language in different syntactic contexts. A comparative analysis is also proposed between NSs and overt pronouns, but only as far as interpretation is concerned under bridge verbs.

The dependent variable in our survey (i.e., the variable being tested and measured in the experiment) is thus clearly antecedent selection, while the independent variables are the clause types used to elaborate the tokens for the experiment, namely, matrix versus embedded, simple versus complex, selected versus adverbial, bridge versus factive. The questionnaire included 24 target sentences, investigating the interpretation of NSs (i) in the complement of a bridge verb, (ii) in the complement of a factive verb, (iii) in a temporal adverbial clause, (iv) in a conditional adverbial clause, (v) under double embedding with an intervening third-person singular DP, (vi) under double embedding with an intervening nonargument DP, (vii) in the absence of a c-commanding antecedent, as subject of a matrix clause, and (viii) in the absence of a c-commanding antecedent, as subject of an embedded clause.⁸ All

⁸ Some of these contexts have also been tested by those authors who have claimed that some Caribbean varieties of Spanish are or are not partial-*pro*-drop languages; see Ticio 2018 and Comínguez 2011. As in these works, our test involves both complement-clause and adverbial-clause contexts in order to check the partial-NS character of some Spanish varieties. It should also be noted that the majority of our informants for Carib are from Cuba, Caribbean Venezuela, the Yucatán, and the Dominican Republic.

sentences were preceded by a context introducing possible antecedents. The interpretation of overt pronouns was also tested for conditions (i)–(iv), providing minimal pairs with NSs. There were thus 12 conditions in all.

These syntactic variables, which do not affect the acceptability of an NS in a consistent-*pro*-drop language like Italian, have been shown to have an effect in a partial-NS language like Finnish or Russian. Assuming a crosslinguistic value for the Topic Criterion, this means that these syntactic conditions are problematic for the Interface-Visibility Condition, and, as such, they affect the creation of topic chains in non-consistent-NS languages. Our working hypothesis is therefore that partial-NS languages are sensitive to these syntactic variables, and this sensitivity must be explained in terms of independent restrictions.

The questionnaire included two tokens for each of the 12 conditions (appropriately randomized to ensure that tokens testing the same condition did not appear one after the other). Eight fillers/distractors were added (one for every three target sentences) for a total of 32 experimental items.

Target sentences were presented to informants in a context like (20) (the target sentence is highlighted in boldface). Informants could express their grammaticality judgment on the target sentence as either *sí* ‘yes’, *no* ‘no’, or *me parece rara* ‘it seems strange to me’. Only with a ‘yes’ answer would the subquestion follow, asking who is the subject of the action expressed in the clause with the NS. Informants were given three alternatives, as in the following example.

(20) (At the stadium)

A: Look! *María* and her sister are already on the track!

B: ¡Sí! ***María cree que va a ganar la carrera.***⁹

yes *María* believe.3sg that go.3sg to win the race

‘I see! *María* thinks that ___ is going to win the race.’

(Informant’s judgment: “yes,” “no,” or “it seems strange to me”)

Who is going to win the race?

a. *María* b. Her sister c. Both (a) and (b) are possible

The three answers offered are always (i) the “subject”/topic of the matrix clause,¹⁰ (ii) a silent A-Topic that is different from (i), and (iii) ‘both’, that is, ambiguity between (i) and (ii). After providing their answer and passing to the following question (on a subsequent page of the online questionnaire), informants could not go back.

The survey was loaded on a dedicated website and distributed online (hence, participation was free and no selection was imposed). We were able to collect 173 full questionnaires for PS varieties (Anda 111, Cast 23, Cat 35, Ext 4) and 91 for AS varieties (Carib 29, Centr 14, Mex 15, Riv 18, Per 15). These data were compared with the 128

⁹ We omit here the notation *pro* for the NS. We did not use this notation in the survey, to avoid confusing the informants.

¹⁰ It is important to remember that referential subjects in NS languages are assumed to be sitting in an A’ position (see Frascarelli 2007); this means that a preverbal DP like *María* in (20) is in fact a topic, while an NS is in the matrix subject position. Nevertheless, since NSs were not indicated explicitly in the survey (see footnote 9), matrix topics were superficially “subjects.”

questionnaires collected for Italian by Frascarelli (2018).¹¹ The survey was anonymous but included a preliminary section asking for demographic and sociolinguistic information: age, sex, place of origin, education, and familiarity with linguistics. Table 1 gives a detailed summary. As we can see, informants were both male and female, most had high levels of education in humanities fields, and most declared a competence in linguistics (possibly meaning a competence in foreign languages). The average PS informant was 33 years old and the average AS informant 38; the youngest informant was 18 and the oldest 49.

Table 1. Background data on informants

	Total	Age (average)	Sex		Education		Field		Linguistic competence
			M	F	University	Other	Humanities	Sciences	Yes
PS	173	33	72%	28%	89%	13%	79%	13%	75%
AS	91	38	58%	42%	85%	15%	73%	15%	79%

For each of the results obtained from the survey, presented in the next section, we have checked whether it could be related to any of the demographic and sociolinguistic factors in table 1, and the conclusion is negative: the output collected is not dependent on any of them. Any variation in the acceptability and interpretation of NSs in PS and AS varieties must therefore have another explanation.

4. Data Analysis: Results and Discussion

As stated in section 3.2, the present experiment was intended to evaluate the interpretation of NSs in a number of Spanish varieties—and, consequently, to evaluate the *pro-drop* properties of these varieties—looking at different syntactic conditions and comparing the results systematically with the Italian output in Frascarelli 2018. It should be clear that Spanish varieties differ from each other in the relevant respects; the notion of Spanish as a macrovariety with a set of common properties is adopted here purely for methodological reasons. Our goal is to analyze the different Spanish varieties and compare the results with Italian, but at times we need to refer to Spanish as a whole. The relevant results are presented in detail in the following subsections.

4.1. NSs Embedded under Bridge Verbs

The first structural context for NSs that we consider is the complement clause of a so-called bridge verb (a verb of saying or opinion),¹² illustrated for Italian in (21a) and for Spanish in (21b).

¹¹ Hence, from a statistical viewpoint, the relevant data can be profitably and legitimately compared, since the number of Italian, PS, and AS informants is very close.

¹² In investigations dedicated to root phenomena, complements of bridge verbs play a major role because they have a “quasiroot” character, meaning that they allow for the realization of root operations (see, among others, Emonds 2004, Meinunger 2004, Heycock 2006) and can host topics (Bianchi & Frascarelli 2010, Jiménez-Fernández & Miyagawa 2014), things that are not possible, for instance, in the complements of factive and volitional verbs.

- (21) (Juan is telling María news about two friends they have in common, Leo and his brother, since he ran into Leo a few days ago. He says:)
- a. Leo ha detto che ha comprato una casa.
 Leo have.3SG said that have.3SG bought a house
 ‘Leo_k said that he_k/he_z/she_w bought a house.’
 - b. Leo dijo que compró una casa.
 Leo say.PST.3SG that buy.PST.3SG a house
 ‘Leo_k said that he_k/he_z/she_w bought a house.’

This sentence was accepted by all informants, as shown in the first row of table 2, the one labeled “OK/N” (in tables 2–11, the first row always provides the number of positive responses and the number of total responses; where only a single number is given, responses are 100% positive). It is thus clear that an NS embedded under a bridge verb is fully acceptable in all Spanish varieties. As for the interpretation of such NSs, recall from section 3.2 that informants were always offered three interpretations, the matrix “subject”/topic, a distinct A-Topic (in this case, ‘his brother’), and ‘both’. For NSs embedded under bridge verbs, as shown in table 2, the ‘both’ option is the most frequently selected across varieties, and ‘his brother’ often scores higher values than ‘Leo’, even though this is not significant according to Fisher’s exact test.¹³ This shows that an NS is not necessarily subject oriented (unlike what is claimed in Filiaci, Sorace & Carreiras 2013) and that the subject-oriented property of NSs suggested by Carminati (2002) and Alonso-Ovalle et al. (2002) is also not accurate, as already suggested by Chamorro (2018) for PS. Among AS varieties, notice that Centr scores strikingly lower than other varieties in preference for the matrix subject as the antecedent for the NS.

Table 2. NS embedded under a matrix bridge verb

		Italian	PS	Anda	Cast	Cat	Ext	AS	Carib	Centr	Mex	Riv	Per
	OK/N	128	173	111	23	35	4	91	29	14	15	18	15
Leo	N	31	30	19	5	6	0	18	6	1	3	3	5
	%	24	17	17	22	17	0	20	21	7	20	17	33
His brother	N	40	36	25	3	7	1	19	6	3	4	5	1
	%	31	21	23	13	20	25	21	21	22	27	28	7
Both	N	5	107	67	15	22	3	54	17	10	8	10	9
	%	45	62	60	65	63	75	59	58	71	53	55	60

These data are perfectly in line with the Italian results, and, in this respect, they seem to confirm that the interpretation of an NS does not depend on overt syntactic

¹³ In this article we will use Fisher’s exact test to check the statistical significance of the variations attested in the survey. Though we acknowledge that other instruments could be used (e.g., the chi-squared test or logistic regression), the Fisher test can better calculate deviance very precisely with small numbers (i.e., below 1,000).

control but on an information-structure strategy. Hence, when no discourse-prosodic cues are available for a clear indication of the A-Topic, ambiguity dominates (also in PS varieties, contrary to the contrast that Ticio 2018 claims between PS and Caribbean varieties; on the ambiguities deriving from “semantic predictability” in topic continuity, see also Givón 1983).

Let us now consider the case in which an overt pronoun is realized in the embedded clause, to see whether any difference emerges between Italian and Spanish:

(22) (Same context as (21))

- a. Leo ha detto che lui ha comprato una casa.
 Leo have.3SG said that he have.3SG bought a house
 ‘Leo_k said that he_k/he_z bought a house.’
- b. Leo dijo que él compró una casa.
 Leo say.PST.3SG that he buy.PST.3SG a house
 ‘Leo_k said that he_k/he_z bought a house.’

Table 3 shows that Spanish overt pronouns are not discourse-context oriented (either in PS or in AS) and that they prefer the matrix subject/topic as an antecedent over the embedded subject (both possible A-Topics), whereas no preference is attested in Italian data. Indeed, the values attested for ‘Leo’ in table 3 are higher than those reported in table 2, and the difference between these values is significant for both PS ($p = .0141$) and AS ($p = .0169$) varieties. Particularly high values are attested for ‘Leo’ in Mex and Carib, whose values with respect to table 2 are significantly different ($p = .0256$ and $p = .0441$, respectively). Since the preferred option is still ‘both’ for PS and AS (in general), we can plausibly conclude that, when an *exclusive* reading is required, in the absence of information-structure cues the matrix subject is interpreted as an A-Topic and the default discourse interpretation associated with an overt pronominal subject is that of a familiar entity that is part of a topic chain—that is to say, an *aboutness G-Topic*.

Table 3. Overt pronoun embedded under a matrix bridge verb

		Italian	PS	Anda	Cast	Cat	Ext	AS	Carib	Centr	Mex	Riv	Per
Leo	OK/N	128	173	111	23	35	4	91	29	14	15	18	15
	N	35	43	20	11	11	1	30	14	4	8	2	2
	%	27	25	18	48	31	25	33	48	29	53	11	13
His brother	N	36	21	16	1	4	0	9	2	1	0	5	1
	%	28	12	14	4	11	0	10	7	7	0	28	7
Both	N	57	109	75	11	20	3	52	13	9	7	11	12
	%	45	63	68	48	58	75	57	45	64	47	61	80

Despite this preference, *ambiguity* is still the dominant result. This supports the present information-structure approach, according to which the information-structure identification of the A-Topic is necessary for the interpretation of both NSs and overt pronouns (see the contrast between NSs and overt pronominal subjects in table 14 below).

Let us now consider what happens when an NS is double embedded under two bridge verbs (condition (v) in section 3.2), thus having two possible controlling antecedents, one of which is closer than the other:¹⁴

(23) (At the stadium)

A: Look! Juan and his brother are already on the track!

B: ¡Sí! Pedro dijo que Juan cree que va a ganar
 yes Pedro say.PST.3SG that Juan believe.3SG that go.3SG to win
 la carrera.
 the race

‘I see! Pedro_k said that Juan_z thinks that he_k/he_z is going to win the race.’

Comparing the results in table 4 with those for one level of embedding (table 2), where the second option was *not* proposed in the syntactic context, it is interesting to notice that values are almost identical for AS varieties (except Centr), for which the best option is again ‘both’. Ambiguity dominates in PS varieties as well. Nevertheless, PS differs from AS insofar as the embedded subject/topic (‘Juan’) is preferred to the matrix subject, and the difference between these values and those in table 2 is extremely significant ($p = .0008$). Hence PS varieties, especially Ext and Cat, seem to be more sensitive to syntactic requirements such as locality for the selection of the antecedent, (a point that will be taken up in section 5). Notice, however, that with the exception of Ext and Cat the best option is once more ambiguity, scoring around 60% in both Spanish macrovarieties.

Table 4. NS double embedded under two bridge verbs

		Italian	PS	Anda	Cast	Cat	Ext	AS	Carib	Centr	Mex	Riv	Per
	OK/N	128	173	111	23	35	4	91	29	14	15	18	15
Pedro	N	73	12	7	1	3	1	16	4	10	2	0	0
	%	57	7	6	4	9	25	18	14	74	9	0	0
Juan	N	20	55	29	5	18	3	20	4	1	4	5	6
	%	17	32	26	22	50	75	22	14	5	27	28	38
Both	N	30	106	75	17	14	0	55	21	3	9	13	9
	%	26	61	68	74	41	0	60	72	21	62	72	62

4.2. NSs Embedded under Factive Verbs

Let us now consider the second of the eight conditions listed in section 3.2. For the sake of space, we will not present the data involving one level of embedding under a factive verb, since the results are basically the same as with bridge verbs in section 4.1, and will instead pass immediately to NSs in complex sentences (whose matrix verb is factive) with two controlling antecedents. This condition is particularly

¹⁴ For the sake of space, we will not provide the Italian sentence in this and the remaining examples, except where it is important for comparative purposes.

interesting since the complement of a factive verb is presupposed information and as such does not have root-like properties. This means that an A-Topic is not allowed in its C domain (see Bianchi & Frascarelli 2010) and a preverbal DP like ‘Pedro’ in (24) can only be considered a G-Topic.

(24) A: Juan is going with Pedro to the race.

B: Ya sabes, Juan lamenta que Pedro crea que va
 already know.2SG Juan regret.3SG that Pedro think.3SG that go.3SG
 a perder la carrera.
 to lose.INF the race
 ‘You know, Juan_k is sorry that Pedro_z thinks that he_k/he_z will lose the race.’

As we can see in table 5, the embedded preverbal DP is selected with high frequency as a possible antecedent for the NS, as shown by the high combined scores of the ‘Pedro’ option and the ‘both’ option. Even though ‘Juan’ is the only possible overt A-Topic in (24), it is not preferred either in Italian or in Spanish varieties. This result supports, on the one hand, the hypothesis that the A-Topic heading the chain can be silent and, on the other, that locality plays a role in the selection of the antecedent. In this respect, it must be noted that in Ext the ‘Pedro’ option actually ties with the ‘both’ option (50% each), showing a degree of preference for the closest DP that is not attested in the remaining Spanish varieties—especially not in Centr, where, exceptionally, the ‘Pedro’ option is the least favored answer (7%). Both these points will be taken up in section 5.

Table 5. NS double embedded under a factive verb

		Italian	PS	Anda	Cast	Cat	Ext	AS	Carib	Centr	Mex	Riv	Per
	OK/N	128	173	111	23	35	4	91	29	14	15	18	15
Juan	N	20	16	9	3	4	0	10	2	5	1	1	1
	%	16	9	8	13	11	0	11	7	36	7	6	7
Pedro	N	45	50	36	3	9	2	21	6	1	6	6	2
	%	35	29	32	13	26	50	24	21	7	40	33	13
Both	N	63	107	66	17	22	2	60	21	8	8	11	12
	%	49	62	60	74	63	50	65	72	57	53	61	80

4.3. NSs in Adverbial Clauses

It is generally agreed in the literature that adverbial clauses are not endowed with illocutionary force. In this respect, however, Haegeman (2012) argues for an important distinction between *central* and *peripheral* adverbial clauses. According to Haegeman, while the left periphery of central adverbials totally lacks the functional projections encoding speaker-related functions (speech time, epistemic modality, illocutionary force) and are within the scope of operators, peripheral adverbial clauses seem to admit (some) root phenomena.

Since we were interested in examining the interpretation of NSs in nonroot adverbial clauses (i.e., in structural contexts that do not allow for an A-Topic in the

embedded C domain), we limited our survey to central adverbials, considering in particular temporal and conditional clauses. Since the results obtained for these two adverbial types are very consistent, for reasons of space we will only present data concerning conditional clauses.

Conditional clauses were tested in two structural conditions: with the ‘if’ clause realized after and before the matrix clause. This was to check the interpretive effect of an ostensible movement operation: the postmatrix position is usually taken to be “basic” and the prematrix position is usually defined as “fronted” (see Haegeman 2012). In (25) is a sample sentence for the postmatrix position.

(25) (Pedro’s friends meet for a beer. They know that Pedro is still at work with his boss. They hope he can join them later. One of them says:)

Pedro puede venir si termina el trabajo.
 Pedro can.3sg come if finish.3sg the work
 ‘Pedro_k can come if he_k/he_z finishes his work.’

The first interesting result obtained is that NSs in adverbial clauses are not always accepted by Spanish informants, unlike what we saw for NSs in the complements of bridge and factive verbs. For postmatrix conditional clauses, as seen in table 6, 14% of PS informants and 11% of AS informants gave a negative judgment. Furthermore, it should be noticed that nonacceptance is spread across all varieties. This result can be taken as a sign that Spanish varieties are not as “consistent” as Italian is (since the Italian informants provided a positive answer for *all* the conditions examined). An overt pronoun makes the sentence acceptable for all speakers in PS and AS; the pronoun is interpreted as referring to Pedro (Comínguez 2011).

Table 6. NS embedded in a postmatrix conditional clause

		Italian	PS	Anda	Cast	Cat	Ext	AS	Carib	Centr	Mex	Riv	Per
	OK/N	128/128	149/173	94/111	19/23	33/35	3/4	81/91	28/29	12/14	9/15	18/18	14/15
Pedro	N	84	87	58	9	18	2	38	12	7	4	11	4
	%	66	58	62	47	55	67	47	43	58	44	61	29
His boss	N	16	19	10	5	4	0	12	8	2	0	1	1
	%	12	13	11	26	12	0	15	28.5	17	0	6	7
Both	N	28	43	26	5	11	1	31	8	3	5	6	9
	%	22	29	27	27	33	33	38	28.5	25	56	33	64

Let us consider in detail the interpretations provided by informants who answered positively. As shown, for the first time ambiguity is not the best option, and the possibility of establishing a “silent head” for the topic chain (i.e., an A-Topic that is mentioned in the context but not overtly realized in the sentence) scores very low, except in Mex and Per, where again ambiguity wins (56% and 64%, respectively); in all the other AS and PS varieties, the matrix subject/topic ‘Pedro’ qualifies as the best antecedent for the NS. Hence, the scores for the matrix preverbal DP are rather high; comparing its scores with NSs in adverbial clauses to its scores with NSs embedded

under bridge and factive verbs, the difference is extremely significant both in Italian ($p < .0001$) and in both Spanish varieties (PS: $p < .0001$; AS: $p = .0150$).

Let us turn to the prematrix condition, in which the embedded NS is not controlled by the matrix subject in surface structure:

(26) (Same context as in (25))

Si termina el trabajo, Pedro puede venir.
 if finish.3SG the work Pedro can.3SG come.INF
 'If he_k/he_z finishes his work, Pedro_k can come.'

Once again, as seen in table 7, there is less than full acceptance in Spanish—less even than in the postmatrix context: 23% in PS and 18% in AS. Evidently fronting implies some additional interpretive complications. These results place the Spanish varieties under examination close to partial languages with respect to this condition (see Frascarelli 2018).

Table 7. NS embedded in a prematrix conditional clause

		Italian	PS	Anda	Cast	Cat	Ext	AS	Carib	Centr	Mex	Riv	Per
	OK/N	128/128	133/173	86/111	16/23	28/35	3/4	75/91	26/29	13/14	6/15	17/18	13/15
Pedro	N	59	34	23	3	6	2	17	10	2	0	3	2
	%	46	25	27	19	21	67	23	38	15	0	17	15
His boss	N	29	39	20	11	8	0	21	10	4	1	3	3
	%	23	29	23	69	29	0	28	38	31	17	17	20
Both	N	40	60	43	2	14	1	37	6	7	5	11	8
	%	31	46	50	12	50	33	49	24	54	83	66	65

As for interpretive results, the figures in table 7 clearly show that ambiguity comes back as the best choice for AS informants; they also select 'his boss' more frequently than the matrix subject/topic. PS varieties, on the other hand, offer a mixed picture, in which Cast seems to prefer an external antecedent while Anda and Cat show no specific preference between overt and covert antecedence.

Apart from the question at issue in the present article (i.e., the information-structure approach for an understanding of partial-*pro*-drop properties), these data are also important because they show that fronted adverbial clauses are not reconstructed in their basic position for interpretation: otherwise, the interpretive results should be the same for both. This is in line with Haegeman's (2007, 2012) analysis, showing that adverbial-clause fronting in clitic-left-dislocation languages produces no intervention effects since clitic-doubled left-dislocated topics "form a separate class from other A'-dependencies" (Rizzi 2004:245). That is why adverbial-clause fronting does not interfere with *wh* movement out of the matrix clause in languages like Italian and Spanish, as shown in (27a) and (27b) respectively.

- (27) a. Se finisce il lavoro, dove andrà Pedro *t*?
 b. Si termina el trabajo, ¿adónde irá Pedro *t*?
 if finish.3SG the work where go.FUT.3SG Pedro
 ‘Where will Pedro_k go if he_k/he_z finishes the work?’

This property shows that a fronted adverbial clause does not interfere with other types of movement and that reconstruction for the licensing and interpretation of an NS cannot be invoked.

4.4. The Interpretation of NSs with an Intervening Nonargument Pronoun

Let us now turn to sentences designed to check the interpretation of an NS when a nonargument intervenes in the superordinate clause that should, according to Holmberg, Nayudu & Sheehan (2009; see discussion of (13) in section 3.1), create interference in partial-NS languages despite being semantically incompatible. This was tested by means of sentences like (28), which obtained the results given in table 8.

Table 8. NS interpreted across a nonargument DP

		Italian	PS	Anda	Cast	Cat	Ext	AS	Carib	Centr	Mex	Riv	Per
	OK/N	128	173	111	23	35	4	91	29	14	15	18	15
Juan	N	15	20	14	2	3	1	16	5	3	3	4	2
	%	12	12	13	9	9	25	19	17	21	20	22	13
Someone	N	31	49	31	2	12	0	20	10	6	1	2	1
else	%	24	28	28	6	34	0	22	35	43	7	11	7
Both	N	82	104	66	15	20	3	54	14	5	11	12	12
	%	64	60	59	65	57	75	59	48	36	73	67	80

- (28) Juan dijo que fue una suerte que hubiera
 Juan say.PST.3SG that be.PST.3SG a luck that have.PST.3SG
 ganado el segundo premio en la lotería.
 won the second prize in the lottery
 ‘Juan_k said that it was lucky that he_k/he_z won at the lottery.’

This type of sentence was always accepted. Ambiguity is once more the favored option, in all varieties except Centr and, to a less extent, Carib. Locality thus seems to be a relevant requirement in these two AS varieties. We will see in the remainder of this investigation whether this sensitivity to locality in Centr and Carib is confirmed. For all other varieties, we can simply conclude that an NS can be licensed and interpreted across a nonargument DP, either through a chain with an overt nonlocal preverbal subject/topic (‘Juan’) or through a covert (silent) A-Topic. This provides additional support to the validity of the present information-structure approach.

4.5. The Licensing and Interpretation of NSs in Matrix Clauses

The data examined in the previous sections supports the existence of silent A-Topics, in line with the Topic Criterion (1), according to which every predicational sentence contains a position in the C domain endowed with the [+aboutness] feature. As a consequence, when an NS is realized in a matrix clause, a silent A-Topic must be assumed in the relevant C domain (as argued in Frascarelli 2018 and Jiménez-Fernández 2016). This is illustrated in (29) for Spanish; (30) is a representation.

- (29) Quería presentarte a Julio. Es mi mejor amigo.
 want.PST.1SG introduce.INF.you.CL to Julio be.3SG my best friend
 ‘I’d like to introduce Julio_k to you. He_k is my best friend.’
- (30) Quería presentarte a Julio. [_{ShifP} ⟨Julio_k⟩ [_{FamP} *pro*_k [_{TP} *t*_k es mi mejor amigo]]].

Considering the preference for an overt local antecedent and the partial-*pro*-drop properties attested in many Spanish varieties, the question arises whether (and to what extent) silent A-Topics are accepted in the matrix C domains of simple clauses in these languages.

For this purpose, the survey contained a number of stimuli in which a sentence containing an NS was preceded by a sentence containing two possible overt antecedents, with different syntactic functions. Let us start with the case in which the choice was between two argument DPs as antecedent for a matrix NS:

- (31) Juan habló con Pedro ayer. Ahora comprende lo que
 Juan talk.PST.3SG with Pedro yesterday now understand.3SG the what
 pasó.
 happen.PST.3SG
 ‘Juan_k talked to Pedro_z yesterday. Now he_k/he_z understands what happened.’

As we can see in table 9, silent A-Topics are not fully accepted, especially in PS varieties (22% nonacceptance compared to only 5% in AS).

Table 9. Matrix NS

		Italian	PS	Anda	Cast	Cat	Ext	AS	Carib	Centr	Mex	Riv	Per
	OK/N	128/128	134/173	81/111	18/23	33/35	2/4	86/91	26/29	12/14	8/15	17/18	13/15
Juan	N	68	40	23	6	11	0	31	12	3	2	8	6
	%	53	30	28	33	33	0	36	46	25	25	47	46
Pedro	N	20	7	4	1	2	0	11	7	2	2	0	0
	%	16	5	5	6	6	0	13	27	17	25	0	0
Both	N	40	87	54	11	20	2	34	7	7	4	9	7
	%	31	65	67	61	61	100	51	27	58	50	53	54

When it comes to interpretation, informants of most Spanish varieties mostly select the ‘both’ option; this ambiguity is particularly strong for PS speakers, much less so in AS. In Carib the antecedent is less ambiguous than in the

remaining AS varieties. This might be interpreted as evidence against the relevance of a hierarchy of syntactic functions for the interpretation of an NS. Yet in Riv, Per, and most importantly in Carib, the subject of the previous sentence is quite prevalently selected.

Let us turn now to a case in which the first sentence includes a preverbal subject DP and a nonargument DP and the second sentence contains an *embedded* NS and no possible antecedent for that NS:

- (32) Juan se fue ayer al cine con Pedro.
 Juan REFL GO.PST.3SG yesterday to.the cinema with Pedro
 Sé que estaba muy contento.
 know.1SG that be.PST.3SG very happy
 ‘Juan_k went to the cinema with Pedro_z yesterday. I know that he_k/he_z was very happy.’

Comparing table 10 with table 9, we can see that acceptability decreases in both PS (from 22% nonacceptance to 35%) and AS (from 5% nonacceptance to 20%). This decrease can be attributed to the fact that the NS is embedded, with no explicit DP in the matrix clause that is a possible antecedent; hence, the closest possible link is a *nonlocal silent A-Topic*. This clearly represents a “double” interpretive difficulty for a partial-*pro*-drop speaker. The fact that the acceptability decrease is relatively dramatic for PS, while AS varieties are less affected (with Mex showing no decrease at all and Per showing a small increase), can be taken as evidence that PS varieties are “more partial-*pro*-drop-like” than AS varieties under this particular condition. This accords with what emerged from the analysis of adverbial clauses (section 4.3) and contrasts with general claims in the literature. These points are taken up in section 5.

Table 10. Embedded NS with no compatible overt antecedent in the same sentence

		Italian	PS	Anda	Cast	Cat	Ext	AS	Carib	Centr	Mex	Riv	Per
	OK/N	128/128	115/173	69/111	15/23	27/35	4/4	73/91	25/29	11/14	8/15	15/18	14/15
Juan	N	62	42	26	4	10	2	30	15	6	1	6	2
	%	48	37	38	27	37	50	41	60	55	12.5	40	14
Pedro	N	7	6	4	2	0	0	6	4	1	1	0	0
	%	6	5	6	13	0	0	8	16	9	12.5	0	0
Both	N	59	67	39	9	17	2	37	6	4	6	9	12
	%	46	58	56	60	63	50	51	24	36	75	60	86

As for the interpretive data, ambiguity is as usual the most frequent answer, even though the preverbal subject DP is definitely preferred over the nonargument DP, especially in Ext, Carib, and Centr.

The final context where we tested the interpretation of NSs is one in which the overt antecedent is a ‘by’ phrase, It has been argued in recent works that such an antecedent is totally excluded (see, for example, Samek-Lodovici 1996). A sample sentence is in (33), and the results for this sentence type are given in table 11 (the ‘both’ option is omitted because it was never selected by informants).

Table 11. 'By' phrase as antecedent

		Italian	PS	Anda	Cast	Cat	Ext	AS	Carib	Centr	Mex	Riv	Per
	OK/N	128/128	119/173	81/111	15/23	19/35	4/4	59/91	19/29	10/14	9/15	8/18	13/15
'By'	N	128	108	76	13	15	4	54	15	10	9	7	13
phrase	%	100	91	94	87	79	100	92	79	100	100	88	100
Someone else	N	0	11	5	2	4	0	5	4	0	0	1	0
	%	0	9	6	13	21	0	8	21	0	0	12	0

- (33) El congreso fue inaugurado por el Decano.
 the conference be.PST.3SG inaugurated by the dean
 Después se fue a dar sus clases.
 then REFL go.PST.3SG to give.INF his classes
 'The conference was presented by the dean_k. Then he_k/he_z/she_w went to teach his/her class.'

Acceptability judgments exhibit a further worsening compared to those in tables 9 and 10. This shows that having a 'by' phrase as a silent A-Topic represents an additional complication, and, as a consequence, it shows that a hierarchy exists between syntactic functions in terms of eligibility as a silent A-Topic. However, a syntactic block cannot be assumed (*pace* Samek-Lodovici 1996) but rather an interpretive restriction that is operative at the interface between discourse and syntax.

4.6. The Licensing and Interpretation of NSs across Varieties

In light of the different variables tested, the data illustrated, and the results discussed in sections 4.1–4.5, let us now try and consider the different varieties as variables and see if the values obtained provide any statistical association with the dependent variable (i.e., NS acceptability and antecedent selection).

Varieties have shown different *degrees of partiality* depending on different syntactic variables. It is important to consider this aspect in more detail, taking into account NS acceptability first of all.

As shown in tables 2, 4, 5, and 8, there are some syntactic contexts in which no partial-NS properties emerge, that is, where NS acceptance is always 100%: (i) embedding under a bridge verb (including double embedding); (ii) embedding under a factive verb (including double embedding), and (iii) intervention of a third-person (non)argument subject. Hence, the creation of a topic chain with a *nonlocal* matrix preverbal DP is not a disturbing factor for Spanish varieties; in this respect they pattern with consistent-*pro*-drop languages.

However, other variables have shown that Spanish varieties cannot be considered *entirely* consistent-NS languages. These variables and their (normalized) acceptance rates in each variety are given in table 12. The statistical significance of the deviations attested is indicated graphically: light grey for significant deviations, dark grey background for very significant deviations, and black background for extremely significant deviations. Thus, on the one hand, Centr's and Per's deviations with

respect to the variables considered are not significant, and thus no partiality is attested in these varieties. On the other hand, Mex seems to go in the direction of qualifying as a partial-NS language, since its values are very close to those attested for Finnish in Frascarelli's (2018) study;¹⁵ and some degree of partiality can also be found in the other varieties.

Table 12. Relevant variables and significant deviations for each variety

%	Postmatrix conditional adverbial	Prematrix conditional adverbial	Matrix clause	Embedded + no overt antecedent	'By'-phrase antecedent
Anda	84.5	77.5	75	62	73
Cast	82.5	69.5	82.5	65	65
Cat	94	80	97	77	54
Ext	75	75	50	100	100
Carib	96.5	89.5	93	86	65.5
Centr	85.5	93	85.5	78.5	71.5
Mex	94.5	60	53	53	60
Riv	100	94.5	94.5	83	44.5
Per	93	86.5	86.5	93	86.5

The deviation attested with adverbial clauses is generally not significant, independently of their position. In terms of the working hypothesis assumed, this result supports the conclusion that no interpretive problem is created as long as an overt antecedent is present in the matrix clause, heading the topic chain.

On the other hand, partiality emerges when a *silent A-Topic* must be established to head the chain and serve as an antecedent. Hence, NSs in topic-less matrix clauses determine a very significant deviation in Ext and Mex, while NSs in embedded clauses with no overt preverbal DP in the matrix clause determine a significant deviation in Anda and Cast and, once more, a very significant deviation in Mex. Interestingly, the strongest deviation emerges when the silent A-Topic to be established is coreferential with a 'by' phrase, possibly due to a discourse-semantic inconsistency (since it involves treating as an A-Topic an element that is generally considered to be focused, when overtly realized).

Let us now consider how these variables determine and/or affect antecedent selection. In particular, since partial-NS languages have been argued to prefer subject antecedence (Holmberg, Nayudu & Sheehan 2009), we will only compare subject and nonsubject values for each variable, setting aside the 'both' option. As shown by table 13, a significant preference for subject antecedence is only attested when the NS is located in a postmatrix adverbial clause. In all the other cases, a topic chain with a nonsubject element that instantiates a silent A-Topic is always possible (if not preferred, as for instance with prematrix adverbials in Cast, Cat, Centr, and Per), which is consistent with our hypothesis. We will return to these results for final analysis in section 5.

¹⁵ Specifically, 100% of Finnish informants accept NSs in postmatrix conditional clauses %, 48% in prematrix conditional clauses, 73% in matrix clauses, and 27% in embedded clauses with no overt antecedent. 'By' phrases could not be tested since Finnish has no passives.

Table 13. Antecedent selection for NS in different clause types

%	Bridge		Factive		Postmatrix conditional adverbial		Prematrix conditional adverbial		Mean value	
	Subject	Nonsubj	Subject	Nonsubj	Subject	Nonsubj	Subject	Nonsubj	Subject	Nonsubj
Anda	17	23	16	22	62	11	27	23	30.5	19.75
Cast	22	13	20	15	48	26	19	69	27.25	30.75
Cat	17	20	18	21	55	12	21	29	27.75	20.5
Ext	0	25	25	25	67	0	67	0	39.75	12.5
Carib	21	21	19	22	43	28.5	38	38	30.25	27.37
Centr	7	23	6	20	58	17	15	31	21.5	22.75
Mex	20	27	21	26	44	0	0	17	21.25	17.5
Riv	17	28	15	25	61	6	17	17	27.5	19
Per	3	7	2	9	29	7	15	20	12.25	10.75
Mean value	12.4	18.7	14.2	18.5	46.7	10.75	21.9	24.4		

Before concluding this section, however, a final comment is in order concerning the antecedent selected by overt pronouns. Overt pronouns are generally said to be discourse oriented, while according to the present proposal, they can be part of a topic chain if interpreted as a G-Topic. For reasons of space the overt-pronoun data were not given in the previous sections (except table 3), but the relevant details can be found summarized in table 14. As we can see, the present experiment shows that overt pronouns are not (necessarily) discourse oriented. In fact, contrary to the traditional view, in the absence of relevant cues they tend to be related to the matrix preverbal DP, which is generally considered the most accessible overt A-Topic.

Table 14. Antecedent selection for overt pronouns in different clause types

%	Bridge		Factive		Postmatrix conditional adverbial		Prematrix conditional adverbial		Mean value	
	Subject	Nonsubj	Subject	Nonsubj	Subject	Nonsubj	Subject	Nonsubj	Subject	Nonsubj
Anda	18	14	18	13	55	15	24	25	28.75	16.75
Cast	48	4	43	22	45	9	22	61	39.5	24
Cat	31	11	41	19	68	11	20	28	40	17.25
Ext	25	0	0	25	50	0	25	25	25	12.5
Carib	48	7	35	11	29	31	31	44	35.75	23.25
Centr	29	7	23	0	46	15	15	23	28.25	11.25
Mex	53	0	25	25	25	0	0	6	25.75	7.75
Riv	11	28	29	6	59	6	17	17	29	14.25
Per	13	7	43	14	14	0	14	29	21	12.5
Mean value	31	7	29	15	43	10	19	29		

5. The Interpretation of an Embedded NS: The Analysis

In section 1 we assumed, following Frascarelli (2007, 2018), that the interpretation of NSs (and weak pronouns) crucially depends on the Topic Criterion (1) and the Topic-Chain

Condition (2), according to which the uninterpretable [aboutness] and [ref] features of a G-Topic are valued against the same features in Shift⁰ (see section 2). We have examined different structural conditions to find out whether NSs are accepted in these conditions in PS and AS varieties, as they are in a consistent-NS language like Italian, and if so, what interpretation they are given by informants in the absence of prosodic cues.

The data have shown that NSs are fully accepted in the complement clauses of both bridge verbs and factive verbs, irrespective of the complexity of embedding. In the formal analysis we provide below we assume the Minimalist maxim that syntax feeds interpretation (Chomsky 1995). Let us start with the analysis we propose for bridge contexts. We will illustrate with the target sentence from (23), repeated here as (34).

- (34) Pedro dijo que Juan cree que va a ganar la carrera.
 Pedro say.PST.3SG that Juan believe.3SG that go.3SG to win the race
 ‘Pedro_k said that Juan_z thinks that he_k/he_z is going to win the race.’

The two interpretations available for the NS are derived as follows. First, we focus on the interpretation where the antecedent is the matrix subject *Pedro*:

- (35) [_{ShiftP} **Pedro**_z [_{Shift'} Shift⁰_[shift; aboutness; ref] [_{FamP} *pro*_{z1}[_{aboutness; ref]} [_{TP} *t*_{z1} dijo
 [_{ForceP} que [_{ShiftP} ⟨Pedro_z⟩] [_{TP} Juan_k cree [_{ForceP} que [_{ShiftP} ⟨Pedro_z⟩] [_{Shift'}
 Shift⁰_[shift; aboutness; ref] [_{FamP} *pro*_{z2}[_{aboutness; ref]} [_t_{z2} va a ganar la
 carrera]]]]]]]]]]].

In this particular reading *Pedro* is an A-Topic merged in the matrix Spec,ShiftP, whereas the two NSs are aboutness G-Topics, moving to Spec,FamP and entering an Agree relation with the local Shift⁰. Notice that, since the G-Topic is endowed with the [aboutness; ref] features and the A-Topic ⟨*Pedro*⟩ in the most deeply embedded clause is silent, the [shift] feature in Shift⁰ is deactivated (playing no role in the derivation). In this context, the [aboutness; ref] features are valued locally (thus meeting Agree requirements and the extended EPP requirement that is part of the Topic Criterion) in the embedded clauses. On the other hand, *Juan* is a background G-Topic that moves from Spec,vP to Spec,TP (Jiménez-Fernández & Miyagawa 2014, Ojea 2017). Note that this embedded subject does not intervene in the topic chain, since only links in A-Topic or aboutness-G-Topic positions count for the validation of the aboutness feature and can be part of a topic chain.

The second interpretation is the one in which the antecedent of the NS is the closest DP *Juan*. In that case the NS enters an Agree relation with Shift⁰ in the embedded clause, whose specifier is occupied by the A-Topic position (since the complement CPs of bridge verbs are quasiroot contexts):

- (36) [_{TP} Pedro_z dijo [_{CP} que [_{ShiftP} **Juan**_k [_{Shift'} Shift⁰_[shift; aboutness; ref] [_{FamP} *pro*_{k1}
 [_{aboutness; ref]} [_{TP} *t*_{k1} cree [_{ForceP} que [_{ShiftP} ⟨Juan_k⟩] [_{Shift'} Shift⁰_[shift; aboutness; ref]
 [_{FamP} *pro*_{k2}[_{aboutness; ref]} [_t_{k2} va a perder la carrera]]]]]]]]]]].

In this case the DP *Pedro* is simply the subject of the matrix clause, and, as such, it sits in Spec,TP as a background G-Topic. The topic chain starts with the embedded A-Topic *Juan*, and the features of the NSs are valued against those in Shift⁰ and Fam⁰.

In both interpretations, there is no blocking whatsoever of the connection between *pro* and either of the possible antecedents (*Pedro* or *Juan*), accounting for the fact that ambiguity in interpretation is dominant in most varieties of Spanish. However, despite the general preference for the ‘both’ option, in varieties like Centr and (to a lesser extent) Carib the matrix subject/topic is favored (35) over the embedded subject/topic (36), as we saw in table 4. This seems to be connected with a preference for overt matrix A-Topics in these varieties, which can be interpreted in terms of an interface advantage for *root* contexts over *root-like* contexts for the activation of topic chains in languages showing partial-NS properties. We come back to this issue with a plausible explanation below.

Regarding factive verbs like *lamentar* ‘regret’ in the target sentence in (24), repeated here as (37), since their complement cannot host an A-Topic (given the Interface Root Restriction (10)), the results illustrated in table 6 support the existence of an Agree relation between the NS and the Shift⁰ head whose specifier may be a covert or overt A-Topic in the matrix clause (see section 2.2).

- (37) Juan lamenta que Pedro crea que va a perder la carrera.
 Juan regret.3SG that Pedro think.3SG that go.3SG to lose.INF the race
 ‘You know, Juan_k is sorry that Pedro_z thinks that he_k/he_z will lose the race.’

As shown in (38), when coreference is intended with *Juan*, a topic chain is formed in which the matrix *pro* in Spec,FamP enters an Agree relation with the Shift⁰ head in the matrix clause, whose specifier is occupied by the overt A-Topic *Juan*. Hence, *pro* is an aboutness G-Topic. On the other hand, the embedded *pro* is moved to the embedded Spec,FamP to continue the chain and have its [aboutness] and [ref] features valued locally with Shift⁰.

- (38) [ShiftP Juan_z [Shift' Shift⁰_[shift; aboutness; ref] [FamP pro_{z1}[aboutness; ref] [TP t_{z1} lamenta [ForceP que [TP Pedro_k crea [ForceP que [ShiftP ⟨Pedro_z⟩ [Shift' Shift⁰_[shift; aboutness; ref] [FamP pro_{z2}[aboutness; ref] [t_{z2} va a perder la carrera]]]]]]]]]]].

Notice that in this case the embedded subject *Pedro* is a background G-Topic, which is placed in the regular subject position, Spec,TP (as in (35) above).

Conversely, when the topic chain is headed by *Pedro*, a silent A-Topic is required in the matrix left periphery:

- (39) [ShiftP ⟨Pedro_k⟩ [Shift' Shift⁰_[shift; aboutness; ref] [TP Juan_z lamenta [ForceP que [FamP Pedro_k [aboutness; ref] [TP t_k crea [ForceP que [ShiftP ⟨Pedro_k⟩ [Shift' Shift⁰_[shift; aboutness; ref] [FamP pro_k[aboutness; ref] [t_k va a perder la carrera]]]]]]]]]]].

In this reading, the background G-Topic is *Juan* (sitting in the matrix Spec,TP), and the explicit occurrence of *Pedro* is an instance of an aboutness G-Topic moving to FamP. In other words, the embedded DP *Pedro* is part of the topic chain headed by the silent A-Topic $\langle Pedro \rangle$ in the root C domain.

Concerning interpretation, the data in table 5 show that informants prefer (39) to (38). This result supports the assumption that the C domain of a factive clause cannot host an A-Topic. Consequently, the chain created by the matrix A-Topic *Juan* in (38) is not local, clearly creating problems in languages showing some partial-NS properties. Furthermore, it also supports the necessity of assuming silent A-Topics; otherwise, the chain in which the NS refers to *Pedro* in the embedded Spec,FamP would have no head in its local domain (for additional empirical evidence for silent A-Topics, see Frascarelli 2007, 2018, Jiménez-Fernández 2016). Finally, the fact that (38) is dispreferred *but not excluded* shows that the relevant locality requirement should not be understood in purely syntactic terms but rather as an “interface-related” version of the Minimal-Link Condition (see Rizzi 1990, Manzini 1992, and subsequent works), according to which *closer overt* links are preferred in NS languages showing some degree of partiality.

We assume the latter and define it as the Minimal-Overt-Link Condition in (40), a constraint that combines the information-structure properties of A-Topics as chain heads and the interface (PF) relevance of spelled-out (overt) copies for antecedent selection in NS languages showing (degrees of) partial properties.

(40) Minimal-Overt-Link Condition

When the A-Topic heading the chain is not spelled out (i.e., is silent), in varieties with partial-NS properties, antecedent preference is given to the closest overt link in order to value [aboutness] and [ref].

This condition creates a hierarchy with respect to the interpretation of NSs:

- i. Chains are started by A-Topics (preferring root to quasiroot C domains).
- ii. A-Topics heading the chain are preferably overt.
- iii. When the A-Topic is silent, overt links are preferably selected as (low) local copies (aboutness G-Topics).

With the Minimal-Overt-Link Condition in mind, we can explain why some varieties show the consistent-NS-language property of interpreting *pro* as referring to a silent A-Topic in the matrix clause, whereas varieties with partial-NS properties do not exhibit this preference so clearly. This is due to an interface-related requirement according to which partial-NS speakers prefer PF merger of overt matrix A-Topics. When this condition is not met, they tend to interpret an embedded topic as an *aboutness* G-Topic, so as to provide the closest link for the *pro* in the topic chain and have its [aboutness] and [ref] features valued. On the other hand, silent elements do not trigger this necessity in consistent-NS speakers.

From the present discussion the conclusion is drawn that in NS languages with a degree of partiality, overt A-Topics are preferred as chain heads; otherwise,

“intermediate” overt links are selected, which can be either pronominal or full lexical aboutness G-Topics.

Moving now to adverbial clauses, the survey has shown that NSs in them are not fully accepted, either in postmatrix position or especially in prematrix position. A plausible explanation may lie in a combination of the Minimal-Overt-Link Condition and the island status of this type of clause. In this regard, we rehabilitate Cinque’s (1990) *barrier for binding* proposal, according to which syntactic islands can create opacity effects in binding relations. This is illustrated in the following sentence, adapted from Cinque 1990:42.

- (41) *A Luigi_i [_{CP} andrò via [_{CP} senza [parlargli_i]]].
 to Luigi go.FUT.1SG away without talking.CL.DAT
 Intended: ‘I will go away without talking with Luigi.’

Since an A-Topic cannot be realized in the left periphery of an adverbial clause, in this context the element heading a topic chain is necessarily nonlocal. Hence, we can assume that the reason the Agree relation established by the topic chain in a sentence like the one in (25), repeated here as (42), is not accepted by some informants is that the topic chain crosses an adverbial clause.

- (42) Pedro puede venir si termina el trabajo.
 Pedro can.3SG come if finish.3SG the work
 ‘Pedro_k can come if he_k/he_z finishes his work.’

The results indicate that Spanish varieties are more sensitive to islandhood than Italian. Since the crossing in question does not disturb Italian informants, we can consider this opacity effect to be another diagnostic for distinguishing fully consistent-NS languages from NS languages with some degree of partiality.

Consistent with the Minimal-Overt-Link Condition (40), in the case of a postmatrix conditional clause like in (42), the preferred antecedent is the overt A-Topic in most varieties (only in Mex and Per does ambiguity dominate; see table 6). On the other hand, when the conditional clause is in prematrix position, unacceptability increases and ambiguity dominates, as we saw in table 7. This result can be attributed to the fact that the conditional clause moves to the C domain (possibly acting as a “frame setter”; see Krifka 2007) and the A-Topic heading the chain is necessarily silent in both interpretations:

- (43) a. [_{ShiftP} **(Pedro_k)** [_{Shift'} Shift⁰_[shift; aboutness; ref] [_{CP} [_{C'} si [_{FamP} pro_{k1} [_{TP} t_{k1} termina el trabajo]]]] [_{FamP} Pedro_{k2} [_{aboutness; ref]} [_{TP} t_{k2} puede venir]]]].
 b. [_{ShiftP} **(his boss_z)** [_{Shift'} Shift⁰_[shift; aboutness; ref] [_{CP} [_{C'} si [_{FamP} pro_{z1} [_{TP} t_{z1} termina el trabajo]]]] [_{TP} Pedro_k puede venir]]]].

1 The ability of a silent A-Topic to start a chain can be considered a primary diagnostic
 2 for consistency versus partiality in NS languages in the present information-structure
 3 approach.¹⁶

4 As observed in table 7, Spanish varieties in general differ from Italian in that the
 5 selection of the matrix subject as the preferred antecedent (25% in PS and 23% in AS)
 6 scores lower (even if not significantly) than the selection of an alternative antecedent
 7 (29% in PS and 28% in AS) and antecedent ambiguity arises. This can also be
 8 connected with island sensitivity, since speakers try to avoid any connection across
 9 the adverbial-clause boundary. Note that in both interpretations in (43) the NS is an
 10 aboutness G-Topic serving as one of the links in the topic chain, an option that is not
 11 favored in languages with partial-NS properties, since according to the Minimal-
 12 Overt-Link Condition, the subject in the adverbial clause should be an overt pronoun.
 13 Further research is needed to see whether these partial-NS varieties do prefer to have
 14 an overt link in these cases.

15 Having identified two diagnostics of partial-NS properties, namely the Minimal-
 16 Overt-Link Condition (40) and island sensitivity, we can provide an explanation for
 17 the partial acceptability of an NSs with no possible overt antecedent in the same
 18 sentence, including matrix NSs in sentences like (31) and embedded NSs in sentences
 19 like (32). Degradation increases in the latter case because the relevant topic chain does
 20 not satisfy the Minimal-Overt-Link Condition (given that an overt link is missing).
 21 Besides the silent A-Topic, an aboutness G-Topic *pro* must also be assumed:

22
 23 (44) Juan se fue ayer al cine con Pedro. [_{ShiftP} ⟨Juan⟩_z [_{Shift'} Shift⁰_[shift; aboutness; ref]
 24 [_{TP} *pro*_j sé [_{ForceP} [_{Force'} que [_{FamP} ⟨*pro*_z⟩_[aboutness; ref]]]]]]]].
 25 [_{t_z} estaba muy contento]]]]]]].
 26
 27

28 6. The NS Parameter Revisited: Conclusions and Paths for Future Research

29 In light of these findings, we can draw relevant conclusions concerning the validity of
 30 the present proposal and the advantages of an information-structure- and interface-
 31 based approach to the acceptability and interpretation of NSs.

32 With respect to the working hypothesis (see section 3.2), the analysis of data has
 33 provided evidence that the acceptability of an NS is variably dependent on the
 34 syntactic conditions assumed as variables. Specifically, the experiment has provided
 35 evidence that degrees of partiality arise depending on some specific variables: (i)
 36 overt versus silent A-Topics and (ii) local versus nonlocal links (and islands,
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38
 39 ¹⁶ We conducted a new survey to validate the stronger sensitivity to islands in Spanish and its connection
 40 with the interpretation of NSs in post- and prematrix adverbial clauses. We gave 35 native speakers of
 41 Spanish 10 sentences containing postmatrix adverbial clauses similar to the Italian sentence in (41) and the
 42 Spanish sentence in (42) as well as the corresponding fronted adverbial clauses. Crossing an adverbial
 43 clause for binding reasons is fully ruled out in our results (98%); interpretation of *pro* as referring to the
 44 matrix topic is acceptable if the adverbial clause is postmatrix (although marginally, 80%); and finally
 45 acceptability greatly decreases to 10% for the cases where the adverbial clause was fronted containing an
 NS. This is just an informal experiment, which needs refinements in the future, but it provides an indication
 that Spanish is more sensitive to islands than Italian, which in turn indicates that Spanish may have some
 partial-NS properties such as crossing a barrier for binding.

connected with (ii)). This is expressed in the Minimal-Overt-Link Condition (40), which represents a proposal to be used in future research. In other words, these conditions can be taken as valid diagnostics of (degrees of) partiality in NS languages, supporting Chomsky's (1995) idea that syntax feeds interpretation. Furthermore, since these conditions were designed to check the relevance of having an A-Topic available to serve as an antecedent, we can conclude that the Topic Criterion (1) and the creation of topic chains are requirements for the interpretation of *pro* in NS languages in general; this supporting the theory that the acceptability and interpretation of NSs crucially depends on an information-structure strategy.

Acceptability judgments have also strongly supported the root quality of A-Topics, showing that in many Spanish varieties the association with a subject/topic in the matrix clause is particularly important (even though A-Topics can also be merged in the complements of bridge verbs). This requirement can also be easily derived from the Interface Root Restriction (10), which is part of the present approach and taken as an additional variable to check for partiality across NS languages.

Finally, judgments have shown that acceptance decreases in the case of silent A-Topics, especially when no overt low copy is available in the chain, in the form of a local aboutness G-Topic. The preference for overt copies (for which the Minimal-Overt-Link Condition (40) has been elaborated) can also be taken as a criterion in evaluating partiality.

To summarize, the relevance of topic chains, the antecedent role of matrix A-Topics, and the importance of overt links are consistent ingredients with the framework assumed. Consequently, a comprehensive account of the NS parameter can be based on the following revision of the Topic Criterion:

(45) Topic Criterion (revised)

- a. A third-person argument *pro* matches the [aboutness] [ref] features that are encoded in the A-Topic projection (ShiftP) in the C domain.
- b. A-Topic chains can only be started in root domains (the Interface Root Restriction).
- c. A-Topic chains across sentences require local links, which can be overt or silent.
- d. A-Topics can be silent.

The first two parts, (45a) and (45b), apply to all NS languages, whereas (45c) and (45d) are subject to parametrization: languages showing partial-NS properties require *overt* links (according to the Minimal-Overt-Link Condition) and/or an *overt* A-Topic heading the topic chain.

The Topic Criterion, as revised, has advantages over a pragmatic approach, since it provides a formal framework and information-structure-related diagnostics for future comparative investigations across languages. It is also superior to a narrow syntactic approach, since syntactic requirements (or conditions) define *grammaticality* in clear-cut terms and can hardly cope with ambiguity and gradient acceptance of “fuzzy” phenomena (which may be due to ongoing change in parameter settings).

1 It should be noticed that the conditions proposed to define (degrees of) partiality are
 2 independently motivated. As a matter of fact, the relevance of close, intermediate
 3 links in long-distance relations is the basis for the Minimal-Link Condition, and island
 4 sensitivity is part of the core grammar of languages. As for the importance of spelled-
 5 out copies in topic chains, conditions on PF merger have been proposed in the
 6 literature to explain a number of phenomena and parameters; see, for example,
 7 Bobaljik's (2002) treatment of the VO–OV distinction.¹⁷

8 As for overt pronouns, the present experiment shows that overt pronouns are not
 9 (necessarily) discourse oriented. On the contrary, they tend to be information-
 10 structurally related to the matrix preverbal DP (like NSs), which is taken as the most
 11 accessible overt A-Topic. More specifically, the data show that when an *exclusive*
 12 reading is required, in the absence of information-structure cues, the matrix subject is
 13 interpreted as an A-Topic and the default discourse interpretation associated with an
 14 overt pronominal subject is that of a familiar entity that is part of a topic chain: an
 15 aboutness G-Topic.

16 It emerged from the analysis that different varieties can show different sensitivity to
 17 one or the other of the two partial-NS conditions. When one or more of these
 18 requirements is not met, degradation increases, in line with recent approaches (see
 19 Haegeman, Jiménez-Fernández & Radford 2014, Jiménez-Fernández 2017, Villata,
 20 Rizzi & Franck 2016). In this connection it remains for us to carry out a more detailed
 21 study of partial-NS properties in other languages, in contrast with non-NS languages,
 22 in order to reach a full understanding of the impact of partial-NS properties across
 23 languages and on acquisition processes.

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 17 Specifically, Bobaljik argues that Holmberg's Generalization is the result of a morphophonological
 constraint on verb inflection, requiring merger under PF adjacency (supported by VO–OV data). In short,
 PF can decide which copy to spell out and derive the effects.

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