

Controlled overt pronouns as specificational predicates

Pilar P. Barbosa¹

(Universidade do Minho/CEHUM)

Abstract

Szabolcsi (2009), shows that there are languages where control and raising infinitives have overt subjects, in compliance with (1):

- (1) a. The overt subjects of control complements can only be pronouns.
- b. The overt subjects of raising complements can be pronouns or lexical DPs.

Drawing on data from European Portuguese (as well as Spanish and Italian) we show that the evidence underlying (1) constitutes a strong case in favor of a non-raising approach to obligatory control. Relying on the observation that many consistent Null Subject Languages (NSL) allow for explicit subjects in raising and control complements, we develop an account that aims to capture the association between this phenomenon and the null subject property.

¹ I would like to thank Orin Percus and Uli Sauerland for helpful discussion.

Keywords

Infinitival complements; control; raising; null subject language; exhaustive focus

1. Introduction

Szabolcsi (2009) discusses evidence that there are languages where control and raising infinitives have overt subjects. Her descriptive generalization regarding this set of languages is the following:

- (1) The overt subjects of control complements can only be pronouns. The overt subjects of raising complements can be pronouns or lexical DPs.

Even though similar observations have been made before for Italian and Spanish (cf. Burzio, 1986; Torrego, 1996; Belletti, 2005), Szabolcsi's paper is particularly interesting given that it covers a considerable number of languages and reveals the existence of at least three different typological patterns:

- a. Languages that do not admit expressed subjects either in control or in raising complements; this is the case in English, German and French.
- b. Languages that allow for explicit subjects in raising and control

complements: Hungarian, Italian, Romanian, Turkish, Brazilian Portuguese.

- c. Languages that allow for expressed subjects only in raising complements, like Russian, Finnish and (possibly) Hebrew.

In this paper, I will examine European Portuguese (henceforth EP) and I will show that it complies with (1). I will argue that the explicit subjects that occur in these infinitival complements in EP (as well as in Spanish or Italian) are genuine postverbal subjects of the kind that is commonly attested in a standard consistent Null Subject language (henceforth NSL) and I will examine generalization (1) in light of the current debate between movement vs. non-movement-based theories of obligatory control (OC). I will show that the evidence underlying (1) constitutes a strong case in favor of a non-raising approach to OC. In particular, there are differences between raising and control complements in EP that resist explanation under a movement theory of control.

A closer look at the sample of languages studied by A. Szabolcsi reveals that all of the consistent NSLs in her sample fall under Pattern b. A. Szabolcsi conjectures that the availability of null subjects might play a role but then rejects this hypothesis in virtue of languages such as colloquial Brazilian Portuguese (henceforth, BP), which is no longer a consistent NSL and yet obeys pattern b.. In section 4, I will argue that BP doesn't quite fit the criteria for inclusion in pattern b.. Thus, even though the correlation

between consistent pro-drop and pattern b. might not be stated as a two way implication, there appears to exist a one way implication in the sense that there is not a single consistent NSL in the sample that doesn't fall under pattern b.. My goal in this paper is to present an explanatory theory of (1) that captures this correlation.

Our analysis is based on the assumption that the head bearing person agreement features in the consistent NSLs is interpretable (Barbosa, 1995; Alexiadou & Agnastopoulou, 1998). Along the lines of Holmberg (2005), we assume that T bears an interpretable D feature regardless of whether it is finite or non finite. The novel contribution of the paper is the idea that, due to D's interpretability, when a lexical subject is merged as an argument, it must be interpreted as a property that is applied to the variable introduced by D. Crucially, the element that truly saturates the verbal predicate is this variable. When the subject is an individual denoting expression — a pronoun or a definite DP — its meaning must be shifted to a property by the type-shifting operation *Ident* (Partee, 1987), which maps the DP denotation onto its singleton set; i.e, it maps *j* onto the property $\lambda x [x=j]$. In many contexts, particularly in V initial clauses with a transitive verb, the identity statement is mapped in the Nuclear Scope and the rest of the material in clause is presupposed. This yields the exhaustive focus interpretation that is typical of many postverbal subjects in EP and Italian, particularly in V initial sentences with a transitive verb, and captures the occurrence of

emphatic pronouns in finite environments. In infinitival contexts, T has unvalued ϕ -features. In this case, two configurations arise. If the matrix verb is a raising verb, the identity relation may be established between the lexical subject *in situ* (a pronoun or an R-expression) and D in T in the matrix or in the embedded clause. When the selecting verb is an OC verb, a predicative Fin head (Landau, 2015) is selected. In the spirit of Kratzer (2009), we propose that Fin carries a binder index represented as a lambda operator that binds a variable in the clause, turning it into a predicate. Since the relation established between an overt subject and the index on D under infinitival T is one of identification, an overt subject may be present as long as it is a pronoun bound from Fin. A R-expression is not allowed due to Condition C. This captures generalization (1).

This paper is organized as follows. In section 2 I introduce the relevant data. In section 3 I argue that the DPs that occur in these infinitival complements are genuine subjects and I discuss the relevance of the data examined for the current debate between movement-based *vs.* Agree-based theories of OC. In section 4, I motivate the existence of a correlation between the occurrence of overt subjects in control infinitival complements and the null subject property (of the rich agreement type) and in section 5 I lay out my basic assumptions regarding clausal structure in the Romance NSLs; I address the issue of the status of the head bearing person agreement and its impact on the position occupied by overt subjects in the infinitival

complements under discussion. In section 6 I discuss two possible approaches to overt subjects of infinitival control complements and show why they lack explanatory power. Section 7 presents our core proposal and section 8 applies this proposal to the raising and control complements under discussion. Section 9 concludes the paper with a possible speculation regarding the status of PRO in these languages.

2. The data

In this section, I introduce the data discussed in Szabolcsi (2009). I will use examples from EP (a language that is not discussed by A. Szabolcsi), but the same facts obtain in Italian and Spanish, as reported in the paper cited.

2.1 Obligatory control complements

Consider the following example:

(2) *Só ele* decidiu ir ao mercado.

only he decided to go to.the market

‘He is the only one who decided to go to the market.’

(2) has the interpretation indicated in the English gloss, with the

Focus operator having matrix scope. Example (3) below, with a postverbal subject, is ambiguous and can have the two readings indicated in [a] and [b] depending on whether the focused DP is interpreted as having scope over the matrix verb (reading [a]) or over the embedded verb only (reading [b]). Following Szabolcsi (2009), I will call each of these readings the High and Low readings, respectively:

- (3) Decidiu ir ao mercado só ele.
 decided to go to.the market only he
 [a] ‘He is the only one who decided to go to the market.’
 [b] ‘He decided for it to be the case that only he goes to the market.’

The ambiguity of (3) can easily be explained under the assumption that (3) is structurally ambiguous: the focused pronoun can be the (postverbal) subject of the matrix clause (cf. (4a)) or it can be the (postverbal) subject of the embedded clause (cf. (4b)):

- (4) a. [decidiu [PRO ir ao mercado] só ele]
 b. [*pro* decidiu [ir ao mercado só ele]]²

Now compare example (3) above with (5) below:

- (5) Decidiu ir ao mercado só o João.

² Below we will argue that *pro* is actually in postverbal position in the matrix clause. Here we comply with ‘the received view’ that *pro* occupies the preverbal position so as not to distract the reader from the main thread of the argument.

decided to go to the market only the John

[a] ‘John is the only one who decided to go to the market.’

[b] *‘He decided for it to be the case that only John goes to the market.’

(5) differs from (3) in that the focused DP is fully lexical rather than a pronoun. Curiously, the Low reading disappears in this case and the focused DP can only be interpreted with matrix scope. Under a standard, non-raising, approach to OC, the reading in (5a) corresponds to the syntactic representation in (6a). The syntactic configuration that would serve as input for the Low reading (5b) is represented in (6b):

- (6) a. [decidiu [PRO ir ao mercado] só o João]
b. **pro_i* decidiu [ir ao mercado só o João_i]

The configuration in (6b) is a Condition C violation and this is why the Low reading is not available. This means that the subject pronoun in (3) in the Low reading is indeed in a low position, inside the embedded infinitival clause.

Note that the pronoun in the embedded clause doesn’t need to be modified by a Focus operator. It may occur by itself, in which case the most natural position for it is before the complement:

- (7) Decidiu ir *ele* ao mercado.

decided to go he to the market

‘He decided for it to be the case that he would be the one to

go the market.’

In (7) the pronoun is focused and the sentence has the reading indicated in the gloss (below, we will return to the issue of the position and interpretation of these postverbal subject pronouns). (7) strongly favors the Low reading when uttered without a break between the pronoun and the PP. The same can be said of (8) below, with a modified pronoun:

(8) Decidiu ir só ele ao mercado.

decided to go only he to.the market

‘He decided that he would be the only one to go to the market.’

Similarly to what is shown in Szabolcsi (2009) for Hungarian, the overt pronoun in examples such as (3) or (7-8) can only be interpreted *de se*, a fact that suggests that we are dealing with control rather than coreference. Thus, it is not possible to use (9) below to describe a situation of mistaken identity, i.e., a situation in which the amnesiac heroes are not aware of the fact that they are the ones who will receive the medal.³

³ Here we use a plural subject in order to avoid the possibility of having an inflected infinitive in the embedded clause. Since third person singular agreement inflection is zero in the inflected infinitive, a third person singular inflected infinitive is homophonous with an uninflected infinitive. To my ear, an inflected infinitive doesn’t require a *de se* interpretation, unlike the uninflected form. Thus (i) below can be appropriately used to report a situation in which the amnesiac heroes do not know that they themselves received the medal in contrast to what happens in (9).

- (9) Os heróis amnésicos detestaram receber eles a
 the heroes amnesiac hated to receive they the
 medalha
 medal
 ‘The amnesiac heroes hated it that they were the ones to
 receive the medal.’

Moreover, it is worth pointing out that these facts are not related to restructuring (cf. Ordonez, 2007). The examples mentioned so far contain the verbs *decidir* ‘decide’ and *hate* ‘detestar’, which are not restructuring verbs. This is confirmed by the fact that they don’t allow clitic climbing, a well-known test for restructuring.

- (10) *Decidi-os / detestei-os convidar.
 decided.1SG-them / detested.1SG-them to invite
- (11) Decidi / detestei convidá-lo.
 decided.1SG / detested.1SG to invite-him
 ‘I decided / detested to invite him.’

Moreover, it is not possible to relate these facts to lack of a CP projection (cf. Costa, 2004) given that these controlled pronominals can occur in infinitival complements introduced by an overt complementizer (cf.

(i) Os heróis amnésicos detestaram terem recebido eles a medalha.
 the heroes amnesiac hated.3PL to have.INF.3PL received they the medal

the EP example (12)). This observation has already been made by Torrego (1996) for Spanish (cf. (13)) and Belletti (2005) for Italian (cf. (14)):

(12) Não sabemos [se assinar (*só*) *nós* a carta ou não].
 not know.1PL if to sign (only) we the letter or not
 ‘We don’t know whether only us should sign the letter or not.’

(13) No sabemos [si firmar *nosotros* la carta].
 not know.1PL if to sign us the letter
 ‘We don’t know whether to sign the letter ourselves’

(14) Maria mi ha chiesto [di parlare *io* com Gianni].
 Maria me has asked DI to speak I with Gianni
 ‘Maria asked me to talk to Gianni myself.’

Note that (14) contains an object control verb. Therefore, the phenomenon in question is not limited to subject control.⁴ (15) illustrates this for Portuguese.⁵

(15) Ontem os pais obrigaram as crianças a fazer elas
 yesterday the parents forced the children to make they
 a cama.
 the bed

⁴ This is unlike the situation in Hungarian, where overt subjects are unattested in object control complements. Here we don’t have an account of this contrast.

⁵ Examples (15) and (12) sound more natural with an inflected infinitive, but we wouldn’t say that they are ungrammatical.

‘Yesterday their parents forced the children to make their bed themselves.’

In sum, in obligatory control complements, the (noninflected) infinitival clause may have what look like explicit subjects, which are obligatorily controlled. As mentioned above, Torrego (1996) and Belletti (2005) reach similar conclusions for Italian and Spanish. Besides pronouns, the following two kinds of anaphoric expressions can also occur in OC constructions:

Partitive QPs containing a pronoun

(16) *EP*

Pensamos falar alguns de nós / vários de nós / muitos de nós
think.1PL to speak some of us / several of us / many of
nós com ela.

us with her

‘Some of us / several of us / many of us intend to talk to her.’

(17) *Spanish (Torrego, 1996)*

No sabemos si asistir algunos de nosotros / muchos de nosotros
not know if to attend some of us / many of
nosotros.

us

‘We don’t know whether some of us / many of us should attend.’

Certain kinds of anaphoric collective DPs (cf. Torrego, 1996)

- (18) Não sabemos como falar a turma toda / o grupo
not know.1PL how to talk the class whole / the group
todo com ela.
whole with her
‘We don’t know how the whole class / the whole group will
talk to her.’

Spanish allows yet another kind of collective DP in this configuration, as illustrated in (19).

- (19) *Spanish (Torrego, 1996)*
No sabemos si asistir los lingüistas.
not know.1.PL whether to attend the linguists
‘We linguists don’t know whether to attend.’

The EP counterparts to (19) are out, a fact we will get back to below.

- (20) *EP*
*Não sabemos se assinar os lingüistas ou não.
not know whether to.sign the linguists or not

2.2 Raising complements

Szabolcsi (2009) observes that, in raising complements, the distinction between pronouns and (non-anaphoric) lexical DPs is lost. Thus,

the examples that follow allow for the Low reading regardless of the nature of the DP.

(21) *EP*

- a. Não pareço cantar *só eu* nesta gravação.
not seem.1SG to sing only I in.this recording
'It doesn't seem to be the case that only I sing in this recording.'
- b. Não parece cantar *só o João* nesta gravação.
not seem.1SG to.sing only the J. in.this recording
'It doesn't seem to be the case that only John sings in this recording.'

(22) *Italian*

- a. Non sembro cantare *solo io* su questo nastro.
not seem.1SG to sing only I in this recording
'It doesn't seem to be the case that only I sing in this recording.'
- b. Non sembra cantare *solo Gianni* su questo nastro.
not seem.1SG to.sing only Gianni in this recording
'It doesn't seem to be the case that only John sings in this recording.'

Since it is not easy to distinguish the High from the Low readings with the verb 'seem', Szabolcsi uses other examples with raising verbs and

designs different scenarios that clearly distinguish the different truth-conditions associated with each reading. Here we apply her tests to sentences with the aspectual verb *começar* in EP. Consider the following sentences and the situations described in (24):

- (23) a. Só ela / só a Maria começou a receber bons papéis.
only she / only the Maria started to receive good roles
- b. Começou a receber bons papéis só ela / só a Maria.
started to receive good roles only she / only the Maria
‘Only she / only Maria started to get good roles.’

- (24) a. *Scenario A*: High reading true; low reading false

	Before 2015	In 2015
Eva	Without good roles	Without good roles
Clara	Some good roles	Some good roles
Maria	Without good roles	Some good roles

- b. *Scenario B*: High reading false; low reading true.

	Before 2015	In 2015
Eva	Some good roles	Without good roles
Clara	Some good roles	Without good roles
Maria	Some good roles	Alguns bons papéis

(23a) is compatible with scenario A only.⁶ It means that she/Maria was the only person that started to receive good roles. (23b) is compatible with both scenarios given that it has the following two readings:

- (25) a. It started to be the case that only she/Maria got good roles.
 b. She/ Maria was the only one who started to receive good roles.

This shows that raising complements with an explicit subject are fully ambiguous regardless of the nature of the DP (a pronominal or lexical DP). The ambiguity of such examples can be attributed to the two positions available for the subject: it may be the post-verbal subject of the embedded clause (cf. (26a)) or it may be the subject of the matrix (cf. (26b)):

- (26) a. Começou [a receber bons papéis só ela / só a
 started to receive good roles only she / only the
 Maria].
 Maria
 ‘It started to be the case that only she/Maria got good
 roles.
- b. Começou [a receber bons papéis] só ela / só a
 started to receive good roles only she / only the
 Maria.
 Maria

⁶ The lack of ambiguity of this example indicates that reconstruction is not an option.

‘She/ Maria was the only one who started to receive
good roles.’

Of interest to us here is the configuration in (26a). In sum, raising complements differ from control complements in that they do not require the subject in the embedded clause to be a pronoun or an anaphoric expression.

2.3 Discussion

The facts just presented are particularly interesting in light of the debate between movement-based *vs.* nonmovement theories of OC. Under the view of Control as raising (Hornstein, 1999, and subsequent works), one might be tempted to account for the facts just discussed in terms of *backward control* or *backward raising* (Polinsky & Potsdam, 2002), whereby the subject of the infinitival clause is the Spell-out of the copy of the raised subject. As pointed out in Szabolcsi (2009), however, this cannot be done in the case of the data discussed here for the following reasons. First, the embedded subjects do not have matrix scope. This is unexpected if the pronoun is the copy of a raised subject. Secondly, the contrast between raising and control complements regarding non-pronominal subjects is not easily explained. Recall that, with control verbs, only pronouns (or a restricted set of anaphoric collective DPs) are compatible with the Low

reading (cf. (3) vs. (5b)). Earlier, we attributed this to a Condition C effect, but this account is lost under a backward control analysis, which would predict raising and control infinitives to behave alike with respect to the choice of the phonological shape of the pronounced copy.

3. Multiple subjects and emphatic pronouns

One other fact pointed out by Szabolcsi (2009) as well as Torrego (1996) and Belletti (2005) is that these control and raising structures may take multiple subjects. Here we transcribe examples in EP (cf. (27)) and Italian (cf. (28)).

- (27) a. *Só o João* detestou resolver *só ele* o problema.
 only the João hated to solve only he the problem
 ‘Only John hated it that only him solved the problem.’
- b. *O João* acabou por resolver *ele* o problema.
 the João ended up to solve he the problem
 ‘John ended up solving the problem himself.’
- (28) a. *Solo Gianni* vuole andare *solo lui* a scuola.
 only Gianni wants to go only he to school
 ‘Only Gianni wants to be the only one to go to school’
- b. *I ragazzi* risultarono aver riposto *loro* alla

the boys turned out to have answered them to the
demanda.

question

‘The boys ended up answering the question
themselves’

These examples are strongly reminiscent of the constructions with “emphatic” pronouns discussed in Burzio (1986), among others. In the Romance languages under discussion a pronoun (bare or modified by a focus particle) may co-occur with an explicit preverbal subject in a simple sentence. The preverbal subject may be a full DP or even a pronoun:

(29) A Teresa / *ela* escreveu *só ela* o poema.

the Teresa / she wrote only she the poem

‘Teresa was the only one who wrote the poem’ = ‘Teresa /
she wrote the poem herself.’

(30) a. A Teresa / *ela* escreveu *ela* o poema (ninguém a
the Teresa / she wrote she the poem (no one her
ajudou).

helped)

b. A Teresa / *ela* escreveu o poema *ELA* (ninguém
the Teresa / she wrote the poem she (no one
a ajudou).

her helped)

‘Teresa / she was the one who wrote the poem (no one helped her).’? = ‘Teresa / she wrote the poem herself (no one helped her).’

(31) *Italian (Belletti, 2005)*

Gianni / lui verrà *lui*.

Gianni / he will come he

‘John / he will come himself.’

(32) *Spanish (Sanchez, 1995)*

Pedro abrió *el* la puerta.

Pedro opened he the door

‘Pedro opened the door himself.’

In (29) the pronoun is modified by a Focus particle. In the remaining examples it appears by itself. As we can see in the EP examples (30), the pronoun may precede the object (cf. (30a)) or follow it (cf. (30b)). In the latter case it must bear stress (as indicated by the use of capital letters). In both cases the reading obtained is the one indicated in the glosses, where the pronoun bears exhaustive focus and acquires an interpretation that can be paraphrased in English by sentences with the adjunct *n*-SELF anaphor. This is why these pronouns have been labelled “emphatic” by Burzio (1986).

In view of these examples, one might think that the pronouns in the embedded clauses in (29-32) are not genuine subjects, but rather some kind of anaphoric adjuncts. In the next section, we argue that this hypothesis is

untenable and that the pronouns in bold in all of the examples mentioned above are genuine postverbal subjects.

3.1 Evidence that emphatic pronouns are subjects

According to some linguists, emphatic pronouns are not real subjects but rather adjunct anaphors (cf. Piera, 1987), or the phonetic realization of a trace (Burzio, 1986). Rigau (1987), Solà (1992), Barbosa (1995), Cardinaletti (1999) and Belletti (2005), however, claim that they are postverbal subjects. In what follows, I present some of the arguments given in Barbosa (1995).

The idea that these pronouns are adjuncts (very much like the adjunct SELF anaphor *himself* in English) faces the problem that they do not have the same properties as adjunct anaphors. In the first place, if they are adjuncts, we should expect them to attach to any DP in the sentence, as happens with the English anaphor (cf. *I talked to the director himself*). However, this is not the case: emphatic pronouns may not attach to a DP (cf. 33)); in this situation, a SELF anaphor must be used (cf. 34):

- (33) a. *Apareceu o director ELE.
 appeared the director HE
 b. *Falei com o director ELE
 talked.1SG to the director HE
- (34) a. Apareceu o director *ele próprio*.

appeared the director him self

‘The director himself showed up.’

b. Falei com o director *ele próprio*.

talked.1SG to the director him self

‘I talked to the director himself.’

As shown in (34), EP does have a lexical counterpart to English *himself*, namely the simplex anaphor *próprio/a* or the complex anaphor *pronoun-próprio/a*. Thus, the hypothesis that emphatic pronouns are adjuncts is untenable.⁷

On the other hand, emphatic pronouns have the same distribution and interpretation as regular postverbal subject pronouns. Thus, on a par with (30a-b) above we have (35a-b), where the pronoun gets a rather similar interpretation, as indicated in the English glosses provided:

(35) a. Escreveu *ela* o poema (ninguém a ajudou).

wrote.3SG she the poem (no one her helped)

b. Escreveu o poema *ELA* (ninguém a ajudou).

wrote.3SG the poem she (no one her helped)

‘She was the one who wrote the poem (no one helped

⁷ Torrego (1996) maintains the idea that the pronoun is an adjunct in these cases, but stipulates that the pronoun can only be an adjunct of a null element (a trace, *pro* or PRO), yielding an emphatic pronoun, a post-verbal pronoun and a controlled pronoun, respectively. The question is why such adjuncts should be so restricted. Below we will discuss examples that pose a problem for this hypothesis (see footnote 11).

her).’ = ‘She wrote the poem herself (no one helped her).’

In these examples, the pronoun is exhaustively focused and the effect obtained can be paraphrased in English by means of a cleft or by means of a sentence with a SELF anaphor in a way that is strikingly similar to (30a-b). The pronoun may precede the object or follow it (in which case it must be heavily stressed).

I assume the analysis of VSO/VOS alternations proposed in Costa (1998) for EP and Cardinaletti (1998) for Italian. According to this analysis, postverbal subjects occupy their base position inside the *v*/VP. Since these languages have V raising to T, the order obtained is VSO; VOS order is derived by object scrambling to a position above *v*P. Thus, (35a) is analysed as in (36a), and (35b) is analysed as in (36b):

- (36) a. [TP escreveu [_{VP} ela ~~escreveu~~ o poema]]
b. [TP escreveu [o poema [_{VP} ela ~~escreveu~~ o poema]]]

In (36b) the pronoun is the mostly embedded constituent. Therefore, it is assigned Nuclear Stress by the Nuclear Stress Rule (cf. Cinque, 1993; Zubizarreta, 1998). This fact explains why the pronoun in that position must bear stress, as indicated above. Note that this effect obtains in (35b) as well as in (30b) above, with an emphatic pronoun. This, for us, is a clear indication that the emphatic pronoun is subject to the same restrictions as postverbal subject pronouns.

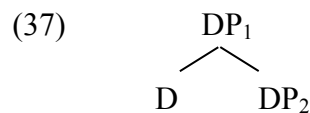
There is, of course, an alternative view, according to which postverbal subjects occupy a Focus position in the postverbal field. This is the approach defended in Belletti (2005) and the analysis adopted by Ordóñez (2007) for Spanish VOS order.⁸ In section 7 we will offer an analysis of the interpretative properties of post-verbal subjects that doesn't rely on movement to a Focus position, so we delay discussion of this point for later. For the moment, it suffices to observe that since emphatic pronouns have the same distribution and interpretation as postverbal subject pronouns, it is legitimate to conclude that they are subjects.

In view of this, there are in principle at least three possible alternative analyses of “double subject” constructions such as (27-32) above:

- a. The emphatic pronoun is the spell out of the copy of the moved subject (cf. Burzio, 1986);
- b. The emphatic pronoun and the preverbal subject form a unique syntactic constituent, a Big-DP of the kind proposed by Torrego (1995), Uriagereka (1995), Cecchetto (2000) in order to account for Clitic

⁸ Ordóñez (2007) observes that a postverbal subject pronoun in VSO order in Spanish need not be contrastively focused and argues that this order is obtained by movement of the subject to Spec-TP and verb raising to a higher Infl node. Since lack of focus on the pronoun is a property that sets Spanish apart from all the other Romance languages (except probably Romanian), I set this issue aside in this paper.

Doubling in Romance (cf. (37)); part of the Big-DP, DP₂, moves to preverbal position and the remaining part (the pronoun) stays in the right-periphery of the clause; this is Belletti's (2005) proposal:⁹



(38) [[_{DP2} A Teresa] [_T escreveu [_{VP} [_{DP1} ela [_{DP2} ~~A Teresa~~]]] o poema]]

- c. The DP in preverbal position is not the thematic subject, but is rather a left-dislocated topic doubled by the pronominal subject in postverbal position (Rigau, 1987; Solà, 1992; Barbosa, 1995); in the representation that follows we assume that left dislocated topics are *base-generated* in the left periphery of the clause and are licensed by “rules of predication” in the sense of Chomsky 1977 (cf. Cinque, 1990; Demirdache, 1992; Agnastoupoulou, 1997; Barbosa, 1995, 2000; De Cat, 2007, for extensive arguments in favor of a base-generation analysis of left-dislocated

⁹ DP₂ can be a lexical DP (cf. (39)), *pro* (cf. (ia)) or PRO (cf. (ib)); this yields, respectively, a “double subject” construction; a postverbal subject construction; a controlled explicit subject:

(i) a. [[_{DP2} *pro*] [_T escreveu [_{VP} [_{DP1} *ela* [_{DP2} ~~*pro*~~]]] o poema]]

wrote she the poem

b. A Teresa decidiu [[PRO escrever [_{VP} [_{DP1} *ela* [_{DP2} ~~PRO~~]]] o poema]].

the Teresa decided to write she the poem

topics).¹⁰

(39) [DP_k [TP V/v [V/vP ... *subject pronoun*_k ...]]

(40) [A Teresa]_i [TP escreveu [vP ela_i [v' ~~escreveu~~ o poema]]]]

One simple way of testing hypothesis c. consists in seeing whether these “double subject” constructions are compatible with non-referential quantified expressions. As is well-known, “non-referential” quantifiers cannot in general be left-dislocated. The following examples from French illustrate this fact:

- (41) a. Pierre il aime la musique.
Pierre he loves the music
- b. *Personne il aime la musique.
no one he loves the music

Since topics introduce entities (or sets of entities, in the case of

¹⁰ Such arguments are drawn from a systematic comparison between CLLD, on the one hand, and Focus/*wh*-movement, on the other. Focus/*wh*-moved constituents obey successive cyclicity and reconstruct for the purposes of *ne*-clitization and scope; CLLDed topics do not pass any of these diagnostics. Since the evidence is overwhelming and I have never seen a movement analysis of CLLD that successfully captures these basic contrasts, I assume a base-generation analysis. It is often claimed that CLLD obeys strong islands. De Cat (2007), however, shows that once the examples are properly constructed, speakers of French do accept sentences with a CLLD topic and the resumptive inside a relative clause.

plurals) that the sentence is about, nonreferential QPs cannot be topics.¹¹

Given this, hypothesis c. predicts that a non-referential quantified phrase should be incompatible with an emphatic pronoun, and, in effect, this prediction is confirmed (cf. (42-43).

(42) *EP*

*Nenhuma criança escreveu ela o poema.

no child wrote she the poem

(43) *Italian (Cardinaletti, 1999)*

*?Nessuno è venuto lui.

no one has come he

(44) *Italian (Szabolcsi, 2009)*

Context: The teacher worked and...

a. Gianni ha lavorato anche lui.

Gianni has worked also he

‘John too worked.’

b. *Ogni ragazzo ha lavorato anche lui

every boy has worked also he

Now note that it is possible to construct an example with an emphatic reflexive in English which is linked to a negative QP subject. As discussed in Ahn (2010), (45) is a felicitous utterance in a context in which

¹¹ On this issue, see Endriss and Hinterwimmer (2008), who introduce the notion of ‘topical quantifier’ vs. ‘non-topical quantifier’.

Mary sees an empty pack of cigarettes and wonders how many people it took to finish it. She then remembers that Spike smokes a lot and utters (45):

(45) No boy could have smoked the whole pack himself.

In this example, the emphatic reflexive cooccurs with a negative QP, which shows that emphatic reflexives differ from emphatic pronouns in this regard.

These facts favor hypothesis c. and constitute a problem for hypotheses a. and b.. Recall that, under hypothesis c., the pronoun is the argumental subject and the dislocated DP is a base-generated topic. Since non-referential QPs cannot be left dislocated, the only configuration available for them when they occur in preverbal position is the one in (46), where the QP is the thematic subject; hence there is no room for the subject pronoun:

(46) [Nenhuma criança escreveu [_{VP} ~~nenhuma criança~~ escreveu-o poema]]

Now consider hypotheses a. and b. in light of these facts. If the emphatic pronoun is the spell out of the copy of the raised subject (hypothesis a.), there is really no explanation for why this option is blocked in the case of a non-referential QP. The same reasoning applies to hypothesis b.. Under the Big-DP approach, it is also not clear why DP₂ may not be a non-referential QP. In view of these facts, I conclude that emphatic pronouns are not contained inside a Big-DP and are rather genuine subjects

sitting in their base position (or in another intermediate postverbal position).¹² For additional arguments in favor of this view, the reader is referred to Cardinaletti (1999).

3.2 Multiple subjects in raising and control complements

Turning now to non-finite complements with an overt nominative pronoun we note that they are remarkably similar to the mono-clausal examples with an emphatic pronoun. Given these similarities, it is reasonable to conclude that the pronouns that occur in the embedded infinitival complements are also genuine (postverbal) subjects. In fact, all of the expressions that can occur as subjects of control infinitives (cf. (47)) can easily occur as postverbal subjects in a simple clause triggering exactly the same kind of agreement morphology that is found in a control structure (cf. (48)).

- (47) Pensamos falar nós / só nós / só nós os dois / alguns
 think.1PL to speak we / only we / only we the two / some

¹² Torrego (1996) argues that the pronoun is an adjunct in these cases, but stipulates that the pronoun can only be an adjunct of a null element (a trace, *pro* or PRO), yielding an emphatic pronoun, a post-verbal pronoun and a controlled pronoun, respectively. On such an account, the ungrammaticality of (43-44) (and other examples of the same type to be discussed below) is unexpected. Besides, one would like to understand why such pronouns should be restricted to occur as adjuncts of null elements.

de nós / a turma inteira.

of us / the class whole

‘We / Only us / only both of us / some of us / we the whole
class intend to talk to her.’

- (48) Chumbámos nós / só nós / só nós os dois / alguns de
flunked.1PL we / only we / only we the two / some of
nós / a turma inteira

us / the class whole

‘We / only us / only both of us / some of us / we the whole
class flunked.’

The same point can be made for Spanish: the collective DPs that may appear in the embedded clause in a control structure (cf. (49a)) can occur as postverbal subjects in a simple clause (cf. (49b)); and much as in the control case (cf. (50a)), EP’s counterpart to (49b) is out (cf. (50b)):

- (49) *Spanish* (Torrego 1996)

a. No sabemos si asistir los lingüistas.

not know.1PL whether to attend the linguists

‘We linguists don’t know whether to attend.’

b. Firmamos los lingüistas la carta.

sign.1PL the linguists the letter

‘We linguists sign the letter.’

- (50) *EP*

- a. *Não sabemos se assinar os linguistas ou não.
not know whether to attend the linguists or not
- b. *Assinamos os linguistas a carta.
sign.1PL the linguists the letter

Evidence that the control and raising complements with multiple subjects should be analysed along the same lines as the monoclausal examples with emphatic pronouns comes from the following interesting contrast in the distribution of non-referential QPs in raising *versus* control complements. Unlike referring DPs (cf. (51a)), non-referential QPs may not occur in a “multiple” subject construction with a raising verb (cf. (51b)):

- (51) a. A empregada não apareceu e o hóspede
the maid not showed up and the guest
acabou por fazer ele o pequeno-almoço.
ended up to make he the breakfast
‘The maid didn’t show up and the guest had to cook
breakfast himself.’
- b. A empregada não apareceu, mas eu fui lá e
the maid not showed up but I went there and
*nenhum hóspede acabou por fazer ele o
no guest ended up to make he the
pequeno-almoço.
breakfast

‘The maid didn’t show up but I went there and no
guest turned out to prepare breakfast himself’

Our explanation of the contrast between (29) and (42) above carries over to the raising case: in (51a) the DP *o hóspede* is a base-generated topic doubled by the pronoun, which is the *in situ* subject of the infinitival clause:

(52) *o hóspede* [acabou por [fazer *ele* o pequeno-almoço]]

the guest ended up to make he the breakfast

‘The guest ended up cooking breakfast himself.’

In (52), the subject *in situ* bears a long distance Agree relation with matrix T. This configuration is not available in (51b) given that the non-referring expression *nenhum hóspede* ‘no guest’ cannot be a base-generated topic; the QP can only be merged as an argument of the embedded clause and then raised to the matrix. For this reason, there is no position for the subject pronoun to be merged in the embedded clause.

(53) [nenhum hóspede [acabou por [fazer ~~nenhum hóspede~~ o pequeno-almoço]]

Now, interestingly, control complements can take multiple subjects with a non-referential QP, as shown by the following example, which constitutes a minimal pair with (51b):

(54) Estou certa de que nenhum hóspede optará por

am certain of that no guest choose.FUT by

fazer *ele* o pequeno-almoço todos os dias.

to make he the breakfast every the days

‘I am certain that no guest will choose to prepare his
breakfast himself every day’

Likewise, Szabolcsi (2009) mentions the following Italian example,
which minimally contrasts with (44) above:

(55) *Context:* The teacher worked and...

Ogni ragazzo vuole lavorare anche lui.

every boy wants to work also he

‘Every boy wants it to be the case that he too works.’

The contrast between (51b) and (54) can be easily explained under
the assumption that the QP *nenhum hóspede* is merged as an argument of
the matrix control verb (note that since it is a non-referential QP, it cannot
be a left-dislocated topic). It is first merged in Spec,vP and then
subsequently moved to pre-verbal position (cf. (56)). The pronoun occupies
the subject position of the infinitival complement and is construed as a
bound variable:

(56) [[nenhum hóspede]_i optará[[nenhum hóspede]_i optará [por

no guest choose.FUT for

fazer *ele*_i o pequeno almoço]]]

to make he the breakfast

‘No guest will choose to cook breakfast himself.’

The crucial difference between the raising case (51b) and (56) is that in the raising case the base position for the raised QP is the subject position selected by the infinitival verb (cf. (53)). In (56), by contrast, there are two independent thematic positions: one is selected by the embedded infinitival verb and is filled by the pronoun; the other is selected by the matrix verb and is realized by the QP.

It is important to stress that the contrast between raising and control is only visible when we make sure that a left-dislocation analysis is excluded, as in the case of a negative QP. When a left-dislocation analysis is available, we get the configuration in (52), where the embedded subject position is filled by a pronoun triggering a long-distance Agree relation with matrix T and the topic is directly base-generated in place. The analysis is quite straightforward as long as it is assumed that left-dislocation doesn't involve movement, contra much of the received view on the matter. The reader is referred to the sources cited for independent arguments against a movement analysis of left-dislocation (see also footnote 9).

Independent evidence in favor of this overall approach actually comes from Hungarian. In A. Szabolcsi's Hungarian dialect, pronominal placeholders for 3rd person left-dislocated expressions are distal demonstratives, never personal pronouns. Therefore, if indeed our account is on the right track, we predict that Hungarian should display a contrast between control and raising complements with respect to the possibility of

allowing “multiple subjects”. Raising complements are predicted not to allow “multiple” subjects, in view of the unavailability of doubling by a pronoun. Sentences containing control complements on the other hand, should be OK, given that the matrix lexical subject is an argument of the matrix verb and the embedded pronoun is an argument of the infinitival complement. This prediction is indeed confirmed by Szabolcsi’s (2009) data: (57) below is fine and (58a-b) are judged as deviant:

(57) *Control*

János nem akart [megpróbálni [*csak ő* menni busszal]].

János not want to try only he to go bus.with

‘John doesn’t want to be another person who tries to be the only one who takes the bus.’

(58) *Raising*

a. ?*Nem fogok [*én is* elkezdni [*nem én* kapni

not will I too begin not I to get

szerepeket]]

roles.ACC

‘It will not happen to me too that it will begin to be the case that it is not me that gets roles.’

b. ?*János* elkezdett [*csak ő* kapni szerepeket].

János began only he to get roles.ACC

‘It began to be the case that only John gets roles.’

Thus, we take this paradigm as indirect evidence in favor of our analysis.

Now let us consider these contrasts between raising and control complements in light of the debate over whether control can be reduced to a special case of raising. Under this approach it is not at all clear how to explain the minimal pair formed by (51b) and (54). If the pronoun in (51b) is the spell out of the raised subject then the ungrammaticality of the example is unexpected. Furthermore, the contrast between (51a) and (51b) is also left unaccounted for. For this reason, I conclude that the paradigm discussed constitutes a strong case in favor of a non-movement account of obligatory control.

4. Cross-linguistic differences

In her paper, Szabolcsi (2009) applies the above mentioned tests to a series of languages and detects the existence of three different patterns:

- a. Languages that do not admit expressed subjects either in control or in raising; this is the case in English, German and French.
- b. Languages that allow for explicit subjects in raising and control complements; this is the case of Hungarian, Italian (and possibly Romanian, Spanish, Brazilian Portuguese and Modern Hebrew).

c. Languages that allow for expressed subjects only in raising complements:
possibly Russian and Finnish.

“Possibly” in b. concerns the control case only and means that Szabolcsi was unable to exclude an emphatic pronoun (=adjunct) analysis. Here we have argued that emphatic pronouns are real subjects in EP and Spanish, so we propose to add these languages to Hungarian and Italian as sure samples of pattern b.. As for Brazilian Portuguese, it is indeed not clear from Szabolcsi’s examples whether the pronoun is a real subject or an emphatic adjunct. To start with, all of her BP examples contain a pronoun modified by a focus operator. She mentions the following example:

(59) *Context:* Mary slipped on the wet floor...

Eu não quero *eu também* escorregar neste chão.

I not want I too to slip on.this floor

LO: ‘I don’t want it to be the case that I too slip on this floor.’

According to the BP informants that I have consulted, (59) is out with a bare pronoun:

(60) *BP*

*Eu não quero eu escorregar neste chão.

I not want I to slip on.this floor

This shows that (59) should not be analysed on a par with the EP cases discussed in the preceding sections. The obligatoriness of the Focus

modifier in (59) suggests that the whole expression is likely to be an emphatic adjunct. Therefore, I will not include BP in the sample of languages in b.. Taking away the dubious cases in pattern b. (which include BP and Modern Hebrew), we observe that all of the consistent NSLs fall under this pattern. By “consistent NSL”, I mean, following Holmberg (2005), the type of NSL in which the availability of a zero subject correlates with the presence of rich verbal agreement morphology. These languages possess a series of properties in common that distinguish them from other NSLs in which this correlation does not hold, such as the discourse *pro*-drop languages or the partial NSLs (Finnish, BP, Russian, etc.). In fact, when we look at A. Szabolcsi’s sample, we observe that there isn’t a single consistent NSL in the sample that doesn’t fall under pattern b.. This one-way implication is what I wish to explore here.

In the raising case, the languages that fall under pattern b. and Finnish and Russian pattern alike. Starting with Russian, consider the following examples:

Russian (Szabolcsi, 2009, exs. 212-214)

(61) Tol’ko on/Gordon stal/perestal prixodit’ domoj pjanim.

only he/Gordon started/stopped go.INF home drunk

High reading: ‘Only he/Gordon started/stopped going home drunk.’

(62) Stal/perestal prixodit’ domoj pjanim tol’ko on/Gordon.

started/stopped go.INF home drunk only he/Gordon

High reading: ‘Only he/Gordon started/stopped going home drunk.’

Low reading: ‘It started/stopped being the case that only he/Gordon goes home drunk.’

(63) Stal/perestal prixodit' domoj tol'ko on/Gordon pjanim.

started / stopped go.INF home only he/Gordon drunk

Low reading: ‘It started / stopped being the case that only he / Gordon goes home drunk.’

Like in EP, examples with sentence final ‘only’-phrases are ambiguous between the High and Low readings (cf. 62)), but placing the ‘only’-phrase between the infinitival verb and another element of the infinitival clause eliminates the High reading (cf. (63)).

Moving on to Finnish, the Low reading is available with the nominative subject in non-initial position (cf. (65-66)):

Finnish (Szabolcsi, 2009, exs. 225-227)

(64) Vain hän alko-i saa-da hyv-i-ä roole-j-a.

only s/he begin-PAST get-INF good-PL-PAR role-PL-PAR

High reading: ‘Only he started to get good roles.’

(65) Hyv-i-ä roole-j-a alko-i saa-da vain hän.

good-PL-PAR role-PL-PAR begin-PAST get-INF only s/he

Low reading: ‘It started being the case that only he got good

roles.’

- (66) Vuonna 2006 alko-i vain Maria saa-da
year.ESS 2006 begin-PAST only Maria get-INF
hyv-i-ä roole-j-a.
good-PL-PAR role PL-PAR

Low reading: ‘In 2006 it started being the case that only
Maria got good roles.’

As acknowledged by A. Szabolcsi, these facts can be explained if, in all of these languages (including those that fall under pattern b.) subjects may stay *in situ* (or in a derived Focus position inside the embedded clause (cf. (66)), and establish a long distance Agree relation with matrix T. Interestingly, Holmberg (2005)) shows that subjects may stay *in situ* in Finnish and Bailyn (2004) makes a similar observation for Russian. In the case of the consistent NSLs, we have argued above that post-verbal subjects occupy a low position in the post-verbal field. If raising constructions are not strong phases, then it is quite plausible that the examples in which the Low reading is available are cases of long distance agreement of matrix T with a (non-raised) infinitival subject. By hypothesis, the availability of subjects of raising infinitives would depend on the (language particular) availability of having long distance agreement between T and a non-raised subject.

This account works for raising infinitives, but cannot obviously be

extended to control complements, given that neither Russian nor Finnish display overt subjects in this environment. In view of the fact that the languages that allow for overt subjects in control environments also allow for overt subjects in raising infinitives, I conclude that the availability of long distance agreement might be a necessary, but certainly not a sufficient condition for the existence of overt controlled pronouns. Something else is required for the language to allow for controlled pronouns and whatever it is, it must be related to the null subject property (of the consistent kind), since all of the consistent NSLs allow for this option in contrast to Finnish or Russian. This is what we wish to explain in the remainder of this paper.

In the next section, I present my assumptions regarding the syntactic properties that characterize the consistent NSLs (of the Romance type). I will start by addressing the issue of the position occupied by the subject in the infinitival complements under discussion in the Romance NSLs and then I will briefly discuss Hungarian. This will allow me to prepare the ground for the analysis to be presented in sections 7 and 8.

5. Some background assumptions regarding the syntax of the consistent NSLs

We have argued that the pronouns that appear in the control

structures in question are subjects. Setting Hungarian aside for the moment, we observe that, in the Romance NSLs in question, there is a further restriction: they must occur in postverbal position. This observation is made in Torrego (1996) and Belletti (2005), who mention examples (68) and (69), respectively (in (67) I quote an EP example):

(67) Não sabemos como (*nós os dois) assinar (nós os dois)

not know.1PL how we the two to sign we the two

a carta.

the letter

‘We don’t know how the two of us will sign the letter.’

(68) *No sabemos si (*algunos de nosotros) asistir (algunos

not know.1PL if some of us to attend some

de nosotros).

of us

‘We don’t know if some of us should attend.’

(69) I ragazzi risultarono [(*loro) aver (loro) riposto alla

the boys turned out they to have they answered to.the

question].

question

‘The boys turned out to answer the question.’

In this section, we provide an account for this restriction. In so doing, we introduce the background assumptions that prepare the ground for

an account of Szabolcsi's (2009) crosslinguistic generalization b.. We will start by examining finite contexts.

Since the mid-nineties there has been a growing body of work (Barbosa, 1995; Pollock, 1997; Alexiadou & Anagnostopoulou, 1998; Ordoñez & Treviño, 1998; Kato, 1999; Manzini & Savoia, 2002; Platzack, 2004, among others) making the claim that, in the consistent NSLs, the head bearing subject agreement is interpretable. This insight is not just meant to capture the old intuition that rich agreement in these languages is, in some sense, "pronominal", or "affix-like" (Taraldsen, 1978; Rizzi, 1982); it was also meant to capture a number of contrasts in the distribution and interpretation of overt subjects in the consistent NSLs as opposed to the non-NSLs

The particular implementations of this proposal vary, but all of them have one key feature in common: the functional head bearing subject agreement has a nominal specification ([+D]; valued ϕ -features; probably also Case) to the effect that it has the status of a pronominal affix/clitic on V raised to I.¹³ As a consequence of this, there is no EPP related movement to

¹³ For Barbosa (1995), Pollock (1997) and Alexiadou and Anagnostopoulou (1998), in languages like Spanish or Portuguese, the pronominal element is the verbal agreement affix attached to the verbal root; the EPP is checked by V raising to T. Drawing on Rohrbacher (1993) and Speas (1993), Alexiadou and Anagnostopoulou distinguish two types of verbal agreement: strong and weak. Strong agreement affixes have their own lexical entry and are available to the computational system. Weak agreement affixes do not have independent

Spec-IP, the thematic subject stays inside the post-verbal field and pre-verbal subject constructions are not derived by A-movement.

Since, in the particular case of the Romance NSLs, there is v/V raising to Infl/T, when the subject is a fully specified nominal, this yields a postverbal subject construction (so-called “free inversion”). Thus, the Portuguese example (70a) is analysed as in (70b):

- (70) a. Telefonou a Maria.
called the Maria
'Mary called.'
b. [[T telefonou] [_{NP} a Maria telefonou]]

When the subject is silent, there are in theory two possibilities: either

lexical entries. Since the former have their own lexical entry, they are clitic-like pronominal elements with a [+D] categorial feature. This entails that the verbal root and the +D affix can be accessed independently from each other and opens the way to two different options: (i) the verbal root and the [+D] affix merge in the syntax at an early stage, V projects and the EPP is checked by V raising to I; (ii) the [D] Agr affix is directly merged with TP. The former option is instantiated in languages like Spanish; the latter option is realized in the northern Italian dialects that have obligatory subject clitics and display the range of properties associated with consistent *pro*-drop (on the northern Italian dialects, see Manzini & Savoia, 2002).

Ordoñez and Treviño (1998), Kato (1999), Platzack (2004), on the other hand, claim that the verbal agreement affix heads a DP merged in argument position inside the vP/VP; D moves to I, where it amalgamates with V (for a more detailed description of the analysis proposed by Ordoñez & Treviño, 1998, see section 6.2).

pronominal Agr is the theta-role bearer, in which case *pro* can be dispensed with (Ordoñez & Treviño, 1998; Kato, 1999; Platzack, 2004), or there is a *pro* in Spec,vP/VP (Alexiadou & Anagnostopoulou, 1998; Barbosa, 2009). In (71b) we adopt the latter view:

- (71) a. Telefonaram.
called
'They called.'
- b. [[T telefonaram] [_vP *pro*]]

In a configuration such as (71), the semantic content for the pronominal argument is supplied by the situational context, or it can be supplied linguistically, by a topic. Thus, example (72a), with an apparent pre-verbal subject, is analysed as an instance of subject Clitic Left Dislocation (CLLD). Again, I assume that left dislocated topics are *base-generated* in a position of adjunction to the clausal projection that is predicated of them, so that (72) is basically (71b) with the value for the pronominal argument being supplied by the topic:

- (72) a. A Maria telefonou.
the Maria called
'Maria called.'
- b. [[A Maria] [TP telefonou [*pro*]]]

The configuration above can be recast in terms of a TopicP projection. Here we do not wish to dwell on this aspect of the analysis, the

important point being that the DP *a Maria* is base-generated in place and licensed by “rules of predication” (Chomsky, 1977); *pro* supplies the open position required to establish a predication relation with the topic.

The configuration in (72b) is available just in case the DP in question is capable of picking up an entity or a set of entities. When this is not the case, as happens with non-referential QP subjects (or non-topical QPs, to use a term introduced by Endriss and Hinterwimmer (2008), see footnote 10), SV order is derived by means of a different strategy, namely direct movement from the post-verbal position to a non-L-related position to the left of T.¹⁴ This kind of movement is independently motivated for the case of non-referential QP objects. Consider the following example:

- (73) Algo lhe disseram, mas não sei o quê.
 something to-him said.3PL but not know.1SG the what
 ‘They must have told him something, but I don’t know what.’

(73) contains a fronted non-referential QP object. As already mentioned, non-referring expressions cannot be CLLDed. However, they *can* be fronted to pre-verbal position as shown in (73). As argued in Cinque

¹⁴ Evidence in favor of this analysis comes from the northern Italian dialects, Trentino and Fiorentino, which are NSLs that display obligatory subject clitics. In these dialects, the form of the clitic that is found with preverbal non-referential QPs is different from the one attested with referential DPs. Moreover, it is the same form that occurs with post-verbal subjects or with *wh*-moved subjects (see Barbosa, 1995; Poletto, 2000, who provide data that doesn’t quite fit the description provided in Brandi & Cordin, 1989).

(1990), Vallduví (1992), Barbosa (1995, 2000), constructions such as (73), display all of the diagnostics for syntactic movement.¹⁵ In particular, they move successive cyclicly and they exhibit reconstruction effects, unlike CLLD.

Vallduví (1992), as well as Barbosa (1995, 2000, 2009), argued that SV constructions with a non-referential QP as subject in a NSL are analysed as involving the same kind of movement as (73): the QP is extracted to the Spec position of a functional projection to the left of T. Thus, the EP example (74a) is analysed as in (74b) (where FP stands for the neutral term “Functional Projection”).¹⁶

- (74) a. Alguém telefonou.
 someone called
 ‘Someone called.’
- b. [FP alguém ... [T' [telefonou] [_{VP} ~~alguém~~ ...]]]

¹⁵ Some authors identify a structure like (73) with Focus movement (cf. Martins, 1994; Uriagereka, 1995). However, fronted bare QPs do not have the contrastive reading typically associated with fronted Focus (of referential DPs) in Italian (cf. Cinque, 1990). Raposo (1994), Zubizarreta (1998) use the term *Emphatic* movement and Vallduví (1992) uses the label *Quantificational Operator* movement. He claims that Spec-TP is an A-bar position and is the landing site for this kind of movement.

¹⁶ In Barbosa (1995, 2000) I have argued that the landing site for such a movement is (or may be) Spec-FinP. Vallduví (1992) claims it is Spec-TP, regarded as an A-bar position in these languages.

Even though the proposal that pre-verbal subjects do not raise to a pre-verbal A-position has faced opposition in the literature (Costa & Duarte, 2002; Cardinaletti, 2004; Rizzi, 2005), the evidence given in favor of this view comes from a variety of syntactic phenomena. In Barbosa (1995, 2000, 2009) I discuss a number of facts regarding the NSLs that can be captured under this analysis and are otherwise poorly understood. These concern (i) asymmetries between the Romance NSLs and French/English regarding pre-verbal subjects; (ii) asymmetries between referential and non-referential quantified subjects, which are attested in the NSLs though unattested in French/English. For lack of space, I will not discuss the evidence here and I refer the reader to the papers mentioned.

This is, in a nutshell, the overall approach to the syntax of the Romance NSLs. As already mentioned, there are several possible technical implementations of the insight that Agr is pronominal in these languages (see footnote 12) and developing a precise theory of this insight is not an easy task. For the purposes of this section, I choose the approach that entails the least amount of otherwise unmotivated assumptions. I adopt Holmberg's (2005) suggestion that what characterizes the consistent NSLs is that T bears a D feature. Contra, Holmberg (2005), however, I assume that the presence of D in T suffices for the ϕ -feature set in T to be interpretable and valued. Thus, by hypothesis, in a consistent NLS, T is endowed with the feature bundle $\langle D:i\phi \rangle$.

We thus get the following clausal structure for a finite clause where the subject is lexical.

$$(75) \quad [_{TP} [T \langle D:i\phi \rangle] [V/vP \dots DP \textit{subject}_{\langle i\phi, uNom \rangle} \dots]]]$$

From Zeijlstra (2012), I take the view that subject movement (that is, the EPP) is not triggered by case requirements, but instead results from the presence of $u\phi$ -features on T° . Movement is triggered by the requirement that the $i\phi$ -features of the subject c-command $u\phi$ in T° . In the case of (75), the ϕ -feature set in T is interpretable. Hence, there is no L-related movement to the specifier of T. Since the Romance languages are V raising languages, V raises all the way up to T yielding a post-verbal subject construction:

(76) [TP ...[_T [_V] _T <D:iφ>] [_{V/vP} *DP subject* <iφ, uNom>...]]

In (76) the subject is in its first merge position, inside V/vP. Since it bears an uninterpretable Nominative Case feature, it must enter an Agree relation with T, and this is how φ-feature agreement is obtained, linking the D with the post-verbal subject. On the interpretative side, I assume that <D:iφ> merely denotes an index, but we will return to this matter below.

Given that, in this view, the “thematic position” for the subject is postverbal, the prediction is that, if the language allows left dislocation with doubling by an overt subject pronoun, the doubler should be a postverbal pronoun rather than a preverbal one. In effect, as seen in the previous section, such “double subject” constructions do exist. They are the structures with emphatic pronouns. As observed, these are incompatible with non-referential QPs, which suggests that the constructions in which they occur are instances of left dislocation. Doubling by an overt preverbal pronoun, by contrast, is not productive at all in the Romance NSLs even though it is very productive in French or Brazilian Portuguese (see Barbosa, 2009, and the references cited there for discussion).

Solà (1992) surveys a number of different languages and reaches the conclusion that, among the sample of languages studied, only the NSLs have emphatic pronouns. While both the NSLs and the non-NSLs have emphatic anaphors (reflexives), only the former display emphatic pronouns. Within the framework of assumptions developed here, this typological

generalization follows naturally: emphatic pronouns are postverbal subject pronouns doubling a pre-verbal left-dislocated topic. In a non-NSL, however, the preverbal position is an A-position, therefore it is filled by a subject and the emphatic element can only be an anaphor.

One other fact that is immediately captured under this analysis is the position occupied by the subject in the infinitival complements under discussion in this article. We assume that D is invariably present under T in a consistent NSL, regardless of whether T is finite or not. According to the analysis proposed here, preverbal referential subjects require a configuration of CLLD (cf. (72)). In general, object CLLD requires the presence of a clitic. Likewise, by hypothesis, subject CLLD requires the presence of subject agreement features. In addition to this, it has often been noted that object CLLD is constrained in infinitival clauses, so several factors conspire against the availability of left-dislocation in (non-inflected) infinitives. Thus, preverbal subjects are rightly predicted not to be allowed in non-inflected infinitival clauses.

Note that if the language allows *wh*-movement inside the infinitival clause, as happens in Spanish, a *wh*-moved subject may occur preverbally:

(78) *Spanish (Torrego, 1996)*

Muchos de nosotros no sabemos [quantos firmar la
Many of us not know.1PL how many to sign the
carta].

letter

‘Many of us don’t know how many should sign the letter.’

Rizzi (1982) and Jaeggli (1984) have argued that the base position for subject extraction in the NSLs is the postverbal position and Campos (1997) discusses evidence from Spanish that supports this view. Hence, in (78) the *wh*-subject is directly extracted from postverbal position (cf. (79)), so, in reality, this case is not substantially different from the preceding cases. The only difference lies in the occurrence of *wh*-movement.

(79) Muchos de nosotros no sabemos [_{CP} quantos [_{VP}
~~quantos~~ la carta]]]

In sum, the reason why a preverbal subject is disallowed inside the infinitival complement clause in the Romance NSLs simply follows from the unavailability of left-dislocation in this particular context.¹⁷

At this point, we need to address the case of Hungarian, a consistent NSL where the overt subjects of the infinitival complements under discussion occupy the preverbal position. As is well known, Hungarian has a rigid sequence of “operator” positions in the preverbal field and the position immediately preceding the verb is reserved for the focus of the sentence. This is illustrated in the following examples taken from É. Kiss

¹⁷ This claim also applies to so called Aux-to Comp contexts; see Barbosa (2000, 2009) for the view that some of the structures that have fallen under this label are in reality instances of regular post-verbal subject constructions.

(1995, p. 212):

- (80) a. János Évát várta a mozi előtt.
János Évát.ACC waited the cinema in front of
'It was Eve that John waited for in front of the
cinema.'
- b. Évát János várta a mozi előtt.
Évát.ACC János waited the cinema in front of
'It was John that waited for Eve in front of the
cinema.'

In (80b) the object is a topic and the subject is in focus; in (80a), it is the other way around. As discussed in Szabolcsi (2009), the same pattern is found in infinitival clauses (note that the focus particle is optional in (81)):

- (81) Szerettem volna holnap mindenkivel (csak) én
would have liked.1SG tomorrow everyone.with (only) I
beszélni.
to.talk
'I would have liked it to be the case that tomorrow everyone
is such that it is me who talks with him/her.'

I assume that the position filled by the pronominal subject in (81) is a syntactic Focus position and that it is due to independent constraints internal to the grammar of Hungarian that the infinitival subject appears in the preverbal slot; I contend that once we control for this particular caveat,

the status of the infinitival subject in (81) is no different from that of a postverbal subject in Romance (so these examples are akin to Spanish (78), with a *wh*-moved subject).

Even though the analysis sketched captures the absence of preverbal subjects in (non-inflected) infinitival clauses in Romance, it doesn't of course have an answer to why, in this particular kind of language, a lexical subject may occur at all in these environments, particularly in control complements. In section 8 we offer an explicit account for why this is so, but before we motivate our analysis, we will discuss two possible alternative accounts of controlled pronouns.

6. Two possible alternative accounts of controlled pronouns

In this section, we examine two possible alternative theories of controlled overt pronouns and we conclude that both have shortcomings. The first one assumes that the overt pronoun is the *spell-out* of PRO and is adopted by Livitz (2011), Herbeck (2011) and Landau (2015). The second alternative is the possibility that the controlled pronoun is a doubling DP within a Big-DP, a variant of the Big-DP hypothesis that is consistent with our conclusions thus far. We will conclude that this latter possibility also fails.

6.1 Alternative 1: controlled pronouns as pronounced PRO

Most of the current theories of controlled pronouns in nonfinite environments (Livitz, 2011; Herbeck, 2011; Landau, 2015) rely on the idea that the overt pronoun is nothing but a PRO that happens to be pronounced. In view of the observation that these controlled pronouns are usually focused, the idea is that the pronunciation of PRO is sanctioned by the presence of a Focus feature. Even though the technical implementations of this idea differ from each other, one common denominator to all of them is the assumption that PRO is a minimally specified nominal, that is, a nominal category with an unvalued set of ϕ -features (for Livitz (2011) it is a ϕ P with unvalued ϕ -features; for Landau and Herbeck, it is a minimally specified D (D[ϕ :—])). The ϕ -features on PRO are valued in the course of the derivation under Binding or Predication (Landau, 2015) or under Agree with the features of the controller (Livitz, 2011; Herbeck, 2011). Under normal conditions, PRO is not pronounced, but when it bears a Focus feature it must be pronounced and so we get a controlled pronoun.

Even though this kind of approach is appealing in its simplicity, it faces conceptual and empirical problems. Starting with the latter, we observed above that the anaphoric expressions that may occur inside the infinitival control complements are not just pronouns, but also partitive QPs

and collective DPs. Here we repeat the relevant examples in EP and Spanish:

Partitive QPs containing a pronoun

(82) *EP*

Pensamos falar alguns de nós / vários de nós / muitos de
think.1PL to.speak some of us / several of us / many of
nós com ela.

us with her

‘Some of us / several of us / many of us intend to talk to her.’

(83) *Spanish (Torrego, 1996)*

No sabemos si asistir algunos de nosotros / muchos de
not know if to attend some of us / many of
nosotros.

us

‘We don’t know whether to attend some of us / many of us.’

Certain kinds of anaphoric collective DPs (cf. Torrego 1996)

(85) *EP*

Não sabemos como falar a turma toda / o grupo
not know.1PL how to talk the class whole / the group
todo com ela.

whole with her

‘We don’t know how the whole class / the whole group will

talk to her.’

(86) *Spanish*

No sabemos si asistir los linguistas.

not know.1PL whether to attend the linguists

‘We linguists don’t know whether to attend.’

These data are hard to accommodate under the pronounced PRO hypothesis. There is no way such anaphoric expressions can be analysed as minimally specified pronouns that get their features from the controller.

In addition to this, as already mentioned in section 3.2, the pattern observed in control complements bears striking features in common with the pattern found in finite contexts, where we not only find emphatic pronouns but also the same range of anaphoric expressions in construction with 1PL inflection. Here we repeat the relevant examples for convenience:

- (87) Chumbámos nós / só nós / só nós os dois / alguns de nós
flunked.1PL we / only we / only we the two / some of us
/ a turma inteira.
/ the class whole
‘We / only us / only both of us / some of us / we the whole
class flunked.’

This shows that the phenomenon in hand is not restricted to control environments. Therefore, it is rather unlikely that the pronounced PRO hypothesis is the answer. Whatever explanation one might find for the

control case should extend to these cases as well. That there is indeed a relation between the two is confirmed by the fact that the two environments are subject to similar restrictions. Thus, while Spanish allows a collective definite description to appear in construction with first person plural inflection in control (cf. (86)) as well as finite contexts (cf.(88)), EP disallows this kind of construction in both contexts:

(88) *Spanish (Torrego, 1996)*

Firmamos los linguistas la carta.

sign.1PL the linguists the letter

‘We linguists sign the letter.’

(89) *EP*

a. *Não sabemos se assinar os linguistas ou não.

not know whether to.sign the linguists or not

b. *Assinamos os linguistas a carta.

sign.1PL the linguists the letter

The fact that the constraint in question affects both finite and nonfinite environments is a strong indication that the same underlying process is at work in both contexts. Since the pronounced PRO hypothesis falls short of explaining the finite case, I conclude that it is not empirically adequate.

The pronounced PRO analysis is also inadequate on conceptual grounds. In the preceding section, we have concluded that there is a

As pointed out by Rigau (1987), Torrego (1996) (as well as Belletti, 2005), the constructions with emphatic pronouns in finite contexts and in infinitival control complements bear a striking resemblance with clitic doubling. In EP as well as Standard Spanish, clitic doubling is not allowed with direct object DPs even though it is attested with pronouns:

a. Nós vimo-la a ela.
we saw.1PL-CL.ACC.3SG.FEM to her
'We saw HER.'

b. *Nós vimo-la à Maria.
we saw.1PL-CL.ACC.3SG.FEM to.the Maria

a. Lo vimos a él

CL.ACC.3SG.MAS saw.1PL to him

‘We saw him.’

- b. *Lo vimos a Guille.

CL.ACC.3SG.MAS saw.1PL to Guille

Interestingly, in both languages, a first person plural direct object clitic may be doubled by the exact same range of partitive QPs and collective DPs that appear in the control and finite cases mentioned above:

- (92) a. *EP*

Eles viram-nos a nós / a alguns de nós

they saw.3PL-CL.ACC.1PL to us / to some of us

/ à turma inteira.

/ to.the class whole

‘They saw us / some of us / the whole class.’

- b. *Spanish*

Nos vio a nosotros / a muchos de

CL.ACC.1PL saw.3SG to us / to some of

los linguistas / a la clase entera.

the linguists / to the class whole

‘He/she saw us / some of us linguists / the whole

class.’

As happens in the control and finite environments, a collective definite description can be doubled by an accusative clitic in standard

Spanish thought not in EP.

(93) a. *Spanish*

Nos vio a los linguistas.

CL.ACC.1PL saw.3SG to the linguists

‘He / she saw us linguists.’

b. *EP*

*Viu-nos aos linguistas.

saw.3SG-CL.ACC.1PL to.the linguists

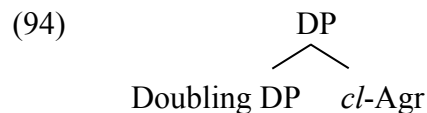
We take this range of facts as an indication that there is indeed a relation between the availability of controlled pronouns in infinitival clauses and the “clitic-like” status of subject agreement. Recall from the previous section that we have argued that the head bearing subject agreement in the consistent NSLs is a D head bearing an interpretable set of ϕ -features. Thus, it is quite plausible that the availability of emphatic pronouns in finite as well as in control infinitives is related to the availability of a configuration akin to clitic doubling.

As briefly mentioned in section 3 in connection with Belletti’s analysis, one common way of dealing with clitic doubling has been to assume that the clitic and the doubling DP originally form one constituent, a Big-DP, an idea that goes back to Torrego (1985). By now, there are different versions of this idea. In section 3, we presented a problem for Belletti’s particular implementation of the Big-DP hypothesis as applied to

emphatic pronouns constructions with a preverbal subject.¹⁸ However, within the framework of assumptions developed thus far, other hypotheses of analysis suggest themselves. One case in point is the theory developed by Ordonez and Trevino (1999), who propose that person agreement is a clitic in Spanish and that the relation established between a postverbal subject and *cl-Agr* is one of clitic doubling. We turn to their proposal next.

6.2 Alternative 2: The controlled pronoun is a doubling DP within a Big-DP

Following Torrego (1985) and Uriagereka (1995), Ordonez and Trevino (1999) adopt the Big-DP analysis of clitic doubling. The authors propose that person agreement in the NSLs is clitic that heads a DP which may optionally contain a Doubling DP as a specifier:



The Big-DP is merged as a subject argument and then *cl-Agr* raises to the left of T yielding the “rich agreement” morphology typical of the

¹⁸ Note that Belletti’s (2005) analysis differs from the standard Big-DP approach to clitic doubling in that she assumes that the head of the Big-DP is the emphatic pronoun itself, which is not a clitic, and that what moves out of the Big-DP is the doubling DP yielding an emphatic pronoun construction. On the assumption that the doubling DP may be PRO, this movement would also derive controlled pronouns. In section 3, we presented a difficulty for this analysis.

consistent NSLs. When the specifier of the Big-DP is not projected, we get a null subject sentence, when it does project, we get “free inversion”, including emphatic pronoun constructions (note that, like us, the authors assume that pre-verbal “subjects” are dislocated).

The authors do not discuss infinitival clauses, but it is not difficult to envisage an account of infinitives within this approach. For the sake of argument, one could assume, in line with recent accounts of the feature make-up of PRO, that in a consistent NSL *cl*-AGR in infinitival clauses bears unvalued ϕ -features. When embedded under a raising verb, *cl*-Agr would raise all the way up to the matrix T. If a doubling DP is present, we basically derive a subject *in situ* inside the infinitival complement, as described in the previous section. In an OC configuration, assuming an Agree-based model of Control, *cl*-Agr only raises up to infinitival T and the unvalued ϕ -features on *cl*-Agr are valued by the features of the controller under Agree. Assuming that the doubling DP agrees with the head of the Big-DP, *cl*-Agr, this would enforce an anaphoric interpretation on the doubling DP, when present, and so we would get either an anaphoric pronoun as the doubling DP or the by now familiar set of anaphoric expressions construed with first person plural inflection.

On the surface, this approach works pretty well for all the cases discussed here while capturing the correlation established between the availability of controlled pronouns and the null subject property of the

consistent kind. Notwithstanding this, I believe that there are reasons to be skeptical about the whole Big-DP approach. In the first place, the analysis is circular: there is clitic doubling because there is a Big-DP and there is a Big-DP because there is clitic doubling. In order for the analysis to be completely convincing, one would like to see independent evidence in favor of this particular DP architecture, but the evidence is nowhere to be found: whenever a Big-DP is posited, displacement of either D or of the doubling DP is also posited, so we never actually get to see the full DP.¹⁹ In the second place, under this approach, doubling is predicted to occur without restrictions and I find it difficult to constrain the structure assumed so as to capture the interpretation of post-verbal subjects, particularly when compared to cases of clitic doubling. In EP, Italian and Catalan, at least, we know that post-verbal subjects tend to be focused. On the other hand, it has been reported in the literature on languages that have fully productive clitic doubling of direct objects that the doubling DP is interpreted as ‘familiar’ or ‘topical’ (Kallulli, 2008). Assuming that the Big-DP configuration is what lies behind both constructions, we reach a somewhat paradoxical situation given that focus and topicality are incompatible notions. In other words, the Big-DP analysis is too unconstrained and additional machinery is required

¹⁹ In most cases, there is displacement of D in virtue of being a clitic. In Belletti’s analysis of emphatic pronouns described in section 3, however, it is the doubling DP that must move, leaving the strong pronoun (not a clitic) behind.

so as to prevent it from overgenerating.

For these reasons, this approach will not be adopted here. I assume that, in the consistent NSLs, T contains a D-feature and interpretable ϕ -features ($i\phi$). The post-verbal subject is independently merged as an argument, as described in the previous section, and enters an Agree relation with T so as to check its Nominative Case feature. This creates a configuration of doubling with particular properties, to be presented in the next section.

7. The proposal

There are two aspects that we take to be key to an understanding of controlled pronouns. The first one is that, in the Romance languages under consideration, their interpretation is very similar to that of emphatic pronouns in finite contexts. The second one is that these pronouns are exhaustively focused. These two aspects are, in effect, closely related, given that emphatic pronouns are invariably associated with an exclusive focus interpretation.

As already mentioned, a sentence with an emphatic pronoun can be paraphrased by an English sentence with an emphatic reflexive:

- (95) A Maria resolveu ela o problema.
the Maria solved she the problem
'Maria solved the problem herself.'

Notwithstanding this, emphatic pronouns do not quite display the same range of interpretations as emphatic reflexives. The literature on emphatic reflexives mentions at least two distinct uses of these elements: an additive/inclusive use and an exclusive use (König & Siemund, 2005; Gast, 2006; Ahn, 2010):

- (96) a. *Additive/inclusive*
Though Liz's boss can speak German fluently, Liz is
able to speak little German, herself.

b. *Exclusive*

Despite her lack of German skills, Liz ran the business meeting herself, which is to say without her boss's help.

Emphatic pronouns, by contrast, cannot be used to convey an additive/inclusive meaning; they can only be associated with the exclusive reading (96b). This fits in well with the idea that they are postverbal subjects rather than adjuncts. In effect, as previously mentioned, in the case of EP and Italian at least, exclusive focus is a property that holds of (most) postverbal subjects, particularly in V initial transitive sentences, as we will see. Let us start by reconsidering a transitive sentence in EP with a definite postverbal subject:

- (97) a. Resolveu a Maria o problema.
solved the Maria the problem
'It was Maria who solved the problem.'
- b. Resolveu ela o problema.
solved she the problem
'It was she who solved the problem.'

As already mentioned, (97a-b) have an interpretation that is very similar to that of an *it* cleft, equivalent to 'The one who solved the problem was Maria/she', with exhaustive focus on the post-verbal subject. Exhaustivity can be demonstrated using a test provided by Szabolcsi (1981)

in her discussion of the Hungarian pre-verbal Focus position (see also É. Kiss, 2006). The test sentences have two versions. In one sentence, the subject is a conjoined DP and, in the other, one of the members of the conjoined DP has been dropped. If the latter version contradicts the former, then the subject is interpreted exhaustively. We start by applying this test to a cleft sentence in EP:

- (98) a. Foram o Pedro e a Ana quem resolveu o
 were the Pedro and the Ana who solved the
 problema.
 problem
 ‘It was Pedro and Ana that solved the problem.’
- b. Foi o Pedro quem resolveu o problema.
 was the Pedro who solved the problem
 ‘It was Pedro that solved the problem.’

(98a-b) are not compatible with each other. (98b) implies that Peter is the unique entity that solved the problem. Thus, if (98a) is true, then (98b) is anomalous, as it contradicts the explicit content of (98a). Bearing this in mind, let us consider V initial sentences with a transitive verb and a postverbal subject. Consider the following examples:

- (99) a. Resolveram esse problema o Pedro e a Maria.
 solved that problem the Pedro and the Maria
 ‘It was Pedro and Maria that solved that problem.’

b. Resolveu esse problema o Pedro.

solved that problem the Pedro

‘It was Pedro that solved that problem.’

According to the informants that I have consulted, (99a-b) sound contradictory, a fact that suggests that the subject is interpreted exhaustively. The same effect obtains when the sentence displays VSO order:

(100) a. Resolveram o Pedro e a Maria esse problema.

solved the Pedro and the Maria that problem

‘It was Pedro and Maria that solved that problem.’

b. Resolveu o Pedro esse problema.

solved the Pedro that problem

‘It was Pedro that solved that problem.’

Curiously, when the post-verbal subject is an indefinite or a bare plural, exhaustivity is no longer enforced (even though it is possible). Thus, (101a-b) are not perceived as contradictory by any of the informants consulted and similar judgements obtain in the case of (102a-b), with VSO order:

(101) a. Resolveram esse problema crianças e adultos.

solved that problem children and adults.

‘Children and adults solved that problem.’

b. Resolveram esse problema crianças.

solved that problem children

‘Children solved that problem.’

(102) a. Resolveram crianças e adultos esse problema.

solved children and adults that problem

‘Children and adults solved that problem.’

b. Resolveram crianças esse problema.

solved children that problem.

‘Children solved that problem.’

When the subject is an indefinite, as in (103), judgements depend on specificity. If the subject is interpreted as a specific indefinite, it patterns with the definite DP in (99-100). The nonspecific interpretation patterns with that of the bare plural in (101-102).

(103) a. Resolveram uma criança e um adulto esse

solved a child and an adult that

problema.

problem

‘A child and an adult solved that problem.’

b. Resolveu uma criança esse problema.

solved a child that problem

‘A child and an adult solved that problem.’

Interestingly, these patterns are remarkably similar to those that have been described by É. Kiss (2006) for preverbal Foci in Hungarian in

sentences without a pre-verbal particle. As we have seen, Hungarian has a preverbal Focus position which can be filled by any constituent. In this context, É. Kiss (2006) observes that there is a contrast between definite DPs and singular or plural indefinites sitting in the preverbal Focus position in sentences without a preverbal particle. While the former must be interpreted exhaustively, the latter do not necessarily express exhaustive identification. É. Kiss (2006, p. 175) illustrates her point with the following examples:

- (104) a. János KÖNYVEKET ÉS CD-KET vett.
 János books and CD's bought
 'John bought BOOKS AND CD's.'
- b. János KÖNYVEKET vett.
 János books bought
 'John bought BOOKS.'
- (105) a. János EGY KÖNYVET ÉS EGY CD-T vett.
 János a book and a CD bought
 'John bought A BOOK AND A CD.'
- b. János EGY KÖNYVET vett.
 János a book bought
 'John bought A BOOK.'
- (106) a. János A KÖNYVET ÉS A CD-T vett.
 János the book and the CD bought

‘It was the book and the CD that John bought.’

b. János EGY KÖNYVET vett.

János a book bought

‘It was the book that John bought.’

According to É. Kiss, (104a) and (104b) can be simultaneously true in the same world and the same applies to (105a-b). (106a-b), however, are inconsistent, an anomaly that arises in virtue of the exhaustive interpretation assigned to the focused definite. É. Kiss further observes that the indefinite nouns phrases in (105) are ambiguous between a nonspecific and a specific reading. While a nonspecific indefinite patterns together with a bare noun (cf. (104), a specific indefinite patterns with a definite DP and is interpreted exhaustively. To illustrate her point, É. Kiss mentions an example containing a verbal particle, which blocks the nonspecific interpretation.

(107) a. János EGY KÖNYVET ÉS EGY CD-T vett meg.

János a book and a CD bought up

‘It was a book and a CD that John bought up.’

b. János EGY KÖNYVET vet meg.

János a book bought up

‘It was a book that John bought up.’

(107a-b) sound contradictory, so the focused object has an exhaustive interpretation. Thus, the patterns of variation found in the interpretation of nominal constituents in the preverbal Focus position in

Hungarian are strongly reminiscent of the patterns of variation found in the interpretation of post-verbal subjects in EP. For this reason, it is not unreasonable to assume that they have a common source. In what follows, we will review the analyses of the Hungarian structural Focus position put forward by É. Kiss (2006) and Wedgwood (2005). The core of their proposals is that the Hungarian Focus position is essentially a predicative position: the constituent that occupies this position (i.e., the position immediately left-adjacent to the tensed element in the clause) must be interpreted as a predicate.

7.1 Hungarian structural Focus as predication

É. Kiss (2006) starts by observing that the Hungarian sentence (107b) can be adequately paraphrased by a cleft or pseudocleft construction in which the focused constituent appears as a nominal predicate complementing the copula.

- (108) a. It was a book that John bought up.
b. What John bought was a book.

In the spirit of Higgins (1973) and S. Huber (2000), É. Kiss (1999) assumes that the focus interpretation of the pseudocleft and cleft constituents is a consequence of their predicative function. In his analysis of the pseudocleft construction, Higgins claims that sentences consisting of a

subject, a copula and a predicative complement can be of three types: predicational, identificational and specificational. The first two types contain a referential subject. Specificational sentences contain a nominal predicate, as illustrated in (109):

(109) The winner is my brother.

In this case, neither the subject nor the nominal predicate are referential. The subject functions as the heading of a list (or, in other words, delimits a domain) and the predicate specifies what makes up the list (or identifies the particular members of that domain). A specificational predicate presupposes exhaustivity, i.e., other alternatives are excluded. Pseudocleft constructions are specificational copular sentences: the *wh*-clause functions as the subject and the clefted constituent is a specificational predicate.²⁰

Given that the interpretation of the Hungarian structural Focus is identical with that of a cleft or pseudocleft constituent, É. Kiss (1999) proposes that it has the same source. In particular, she argues that the Hungarian Focus constituent occupies a predicative position, namely Spec,

²⁰ In S. Huber's (2000) terms, in specificational sentences, the subject denotes a set, which the predicate characterizes through another set, by listing the individuals that make up the set. A specificational predicate implies exhaustive listing. The subject of predication is associated with an existential presupposition because only the content of an existing set can be listed. In this view, the focus properties of the cleft constituent are the properties of a specificational predicate.

PredP. A sentence with a structural Focus has the structure in (110):

(110) [_{PredP} PÉTER_i [_{VP} *t_i* olvasta el a levelet]]

‘It was Peter who read the letter.’

According to É. Kiss (2006), the filler of Spec, PredP must be interpreted as a predicate.

Since *Péter*, a definite DP, referential noun phrase, cannot be interpreted as a property, it can only be understood as a specificational predicate. As such, it requires an open sentence as its subject, which is provided by the VP. (É. Kiss, 2006, p. 182)

Thus (110) expresses that the set of people who read the letter includes Peter and no one else. Exhaustivity follows from the specificational role of the nominal predicate.

É. Kiss’s theory has the advantage of accounting for the above noted asymmetry between definite DPs and specific indefinites, on the one hand, and bare nominals or nonspecific indefinites, on the other. Under É. Kiss’s approach, a preverbal nominal constituent occupying the position immediately left-adjacent to the tensed element in the clause receives a predicate interpretation. As discussed in Higgins (1973), a nominal can function as a predication, identificational or specificational predicate. Any type of nominal can express specification. Predication, on the other hand,

can only be expressed by a bare nominal or a nonspecific indefinite. Since only specification presupposes exhaustive listing, definite DPs are expected to pattern differently from bare nominals or nonspecific indefinites: only the former are necessarily interpreted exhaustively.

Yet another piece of data that supports the predicative nature of structural Focus is the following observation originally made by Szabolcsi (1981). A DP in the preverbal Focus position allows a nonreferential, “qualitative” interpretation, in which the contrasted DPs can have the same referent (É. Kiss, 2006, p. 180, ex. 18a):

- (111) AZ ÖREGEMBERNEK_i adtam át a helyem, nem A
 the old.man.to gave.1SG over my seat not the
 PROFESSZORNAK_i.
 professor.to
 ‘It was to the old man that I gave my seat, not to the
 professor.’

This interpretation is not possible whenever the contrasting DPs occupy any other position (É. Kiss, 2006, p. 180, exs. 18b,c):

- (112) a. *Az öregembernek_i át adtam a helyem
 the old.man.to over gave.1SG my seat
 a professzornak_i nem.
 the professor.to not
 ‘To the old man, I gave my seat; to the professor, I

did not.’

- b. **Át* adtam a helyem az öregembernek_i,
over gave.1SG my seat the old.man.to
de nem adtam át a professzornak_i.
but not gave.1SG over the professor.to
‘I gave my seat to the old man, but I did not give it to
the professor.’

These contrasts fit in well with the idea that the preverbal Focus position is a predicative position.

Wedgwood (2005, 2009) offers an analysis of Hungarian structural Focus that is rather similar in spirit to that of É. Kiss’s. He also takes the preverbal Focus position to be a predicative position. He further suggests that when the constituent occupying this position is an individual denoting expression — a definite DP or a specific indefinite — its meaning must be shifted from type $\langle e \rangle$ to type $\langle e, t \rangle$ by the type-shifting operation *Ident*, originally proposed by Partee (1987). This operation maps any element onto its singleton set. In Wedgwood’s terms, this amounts to the shift exemplified in (113):

$$(113) \text{ mary}' \rightarrow \lambda x. x = \text{mary}$$

(‘interpret *Mary* as the set of things that are Mary’)

Consider the following sentence:

$$(114) \text{ János MARI-T fogja látni.}$$

János Mari-ACC will see.INF

‘It’s Mary who John will see.’

In (114), *Mari-t* is in the pre-tense position, so it is interpreted as a predicate. As a result of this, its meaning is shifted to a property by *Ident*, giving essentially the reading ‘be Mary’, or, in set theoretic terms, ‘the set of things that are Mary’. In Wedgwoods (2009) own words, “we are no longer dealing with Mary, but rather with the set of things (or, more plausibly, the thing) that *can be identified as being Mary*” (Wedgwood, 2009, p. 109). Since an act of identification implies the existence of something to be identified, the identificational reading has a presuppositional element: by a process of inference, the property in question is understood as being predicated of the rest of the sentence so that what is identified with being Mary are ‘the things that János will see’, yielding the interpretation: ‘the entity that János will see is Mary’. This reading is equivalent to that of a cleft. In a nutshell, the effect of the ‘Focus position’ is:

(i) to abstract the denotation of its occupant from the normal meaning of the sentence, (ii) via a process of inference, to bind the remainder with a *iota* (rather than merely a *lambda*), and (iii) to apply the predicative reading of the ‘Focus position’ expression to the *iota*-expression. (Wedgwood, 2009, p. 109)

As will be clear in the following section, Wedgwood's proposal will be particularly useful in our discussion of the interpretation of postverbal subjects in Romance.

Having reviewed the analyses that assume that the Hungarian preverbal Focus position is a predicative position thus establishing a connection between predication and focus, we are in a position to come back to post-verbal subject constructions in the Romance NSLs.

7.2 Postverbal subjects in the Romance NSLs

Above we have examined the patterns of variation in the interpretation of post-verbal subjects in VSO/VOS sentences and we have concluded that they have striking features in common with Hungarian structural Focus. In particular, when the subject is a definite DP or a specific indefinite, exhaustivity is enforced and the reading obtained is akin to that of a cleft. When the subject is a bare nominal or a nonspecific indefinite, exhaustivity is possible though not mandatory. The account offered for Hungarian relies on the idea that the constituent in Focus is interpreted as a predicate. In view of the similarities between the two cases, a natural move to make at this point is to pursue an analysis of postverbal subjects in the Romance NSLs along the same lines. As a matter of fact, one other piece of

evidence in favor of the predicative nature of the postverbal subject is the availability of the non-referential, “qualitative” interpretation for a DP subject in post-verbal position, exactly as described above for Hungarian (cf. (111)).

- (115) Falou [o velho homem]_i e não [o professor]_i.
spoke the old man and not the professor
‘It was the old man that spoke, not the professor.’

In (115), the two nominal expressions have the same referent. When the subject occupies the preverbal position, this interpretation is not possible:

- (116) #[O velho homem]_i falou; [o professor]_i não.
the old man spoke the professor not

In our view, these contrasts constitute evidence in favor of the predicative nature of the DP subject in postverbal position.

In spite of the similarities noted, there are of course important differences between Hungarian structural Focus and postverbal subjects in the Romance NSLs. In the first place, any constituent can be focused in Hungarian, not just subjects; in the second place, there is a dedicated position for structural Focus in Hungarian. From these two observations it follows that it is rather plausible to posit a predicative projection in this language, the specifier of which can be the landing site for any constituent. In the case of the postverbal subject constructions under discussion,

however, positing a predicative projection makes little sense in view of the fact that the position in question is restricted to subjects. For this reason, we will try to derive the predicative (or property) interpretation of post-verbal subjects from a different source.

Above we have argued that T bears an interpretable D feature in the consistent NSLs. Assuming that D bears an index, one plausible move to make is that the property interpretation of postverbal subjects is enforced by the presence of D in T. In fact, the idea that the focalized nature of many postverbal subjects in Italian is due to their being “predicated” of D in T can already be found in Manzini (2009). The author assumes an analysis of the role of subject agreement that is rather similar to ours. She proposes that D in T denotes a variable and that the post-verbal subject is interpreted as a property that is applied to it. Here we adopt this view. Along the lines of Wedgwood (2009), we propose that, when the thematic subject is a definite DP or a specific indefinite, its denotation must be shifted to property denotation by *Ident*.

In order to spell out the analysis more clearly, let us reconsider the syntax of (117a) (irrelevant details omitted):

- (117) a. Falou a Maria com o Pedro.
 talked the Maria with the Pedro
 ‘It was Maria who talked to Peter.’
 b. $[[_T V [_T \langle D_1, i:\phi \rangle]] [_{vP} [_a \textit{Maria}]_2 \ \forall \textit{ com o Pedro}]]$

The DP *a Maria* is merged in subject position within the vP and bears a Case feature. Thus, it is active as a goal. T and the subject enter an Agree relation and their ϕ -features match. Since the subject and T belong within the same Phase (the CP Phase) both are present when the derivation is handed over to the semantics. At this point, D_i and the DP subject are both interpretable, in violation of Full Interpretation. Type shifting applies to the denotation of *a Maria* yielding the property $\lambda x. x=Maria$. This property is applied to the individual variable introduced by D. Crucially, the element that truly saturates the verbal predicate is this variable.

With this much in place, we now address the issue of exhaustivity. (117) has an interpretation that is similar to that of an *it* cleft, equivalent to ‘The one who talked to Peter was Maria’. The exhaustive Focus interpretation found in (117), however, doesn’t carry over to every sentence with a post-verbal subject. In particular, it doesn’t obtain in presentational sentences with unaccusative verbs (cf. 118a) and certain types of unergatives (cf. 118b):

- (118) a. Chegou o comboio.
 arrived the train
 ‘The train arrived.’
- b. Telefonou o João.
 called the João
 ‘John called.’

Moreover, even when we restrict our attention to transitive sentences with an overt object and a postverbal subject such as (117), we observe that it is possible to construct examples in which the postverbal subject is not necessarily interpreted exhaustively. Thus, if we manipulate example (117) by adding a topical expression in the left-periphery and slightly change verb aspect, exhaustive focus is no longer mandatory (cf. (119)). (119) is not incompatible with a situation in which other people besides Maria were talking to Pedro:

- (119) Quando eu entrei na sala, falava a Maria com o
when I entered in.the room spoke the Maria with the
Pedro.
Pedro
‘When I entered the room, Mary was talking with Peter.’

The contrast between (117) and (119) suggests that the obligatoriness of exhaustive focus on a postverbal subject is highly dependent on information structure. We take this as an indication that exhaustivity is constructed inferentially, as argued by Wedgwood (2009) in connection with the Hungarian Focus position (in spite of the already noted important differences between the two cases). We contend that the exhaustive focus interpretation arises whenever the semantic representation is such that the identity statement falls under the Nuclear Scope (or is asserted) and the rest of the material in the clause is presupposed (we adopt

Wedgwood's proposal that binding of the remainder of the clause by *iota* is constructed inferentially). Thus, in the case of example (117), what is being identified with Mary is the set of individuals that talked to Peter. This yields the interpretation 'the entity that talked to Peter is Mary':

(120) [the x : x talked to Peter] $x = \text{Mary}$

Interpreting the verbal predicate as presupposed, as in (117), appears to be a property of V initial sentences containing a transitive verb. As noted, once we add a frame adverbial expression and introduce enough context, the narrow focus reading is no longer obligatory. This can be clearly seen in the following minimal pair, which contains a transitive verb:

- (121) a. Perdi eu o autocarro.
missed I the bus
'I was the one who missed the bus.'
- b. Vê lá. Por causa das pressas, perdi eu o
see there because of.the hurry missed I the
autocarro.
bus
'Guess what, because I was in a hurry I missed the
bus.'

(121a) can only be interpreted with narrow focus on the pronoun, meaning 'I was the one who missed the bus'. (121b) is not necessarily so interpreted. The difference between the two examples lies in the context

setting and in the presence of the frame PP *por causa das pressas* ‘because I was in a hurry’ in (121b). The PP sets a presupposed focus frame and this allows for the verbal predicate to be mapped within the Nuclear Scope, so that what is asserted is something like ‘the individual x , such that x = the speaker, missed the bus’. No exhaustive reading is obtained in this case.

Likewise, in presentational sentences with an intransitive verb (cf. (118)), the verbal predicate is asserted rather than presupposed. We can think of a representation for (118b) along the lines of (122), where e stands for a Davidsonian event argument:

(122) $\exists e$ [call (e) & Agent (e , [the x : x = John])]

(122) says that there is an event of calling and John is its agent. In this case, the verbal predicate is asserted along with the identity statement applied to the variable introduced by D.

The idea that the relation established between the variable introduced by D and the (definite) post-verbal subject is one of identification also has the potential to capture the occurrence of collective DPs in construction with 1st person inflection. We illustrate our point with the collective DP ‘the whole class’:

(123) Falámos com ele a turma toda.

talked.1PL with him the class whole

‘We, the whole class, talked to him.’

In (123) the set ‘the whole class’ is identified with D in T. Above we

argued that the set of ϕ -features in T is interpretable, so we basically get the following interpretation: ‘the x , such that x is a group and includes the speaker and x talked to him, = the whole class’. Likewise, in (124)

(124) Falámos com ele alguns de nós.

talked.1PL with him some of us

‘We, some of us, talked to him.’

the set denoted by the partitive phrase *alguns de nós* ‘some of us’, which is a subset of the set denoted by the oblique pronoun *nós* ‘us’, is identified with D. Thus, (124) ends up meaning: ‘the group x , such that x includes the speaker and x will talk to him = a subset of us’.

In this connection, the question arises of why agreement must be 1st person plural rather than 3rd person. Consider the counterpart to (124) with third person inflection:

(125) Falaram com ele alguns de nós.

talked.3PL with him some of us

(125) is not ungrammatical, but rather implies that the group of people who talked to him excludes the speaker. This group, in turn, is identified with a subset of the group denoted by the oblique pronoun ‘us’, which includes the speaker. This result is what is expected under the assumption that the ϕ -features on T are interpretable. Assuming that the person features are decomposed in the more primitive features $[\pm 1]$, $[\pm 2]$, (see Noyer, 1992; Müller, 2005), 3rd person will be specified as $[-1; -2]$.

This means that it will exclude 1st person. If the intended interpretation is that the set that is being identified with the variable introduced by D includes the speaker, then 1st person morphology must be used and everything else follows. By hypothesis, interpretability of the ϕ -feature set under T is a function of the presence of D in T.

Since this approach appears to be adequate for the core cases under discussion, we will pursue it here. In this paper, we confine ourselves to the cases in which the postverbal subject is definite and leave an examination of other types of subjects for future work. With this much in place, we are now in a position to look at overt pronominal subjects of infinitival complements (null subject constructions will be briefly addressed in section 9).

8. Infinitival complements revisited

Our approach to infinitival constructions is based on the idea that T in infinitives contains an interpretable D feature just like finite T. The difference between finite and infinitival clauses is that infinitival T is somehow defective with respect to ϕ -features. We will encode this insight by assuming that T bears an unvalued (though interpretable) ϕ -feature set. We start by examining raising contexts.

8.1 Raising complements

Recall from the discussion in section 2 that example (126) is ambiguous between the two interpretations in (127):

(126) Acabou por receber a Maria / ela bons papéis

ended up by to receive the Maria / she good roles

(127) a. It ended up being the case that Maria / she was the one that got good roles.

b. Maria/she was the one who ended up receiving good roles.

We are interested in the configuration in which the post-verbal subject is within the embedded clause. Following Costa (2004), we assume that the subject is *in situ*, in Spec, ν P, and that the object has moved out of ν P, so the representation is as follows:

(128) acabou por [_{TP} receber [bons papéis [_{ν P} a Maria / ela ...]]

ended up by to receive good roles the Maria / she

We adopt Chomsky's (2000) suggestion that raising infinitives do not project up to C and hence are not strong phases. Lack of a C projection accounts for the fact that these infinitival complements are Tense and ϕ -feature defective. Notwithstanding this, I assume that T in raising infinitives bears a D feature as well. Within the framework of assumptions developed thus far, T in the infinitival complement has unvalued ϕ -features and T in

the matrix has valued φ .

$$(129) \quad [T_{\text{FIN}} \langle D, \varphi:val \rangle] \dots [[T_{\text{INF}} \langle D, \varphi: _ \rangle] \textit{subject}]$$

The subject *in-situ* enters a long distance Agree relation with infinitival T; since T is defective and the infinitival domain is not a Phase, the subject enters a second Agree relation with matrix T (an operation that I assume is triggered by Case):

$$(130) \quad [T_{\text{FIN}} \langle D, \varphi:val \rangle] \quad [[T \langle D, \varphi: val \rangle] \textit{subject}]$$

The φ -features of T in the embedded clause are valued under Agree with matrix Agr (recall that we adopt Zeijlstra's (2012) proposal that feature valuation requires c-command).

Now note that D in the embedded clause and D in the matrix are both linked to a single argument position. I suggest that, due to this, only one instance of D is interpreted. If so, then the configuration above can give rise to different semantic representations depending on which D is interpreted. If it is the higher one, the reading obtained is 'The x such that x started to receive good roles is Mary/she'. If it is the lower one, we get the reading 'It started to be the case that the x such that x received good roles is Mary/she'.

8.2 Control complements

As we have seen, in obligatory control complements, if the subject of the infinitival clause is explicit, it must be anaphoric. Since, as shown above, the data are problematic for a *backward control* control analysis, I adopt a non-movement approach.

In recent years, a growing number of studies on obligatory control within the Minimalist Program adopt the view that (at least some) obligatory control infinitives denote (derived) properties of individuals rather than propositions (cf. Landau, 2015, and the references cited there). Chierchia (1990) argued that infinitives and gerunds are systematically interpreted as derived predicates or unsaturated structures (i.e., properties); thus, when combined with attitude verbs, they give rise to obligatory *de se* interpretations. According to Chierchia, a structure such as (131a) is interpreted as in (131b), where PRO is translated as a λ -abstractor:

- (131) a. to eat the cheese.
 b. $\lambda x [x \text{ eats the cheese}]$

So as to capture the interpretation of PRO as a λ -abstractor, Chierchia proposed that PRO is bound by a null operator in C.

- (132) a. The cat wants to eat the cheese.
 b. The cat wants [Op_i [PRO_i to eat the cheese]]

Other authors (Clark, 1990; Heim & Kratzer, 1998; Landau, 2015) assume that the operator is PRO itself, moving to a position in the left-periphery of the clause:

(133) The cat wants [PRO_i [*t_i* to eat the cheese]].

In Landau's (2015) particular implementation of this idea, an infinitival TP with a PRO subject is embedded under a "predicative" head in the low CP periphery, which he takes to be Rizzi's (1997) Fin. In the same way that C attracts a *wh*-phrase to its Spec, Fin attracts PRO, thus turning the clause into a predicate. This property of Fin is encoded as an uninterpretable D feature that acts as a probe for a matching D category. In Landau's system, PRO is a featureless D, [D, ϕ :_]. Semantically, it merely denotes an index. Upon movement to Spec, Fin, it is translated into a λ -abstractor.

In reality, Landau's (2015) major concern is the distinction between two types of OC complements, those embedded under attitude verbs, and those embedded under non-attitude verbs, such as implicative, aspectual or perceptive verbs. The latter denote properties that are related to the controller via direct predication. The former involve an extra layer of structure (a CP layer), which hosts a projected coordinate of the embedded context of evaluation, either *the attitude holder* or *the addressee*. The predicative FinP is selected as a complement of C and the derived property is predicated of the projected coordinate in Spec, CP. Since I fail to detect any significant differences between the two types of OC complements regarding the availability of an overt pronominal subject, this distinction will not be further discussed here. For the purposes of the present paper,

what matters is the idea that at the core of the control configuration lies a derived predicate “constructed” by Fin.

In what follows, I will assume that the lambda abstract is contributed by the predicative head Fin itself. The idea that semantic binders (λ -operators represented as binder indices) are introduced by particular functional heads is found in Kratzer (2009) (see also Adger & Ramchand, 2005). To illustrate how this proposal works, we briefly present Kratzer’s analysis of English reflexives. In this analysis, the v head that introduces external arguments carries a binder index and binding from the closest v creates the phenomenon of reflexivization. Thus, the structure of the vP of a simple reflexive sentence *I blame myself* is as in (134b):

- (134) a. I blame myself.
b. $[vP\ I\ [v\ [n]\ [VP\ blame\ [n]]]]$, parsed as $[vP\ I\ [v\ [\lambda[n]\ [VP\ blame\ [n]]]]]$

The personal pronoun is a mere index represented as a numerical feature $[n]$ that functions as an individual variable. The binder $\lambda[n]$ is introduced by v in the form of another occurrence of $[n]$ and is parsed as heading its own projection, thus essentially creating a reflexive predicate.

Kratzer conjectures that relative pronouns also originate as mere numerical indices that are bound by local Cs that attract them to their specifier position. When they move they leave a copy of their index behind, which is then bound by the C that attracted them. The pronoun’s own index

is not interpreted in the position where it is given a pronounceable shape; consequently, we end up with a CP that denotes a property.

Coming back to infinitival complements, we combine Landau's insight that in OC complements Fin is predicative with the procedure introduced by Kratzer (2009). We have argued that T bears an interpretable D feature in a consistent NSL. Adopting Landau's proposal, we hypothesize that T containing D is attracted to Fin carrying the whole verbal complex along.²¹

$$(135) \quad [[_{\text{Fin}} [_T \text{V-T} \langle \text{D}_i, \varphi: __\rangle] \text{Fin} [n]] [_{\text{TP}} [_T \text{V-T} \langle \text{D}_i, \varphi: __\rangle] [_{\text{v/VP}} \text{V} \dots]]]$$

Fin carries a binder index, which is parsed as a lambda abstract adjoined to TP.

$$(136) \quad [_{\text{FinP}} \text{Fin} [\lambda[n] [_{\text{TP}} [_T \text{V-T} \langle \text{D}_i, \varphi: __\rangle] [_{\text{v/VP}} \text{V} \dots]]]]$$

Now consider an example with an overt pronoun:

$$(137) \quad \text{Decidiu ir} \quad \text{ele ao} \quad \text{mercado.}$$

decided to go he to.the market

²¹ Curiously, there is evidence concerning clitic placement in favor of the view that infinitival T in the Romance NSLs raises higher than finite T. This evidence is clear in the case of Italian and Spanish, where pronominal clitics precede the inflected verb in finite clauses even though they follow it in infinitival clauses. This is in contrast to French, a non-NSL, where pronominal clitics invariably precede the verb (see Kayne, 1991, for the idea that there is a correlation between this state of affairs and the null subject property). Note, however, that this order is found in all kinds of infinitives, not just control infinitives.

‘He decided to go to the market himself.’

In this case, the embedded FinP will have the syntactic representation in (138), where the pronoun in post-verbal position carries an index and enters an Agree relation with T containing D.

(138) [FinP [Fin [n] [TP [ir [T $\langle D_{\text{pr}}, \varphi: \text{---} \rangle$] [VP ir [DP ele_n] [ao
mercado]]]]]

We assume that the pronoun is assigned Nominative case by default, an assumption that is not problematic as Nominative is the default Case in EP (see Cardinaletti, 1999, and Belletti, 2005, for a similar claim).

(138) is parsed as (139a), where the pronoun is bound from Fin. The complement of Fin is interpreted as in (139b), where the denotation of the pronoun has been shifted to a property (namely the property of being identical to y), which is applied to the variable introduced by D:

(139) a. [Fin [λ_n [TP [$\text{ir} \langle D_{\text{pr}}, \varphi: \text{---} \rangle$] [VP ir [ele_n] [ao
mercado]]]]
b. [λ_x [the y [go (y , the market)] [$y=x$]]

The property in (139b) is then applied to the attitude holder via C, yielding the interpretation: ‘He decided for it to be the case that the one that goes to the market is himself’. The set of φ -features under T is valued by the controller.

Now recall that control complements differ from raising complements in that a non-anaphoric expression cannot have embedded

scope:

(140) Decidiu ir ao mercado o João.

decided to go to.the market the John

[a] ‘John is the one who decided to go to the market.’

[b] *‘He_i decided for it to be the case that John_i is the one that goes to the market.’

As already mentioned, we attribute this restriction to a Condition C effect (the name is c-commanded by the matrix null subject).

To wrap up: due to the presence of D in T, the consistent NSLs display a mode of composition of the subject argument with the verbal predicate whereby a pronominal argument may be inserted as an argument and be interpreted as a property by the type-shifting operation *Ident* (Partee, 1987). This is why an overt subject pronoun is allowed in an OC complement. In a language lacking D in T, this possibility will of course never arise. In this case, PRO (by assumption, [D, ϕ :_]) must be first merged as an argument in Spec-vP/VP. Since v/V projects, [D, ϕ :_] (or its copy) must be both an X^0 and an X^{\max} . Consequently, there is no room for a lexical subject no matter what.

9. Concluding remarks

This paper discusses evidence that control and raising infinitives have overt subjects in EP as well as in the other Romance NSLs. This evidence is in conformity with Szabolcsi's (2009) cross-linguistic study where the following generalization is put forward:

(141) The overt subjects of control complements can only be pronouns.

The overt subjects of raising complements can be pronouns or lexical DPs.

We have argued that the evidence underlying (141) constitutes a strong case for a non-raising approach to Control. Relying on the observation that all of the Romance NSLs allow for explicit subjects in raising and control complements (in compliance with (141)), we have developed an account that aims to capture the association between this phenomenon and the null subject property. This account is based on the idea that T bears an interpretable D feature (along the lines of Holmberg, 2005) regardless of whether it is finite or non finite. Contra Holmberg, we assume that, due to the presence of D in T, the set of ϕ -features in T is interpretable. As a corollary of this, there is no A movement of subjects to preverbal position and apparent preverbal subject constructions are either instances of CLLD or instances of A-bar extraction. Neither of these options are readily available in infinitival clauses and this is the reason why the overt subjects

of the infinitival complements under discussion in the Romance NSLs (where V raises to T) are postverbal.

We have examined some striking parallelisms in the patterns of variation in the interpretation of postverbal subjects in EP and nominal constituents occupying the preverbal focus position in Hungarian and we have argued that what these have in common is their predicative status. We have concluded that postverbal subjects in the Romance NSLs are interpreted as predicates and we have suggested that this is due to the presence of interpretable D in T. Since D in T and the subject are both interpretable, the latter is interpreted as a property that is applied to the variable introduced by D. Crucially, the element that truly saturates the verbal predicate is this variable. Thus, when the subject is a pronoun or a definite DP, its denotation is shifted to a property by the type-shifting operation *Ident* (Partee, 1987). In many contexts, particularly in V initial clauses with a transitive verb, the identity statement is mapped in the Nuclear Scope and the rest of the material in clause is presupposed, yielding an interpretation that is akin to that of a cleft.

In infinitival contexts, T has deficient or unvalued ϕ -features. Two configurations arise. If the matrix verb is a raising verb, C doesn't project and D in the matrix as well as D in the embedded clause both bear a long distance Agree relation with the subject that is merged within the embedded clause. Since both are linked to a single argument, only one of them is

interpreted and we get two possible interpretations depending on which D bears the index that is identified with the subject. If it is the higher one, we get matrix scope; if the lower, we get narrow scope.

When the selecting verb is an OC verb, a predicative Fin head (Landau, 2015) is selected. In the spirit of Kratzer (2009), we proposed that Fin carries a binder index represented as a lambda operator that binds an open position in the clause, turning it into a predicate. Since the relation established between an overt subject and the index on D under infinitival T is one of identification, an overt subject may be present as long as it is a pronoun, which is then bound from Fin.

In this paper, we have restricted our attention to constructions with an overt subject, so the question arises of how null subject constructions are to be analysed. The key point of our analysis is that the variable introduced D is the element that saturates the verbal predicate regardless of whether T is finite or non-finite. Therefore, one possible consequence of this approach could be that *pro* can be dispensed with altogether, and along with it, the need to posit an empty category in argument position in infinitival contexts as well. This is in effect the position taken by Manzini and Savoia (2002), Jelinek (1984), among others. Ultimately, whether such an empty category is required is an empirical question, one that should be able to be settled on the basis of evidence. In the case of the partial NSLs, there is clear evidence in favor of the existence of a null empty category with the same distribution as

regular subjects (cf. Holmberg, 2005), but in the consistent NSLs it is not easy to come across concluding evidence. There are, however, theory internal reasons to posit the presence of an empty category in argument position, namely the widely held assumption within Minimalism that theta-roles are assigned configurationally. For this reason, and for the purposes of the present paper, I assume that a null nominal projection is merged as subject within ν P/VP.

In Barbosa (2013, 2014), I have argued in favor of reducing *pro* in the partial NSLs to a form of null NP anaphora, along the lines of Tomioka's analysis of discourse (or radical) *pro*-drop. Tomioka (2003) claims that what underlies discourse *pro*-drop is the fact that languages (almost) universally allow phonologically null NP anaphora (cf. (142)).

(142) I bought one book, but Carlos bought [five [_{NP} —]].

In a language that either lacks determiners or has null determiners, this operation will give rise to phonologically unrealized arguments. In languages in which DPs are necessarily projected, a remnant D will always show up and so this process will never yield a silent argument. In Barbosa (2014) I extend this proposal to the partial NSLs and other instances of object drop and propose to unify this null NP with the very same null NP that has been posited to occur as a complement of D in every pronoun by Postal (1966), Elbourne (2005), Panagiotidis (2003), among others. Elbourne (2005), in particular, argues that non E-type pronouns are

determiners that take a kind of default null NP, which he labels ONE, the meaning of which is ‘entity’ or ‘individual’, translated as $[\lambda x: x \in D_e. x \in D_e]$ (a property that is trivially true of any individual in the domain). D type-shifts the property to an individual.

In this paper, we have reached the conclusion that the overt subject in post-verbal position in the consistent NSLs of the Romance type is interpreted as a property. Hence, a natural move to make is to suggest that the empty category sitting in argument position inside v/VP also denotes a property; in other words, it is a null NP as well. This move would allow us to fully reduce *pro* (as well as PRO, in a consistent NSL) to a null NP. We leave a more precise implementation of this hypothesis for future work.

References

- Adger, D. & Ramchand, G. (2005). Merge and move: Wh-dependencies revisited. *Linguistics Inquiry*, 36(2), 161-193.
- Ahn, B. T. (2010). *Not just emphatic reflexives themselves: their syntax, semantics and prosody*. (Unpublished Ph.D. dissertation). UCLA.
- Alexiadou, A. & Anagnostopoulou, E. (1998). Parametrizing AGR: word order, V-movement and EPP-Checking. *Natural Language & Linguistic Theory*, 16, 491-539.

Alexiadou, A., Anagnostopoulou, E., Iordachioaia, G. & Marchis, M. (2008). A stronger argument for backward control. Talk presented at 39th *Meeting of the North East Linguistic Society*. Cornell University, November 2008.

Anagnostopoulou, E. (1997). Clitic Left Dislocation and Contrastive Left Dislocation. In E. Anagnostopoulou, H. Van Riemsdijk & F. Zwarts (Eds.), *Materials on Left Dislocation* (pp. 151-192). Amsterdam: John Benjamins.

Bailyn, J. F. (2004). Generalized Inversion. *Natural Language and Linguistic Theory*, 22, 1-49.

Barbosa, P. (1995). *Null Subjects*. (Unpublished Ph.D. dissertation). MIT, Cambridge, Mass.. MITWPL.

Barbosa, P. (2000). Clitics: a window into the null subject property. In J. Costa (Ed.), *Portuguese Syntax: Comparative Studies* (pp. 31-93). New York: Oxford Press.

Barbosa, P. (2009). Two kinds of subject *pro*. *Studia Linguistica*, 63(1), 2-58. Blackwell Publishing.

Barbosa, P. (2013). Partial pro-drop as null NP anaphora. In Y. Fainleib, N. Lacara, Y. Park (Eds.), *Proceedings of the 41st Annual Meeting of the North East Linguistic Society, Vol. 2* (pp. 71-85). Amherst: GLSA.

Barbosa, P. (2014). *Pro* as a minimal NP. (Unpublished manuscript).

Retrieved from <http://ling.auf.net/lingbuzz/001949>

- Belletti, A. (2005). Extended doubling on the VP periphery. *Probus*, 17(1), 1-35.
- Brandi, L. & Cordin, P. (1989). Two Italian dialects and the null subject parameter. In O. Jaeggli & K. Safir (Eds.), *The Null Subject Parameter* (pp. 111-142). Dordrecht: Kluwer.
- Burzio, L. (1986). *Italian Syntax*. Dordrecht: Reidel.
- Campos, H. (1997). On Subject extraction and the antiagreement effect in Romance. *Linguistic Inquiry*, 28, 92-119.
- Cardinaletti, A. (1998). A second thought on *emarginazioni*: destressing vs. 'right dislocation'. *University of Venice Working Papers in Linguistics*, 8(2), 1-28.
- Cardinaletti, A. (1999). Italian emphatic pronouns are postverbal subjects. *University of Venice Working Papers in Linguistics*, 9, 59-92.
- Cardinaletti, A. (2004). Toward a Cartography of Subject Positions. In L. Rizzi (Ed.), *The Cartography of Syntactic Structures - The Structure of CP and IP, Vol. 2* (pp. 115-165). Oxford: Oxford University Press.
- Cecchetto, C. (2000). Doubling structures and reconstruction. *Probus*, 12, 93-126.
- Cinque, G. (1990). *Types of A'-dependencies*. Cambridge: The MIT Press.
- Cinque, G. (1993). A null theory of phrase and compound stress. *Linguistic*

Inquiry, 24, 239-267.

Chierchia, G. (1990). Anaphora and attitudes *de se*. In R. Bartsch, J. van Benthem & P. van Emde Boas (Eds.), *Semantics and contextual expression* (pp. 1-32). Dordrecht: Foris.

Chomsky, N. (1977). On *wh*-Movement. In P. Culicover, T. Wasos & A. Akmajian (Eds.), *Formal Syntax* (pp. 71-132). New-York: Academic Press.

Chomsky, N. (1995). *The Minimalist Program*. Cambridge: The MIT Press.

Chomsky, N. (2000). Minimalist Inquiries: The Framework. In R. Martin, D. Michaels & J. Uriagereka (Eds.), *Step by Step. Essays on Minimalist Syntax in Honor of Howard Lasnik* (pp. 89-155). Cambridge, Mass.: The MIT Press.

Chomsky, N. (2001). Derivation by phase. Ken Hale. In M. Kenstowicz (Ed.), *A Life in Language* (pp. 1-52). Cambridge, Mass.: The MIT Press.

Clark, R. (1990). *Thematic theory in syntax and interpretation*. London: Routledge.

Costa, J. (1998). *Word order variation. A constraint-based approach*. The Hague: Holland Academic Graphics.

Costa, J. (2004). Subjects in Spec,vP: locality and agree. In A. Castro, M. Ferreira, V. Hacquard & A. Salanova (Eds.), *Romance Syntax*, 46, MITWPL.

- Costa, J. & Duarte, I. (2002). Preverbal subjects in null subject languages are not necessarily dislocated. *Journal of Portuguese Linguistics*, 2, 159-176.
- De Cat, C. (2007). French dislocation without movement. *Natural Language and Linguistic Theory*, 25(3), 485–534.
- Dermidache, H. (1992). *Resumptive Chains in Restrictive Relative Chains, Appositives and Dislocation Structures*. (Unpublished Ph.D. dissertation). MIT, Cambridge, Mass.. MITWPL.
- Duarte, I. (1997). Ordem de Palavras e Estrutura Discursiva. In A. M. Brito, F. Oliveira, I. Pires de Lima & R. M. Martelo (Eds.), *Sentido que a Vida Faz – Estudos para Óscar Lopes*. Porto: Campo das Letras.
- Elbourne, P. (2005). *Situations and Individuals*. Cambridge, Mass.: The MIT Press.
- É. Kiss, K. (1995). *Discourse Configurational Languages*. Oxford: Oxford University Press.
- É. Kiss, K. (2006). Focussing as Predication. In V. Molnar & S. Winkler (Eds.), *The Architecture of Focus* (pp. 169-193). Berlin: Mouton de Gruyter.
- Endriss, C. & Hinterwimmer, S. (2008). Direct and indirect aboutness topics, *Acta Linguistica Hungarica*, 55(3-4), 297-307.
- Gast, V. (2006). *The Grammar of Identity*. Routledge.

- Heim, I. & Kratzer, A. (1998). *Semantics in generative grammar*. Oxford: Blackwell Publishers.
- Herbeck, P. (2011). Overt subjects in Spanish control infinitives and the theory of empty categories. *Generative Grammar in Geneva*, 7, 1-22.
- Holmberg, A. (2005). Is there a little *pro*? Evidence from Finnish. *Linguistic Inquiry*, 36, 533-564.
- Holmberg, A. (2010). Null Subject Parameters. In T. Biberauer, A. Holmberg, I. Roberts & M. Sheehan (Eds.), *Parametric Variation. Null Subjects in Minimalist Theory* (pp. 88-124). Cambridge: Cambridge University Press.
- Hornstein, N. (1999). Movement and control. *Linguistic Inquiry*, 30, 69-96.
- Higgins, R. (1973). The pseudo-cleft construction in English. (Unpublished Ph.D. dissertation). MIT, Cambridge, Mass..
- Jaeggli, O. (1984). Subject extraction and the null subject parameter. *North East Linguistic Society*, 14, 132-153.
- Jelinek, E. (1984). Empty categories, case, and configurationality. *Natural Language and Linguistic Theory*, 2, 39-76.
- Landau, I. (2000). *Elements of control: structure and meaning in infinitival constructions*. Dordrecht: Kluwer Academic Publishers.
- Landau, I. (2004). The scale of finiteness and the calculus of control. *Natural Language and Linguistic Theory*, 22, 811-877.
- Landau, I. (2015). *A Two-Tiered Theory of Control*. Cambridge, Mass.: The

MIT Press.

Livitz, A. (2011). Incorporating PRO: A Defective Goal Analysis. *NYU Working Papers in Linguistics*, 3, 95-119.

Kayne, R. (1991). Romance Clitics, Verb Movement and PRO. *Linguistic Inquiry*, 22, 647-686.

Kato, M. (1999). Strong and weak pronominals in the Null Subject Parameter. *Probus*, 11, 1-37. The Netherlands: Walter de Gruyter.

Kallulli, D. (2008). Clitic doubling, agreement, and information structure. 2008. In D. Kallulli & L. Tasmowski (Eds.), *Clitic Doubling in the Balkan Languages* (pp. 227-255), [Linguistik Aktuell/Linguistics Today 130]. Amsterdam/Philadelphia: John Benjamins.

König, E. & Siemund, P. (2005). Intensifiers and reflexives. In M. Haspelmath, M. S. Dryer, D. Gil & N. Comrie (Eds.), *The World Atlas of Language Structures* (pp. 194-197). Berlin: Mouton de Gruyter.

Kratzer, A. (2009). Making a pronoun: fake indexicals as windows into the properties of pronouns. *Linguistic Inquiry*, 40, 187-237.

Manzini, M. R. & Leonardo, S. (2002). Parameters of subject inflection in Italian dialects. In P. Svenonius (Ed.), *Subjects, Expletives and the EPP* (pp. 157-200). New York: Oxford Press.

Manzini, M. R. (2009). PRO, pro, and NP-trace (raising) are interpretations. In K. Grohmann (Ed.), *Explorations of phase theory. Features and*

- arguments* (pp. 131-179). Berlin, Germany: Mouton de Gruyter.
- Martins, A. M. (1994). *Clíticos na História do Português*. (Unpublished Ph.D. dissertation). University of Lisbon.
- Müller, G. (2005). *Pro-drop and Impoverishment*. In P. Brandt & E. Fuss (Eds.), *Form, structure and grammar. A Festschrift presented to Günther Grewendorf on the occasion of his 60th birthday* (pp. 93-115). Tübingen: Narr.
- Noyer, R. (1992). *Features, Positions, and Affixes in Autonomous Morphological Structure*. (Unpublished PhD dissertation). MIT, Cambridge, Mass..
- Ordóñez, F. (1998). Postverbal asymmetries in Spanish. *Natural Language & Linguistic Theory*, 16, 313-346.
- Ordóñez, F. (2007). Cartography of postverbal subjects in Spanish and Catalan. In S. Baauw, F. Drijkoningen & M. Pinto (Eds.), *Romance Languages and Linguistic Theory 2005*, (pp. 259-280). Amsterdam: John Benjamins.
- Ordóñez, F. & Treviño, E. (1999). Left dislocated subjects and the *pro-drop* parameter: A case study of Spanish. *Lingua*, 107, 39-68.
- Panagiotidis, P. (2003). Empty Nouns. *Natural Language and Linguistic Inquiry*, 21(2), 381-432.
- Partee, B. (1987). Noun Phrase Interpretation and Type-Shifting Principles. In J. Groenendijk, D. de Jongh & M. Stokhof (Eds.), *Studies in*

Discourse Representation Theory and the Theory of Generalized Quantifiers (pp. 115-143). Dordrecht: Foris.

Piera, C. (1987). Sobre la estructura de las cláusulas de infinitivo. In V. Demonte & M. Lagunilla (Eds.), *Sintaxis de las Lenguas Románicas* (pp. 148-163). Madrid: Ediciones El Arquero.

Platzack, C. (2004). Agreement and the person phrase hypothesis. *Working Papers in Scandinavian Syntax*, 73, 83-112.

Polinsky, M. & Potsdam, E. (2002). Backward control. *Linguistic Inquiry*, 33, 245–282.

Poletto, C. (2000). *The higher functional field in the northern Italian dialects*. Oxford: Oxford University Press.

Pollock, J. Y. (1997). *Langage et Cognition: Introduction au Programme Minimaliste de la Grammaire Générative*. Paris: Presses Universitaires de France.

Postal, P. (1966). On so-called “pronouns” in English. In F. Dinneen (Ed.), *Report on the Seventeenth Annual Round Table Meeting on Linguistics and Language Studies* (pp. 177-206). Washington, DC: Georgetown University Press.

Raposo, E. (1994). *Affective operators and clausal structure in European Portuguese and European Spanish*. (Unpublished MA dissertation). University of California at Santa Barbara, California.

Rigau, G. (1987). Sobre el carácter cuantificador de los pronombres tónicos

- en Catalán. In V. Demonte & M. F. Lagunilla (Eds.), *Sintaxis de las lenguas Románicas*. Madrid: Textos Universitarios.
- Rizzi, L. (1978). A Restructuring Rule in Italian Syntax. In S. J. Keyser (Ed.), *Recent Transformational Studies in European Languages*. Cambridge: The MIT Press.
- Rizzi, L. (1982). *Issues in Italian syntax*. Dordrecht: Foris.
- Rizzi, L. (1997). The Fine Structure of the Left Periphery. In L. Haegeman (Ed.), *Elements of Grammar*. Dordrecht: Kluwer.
- Rizzi, L. (2005). On some properties of subjects and topics. In L. Brugé, G. Giusti, N. Munaro, W. Schweikert & G. Turano (Eds.), *Proceedings of the XXX Incontro di Grammatica Generativa*. Venezia: Cafoscarina.
- Solà, J. (1992). *Agreement and Subjects*. (Unpublished Ph.D. dissertation). Universitat Autònoma de Barcelona.
- Sanchez, L. (1995). *Syntactic Structures and Nominals: A Comparative Study of Spanish and Southern Quechua*. (Unpublished Ph.D. dissertation). University of Southern California.
- Szabolcsi, A. (1981). The semantics of Topic-Focus articulation. In J. Groenendijk, T. Janssen & M. Stokhof (Eds.), *Formal Methods in the Study of Language* (pp. 513-541). Amsterdam: Mathematisch Centrum.
- Szabolcsi, A. (2009). Overt nominative subjects in infinitival complements

cross-linguistically: Data, diagnostics, and preliminary analyses.
NYU Working Papers in Linguistics – Papers in Syntax Spring 2009,
Vol. 2, 1-55.

Taraldsen, K. (1978). On the NIC, Vacuous Application and the *that*-trace Filter. (Unpublished manuscript). MIT.

Tomioka, S. (2003). The semantics of Japanese null pronouns and its cross-linguistic implications. In K. Schwabe & S. Winkler (Eds.), *The interfaces: Deriving and interpreting omitted structures* (pp. 321-40). Amsterdam: John Benjamins.

Torrego, E. (1985). Pronouns and Determiners: A DP Analysis of Spanish Nominals. (Unpublished MA dissertation). UMass. Boston.

Torrego, E. (1995). On the nature of clitic doubling. In H. Campos & P. Kempchinsky (Eds.), *Evolution and Revolution in Linguistic Theory*, (pp. 251-275). Washington D.C.: Georgetown University Press.

Torrego, E. (1996). On quantifier float in control clauses. *Linguistic Inquiry*, 27(1), 111-126.

Huber, S. (2000). *Es-Clefts und det-Clefts. Zur Syntax, Semantik und Informations Struktur von Spaltsätzen im Deutschen und Swedischen*. Stockholm: Almqvist und Wiksell International.

Uriagereka, J. (1995). Aspects of the Syntax of Clitic Placement in Western Romance. *Linguistic Inquiry*, 26, 79-123.

Vallduví, E. (1992). A Preverbal Landing Site for Quantificational

Operators. *Catalan Working Papers in Linguistics 1992*, 319-344.

Barcelona: Universitat Autònoma de Barcelona.

Wedgwood, D. (2005). *Shifting the Focus: From Static Structures to the Dynamics of Interpretation*. Oxford: Elsevier.

Wedgwood, D. (2009). Variation in Focus. In A. Riester & E. Onea (Eds.), *Focus at the Syntax-Semantics Interface, Working Papers of the SFB 732, Vol. 3* (pp. 101-119). University of Stuttgart.

Zeijlstra, H. (2012). There is only one way to agree. *The Linguistic Review*, 29, 491 – 53.

Zubizarreta, M. L. (1997). *Word Order, Prosody and Focus*. Cambridge: MIT Press.