2

Apparent Copular Inversion and the Theory of Null Subjects

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Introduction

The[1] study of copular constructions with an NP complement in Catalan and other Romance languages of the null-subject variety[2] reveals an unexpected situation: although, as a rule, the verb always agrees with the subject in these languages, the copular verb sometimes agrees, at least apparently, with an NP that is not the subject, a phenomenon that I refer to as *Apparent Copular Inversion* (ACopInv). The questions I will address in this paper are:

1. What is the copular verb really agreeing with in ACopInv?
2. Why does ACopInv only occur in languages of the null-subject variety?
3. What distinguishes these languages from non-null-subject languages?

The answers to these questions will be couched in a framework that adopts essential ideas of Lexical-Functional Grammar (LFG) and Optimality Theory (OT). The core of the analysis is the claim that null-

[1]This paper has benefited from comments by Louise McNally, Joana Rosselló and Jane Simpson, which I gratefully acknowledge.

[2]I refer to languages that freely allow the subject to be null and interpreted as a pronoun as *null-subject languages*. The synonymous term *subject pro-drop* or, simply, *pro-drop, languages* is also found in the literature. I refer to languages that always require an overt subject as *non-null-subject languages*.

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subject languages (as opposed to non-null-subject languages) lack a subject position, which allows subject NPs to be missing and interpreted as pronouns. The coindexing of two expressions, as in the topic-pronoun relation or in the predicative relation, is commonly reflected through agreement (in person, number, and gender) of the expressions involved. However, agreement is overridden by lexically specified features. In null-subject languages, the subject has no lexically specified features and, thus, its features are the result of a competition between the features of the discourse topic coindexed with it and, in copular constructions, the features of the predicative phrase, also coindexed with the subject. ACopInv occurs when the features of the predicative phrase win over the features of the topic. Non-null-subject languages show no sign of this competition, because the subject has its own lexically specified features.

I will first review the evidence that, in Apparent Copular Inversion (ACopInv) constructions, the NP that the copular verb agrees with is not the subject. Once this point has been established, I will propose an analysis that explains why the copular verb can sometimes (apparently) agree with a non-subject, in what cases this happens, and why this phenomenon occurs only in null-subject languages.

2.1 Apparent Copular Inversion

This paper focuses on copular sentences in Catalan in which the predicative complement is an NP.[3] The facts of Catalan that I will present are very similar to the facts of copular sentences in other null-subject languages of the Romance family, such as Spanish and Italian. A copular sentence such as (1a) normally raises no dispute about which of the two NPs involved is the subject and which is the complement. On the other hand, a sentence like (1b), which is truth-conditionally equivalent to (1a), poses serious problems for deciding on the grammatical function of the two NPs.

(1) a. Els impostos {són/*és} la solució.
the taxes are/is the solution
'Taxes are the solution.'

b. La solució {són/*és} els impostos.
the solution are/is the taxes
'The solution is taxes.'

[3] I am not taking a stand in this paper on the issue of whether expressions such as *the problem*, *the students*, *I*, or *a mouse* should be classified as NPs or DPs. I will refer to them as NPs, although the term *NP* can be replaced by *DP* without any consequence for the description or the analysis to be given.

The form *són* is the present indicative form of the copula that shows third person plural agreement, whereas the form *és* is the corresponding third person singular form. The fact that *són* is the grammatical form of the copula in both (1a) and (1b) would suggest that the NP *els impostos* (the only plural NP in (1a-b)) is the grammatical subject in both examples. Yet, this conclusion is highly problematic for a sentence like (1b): it is inconsistent with what we know about (a) the position of subjects and complements in Catalan, (b) the possibility of omitting subjects and complements in Catalan, (c) the phenomenon of raising, and (d) the behavior of the verbal clitic en in relation to subjects and complements. Examples like (1b), where the phenomenon of agreement seems to diverge from the four other phenomena, as we shall see, with respect to which NP is the subject and which the complement, illustrate the ACopInv construction.[4]

2.1.1 Position of subjects and complements

While subject NPs seem to enjoy a certain freedom of position in Catalan and related languages in that they can appear either in preverbal position or in postverbal position, complement XPs are fairly restricted in their distribution, since they can only appear postverbally as the unmarked option. Pronominal clitics, which can be complements, are subject to different positional restrictions from XPs. In contrast with the acceptable postverbal position of the complement NP *la tempesta* shown in example (2a), any other position of this NP makes the sentence unacceptable, as seen in (2b-d).[5]

(2) a. Els ruixats segueixen la tempesta.
'The showers follow the storm.'
b. * Els ruixats la tempesta segueixen.
c. * La tempesta els ruixats segueixen.
d. * La tempesta segueixen els ruixats.

Since a preverbal NP cannot be a complement, as shown in (2), we are led to assume that, in (1a), the postverbal NP *la solució* is

[4] In this section, I summarize the evidence presented in Alsina 2004 in favor of the claim that the NP that triggers agreement on the copula in ACopInv is not the subject, but the complement. This claim is by no means generally accepted; see, for example, Hernanz and Brucart 1987 and Fernández Leborans 1999 (for Spanish), Moro 1997 (for Italian), and Ramos 2002 (for Catalan) for the view that (at some level) the NP that triggers agreement on the copula is always the subject.

[5] The examples (2b-d) can be rendered acceptable if the preverbal NP *la tempesta* is pronounced with an intonational peak and is interpreted as a contrastive focus, which characterizes the rhematization construction according to Vallduví 2002 (see Vallduví 2002: 1267-1272 for more examples and discussion). I will not take into account this pragmatically and intonationally marked construction.

the complement and the preverbal NP *els problemes* is the subject, which is consistent with what the agreement facts show. But the same generalization about the position of complements reveals that, in (1b), the postverbal NP *els problemes* is the complement and the preverbal NP *la solució* is the subject, creating a conflict with the conclusion that the agreement facts point to.

2.1.2 Omission of subjects and complements

It is a well-known fact that subjects in Catalan (as in other null-subject languages) can be freely omitted and interpreted as pronouns, provided an appropriate referent is made available in the discourse or in the speech situation. Complements, on the other hand, do not generally have this option. Thus, we have to conclude that the NP that can be left out from examples (1) is the subject. The comparison of (1a) with (3) and of (1b) with (4) shows that, in both cases, only the preverbal NP can be omitted:[6]

(3) a. Són la solució.
are the solution ('They are the solution.')
b. * Els impostos són.

(4) a. Són els impostos.
are the taxes ('It is taxes.')
b. * La solució {són/és}.

If the subject is omitted in these examples, then the overt NP cannot be the subject, but must, instead, be the complement. Thus, we reach the incoherent conclusion that the NP *els impostos* in (4a) is the subject, because it agrees with the verb, and cannot be the subject, because it cannot be left out, as shown in (4b).

While complements cannot generally be omitted with an anaphoric interpretation, and that is particularly the case with the copular verb, as shown in (3b) and (4b), they can be expressed as a clitic that is interpreted anaphorically. For the copular verb, the complement clitic is *ho*, as illustrated in the following examples:[7]

[6] For example, (3a) can be used as a reply to the question *Què tenen de bo els impostos?* 'What is good about taxes?' and (4a) can be used as a reply to the utterance *Tant parlar del problema! I la solució?* 'So much talk about the problem! What about the solution?'

[7] Example (5a) with the overt preverbal NP could be a response to the utterance *M'agradaria saber què és la solució d'aquest problema* 'I would like to know what the solution to this problem is'. The short version of (5a), *Ho són* 'They are', could be used as a reply to the utterance *Tothom diu que els impostos són la solució. Tu què creus?* 'Everyone says that taxes are the solution. What do you think?'. As for (5b), it can be used in the following text: *Si vols saber què és la solució, no ho és*

(5) a. (Els impostos) ho són.
(the taxes) pro are ('Taxes/they are.')
b. Ho són els impostos.
pro are the taxes ('Taxes are.')

The acceptability of examples (4a) and (5b), which appear to be identical except that (4a) lacks the clitic that appears in (5b), would be hard to explain if we assumed that the agreeing NP *els impostos* is the subject in both cases. Why would it be that the complement of *ser*, which appears to be obligatory on the basis of examples like (3b), is optional when the subject is postverbal? However, if we assume that the NP *els impostos* is the subject in (5b), but the complement in (4a), as in (1b), we can maintain the claim that the complement of *ser* is never optional.

2.1.3 Raising

The phenomenon of raising is a well-known subjecthood diagnostic: only the subject of a non-finite clause embedded under a raising verb can be the subject of the matrix raising verb. If a sentence such as (1b) appears as an infinitival clause embedded under a raising verb such as *poder* 'can/may', as in (6), we have to conclude that the subject of the matrix verb is (identified with) the subject of the embedded clause.

(6) La solució poden ser els impostos.
the solution may.3rd.pl be the taxes
'The solution may be taxes.'

The preverbal position of the NP *la solució* in (6) and its omissibility (*Poden ser els impostos* 'It may be taxes') argue for the claim that it is the subject of the matrix clause. Since the matrix verb is a raising verb, its subject must also be the subject of the embedded clause, which leads us to conclude that the subject of (1b) is *la solució*, even though the verb does not agree with this NP. Notice too that the raising verb in (6) does not agree with its subject, but with the complement of the embedded verb.

2.1.4 The verbal clitic *en*

The clitic *en* is required in order to omit the head of an indefinite NP complement of a verb. The missing head is interpreted as identical in meaning to a noun (or nominal group) present in the discourse or inferrable from the speech situation with the same gender feature as the NP. Crucially, the presence of the clitic *en* is only possible, and

pas la borsa. Ho són els impostos 'If you want to know what is the solution, the stock market is not. Taxes are'.

is required, with this function, if the NP with the missing head is a complement of a verb, but not if the NP in question is a subject.[8] The relevant contrast between complement and subject can be illustrated with examples like (7) and (8).

(7) a. Els estudiants llegeixen molts llibres.
'The students read many books.'
b. Els estudiants *(en) llegeixen molts.
the students en read many
'The students read many (of them).'

(8) a. Molts estudiants aprovaran.
'Many students will pass.'
b. Molts (*n') aprovaran.
many en will.pass
'Many will pass.'

The complement (or object) of (7b) is realized as the indefinite NP *molts*, which lacks a head noun: the sentence is grammatical if it includes the clitic *en* and is ungrammatical otherwise (which is what the notation **(en)* signifies). In contrast, example (8b) has the headless indefinite NP *molts* as the subject: in this case, the sentence is grammatical only without the clitic *en*. We can argue that the relevant contrast is due to the difference in grammatical function and not to the difference in position: a headless indefinite NP that is the subject rejects the cooccurrence with the clitic en even when it appears in postverbal position, as in (9):

(9) Aquesta és la novel·la que (*n') han llegit molts.
this is the novel that en have read many
'This is the novel that many have read.'

The clitic *en* can appear in copular sentences, with this function, that is, cooccurring with a headless indefinite complement. The following

[8] With intransitive verbs, particularly unaccusatives, the clitic *en* appears when the sole NP argument of the verb is an indefinite NP with a missing head in postverbal position (or in initial *wh*-phrase position). Even though this NP agrees with the verb, as in (i), I take the generally accepted position that the sole NP argument is a complement (an object) in such cases.

(i) En cauen molts. / *Cauen molts.
en fall.3rd.pl many fall.3rd.pl many
'Many fall.' / 'Many are falling.'

This allows us to maintain the generalization that an NP with a missing head permits and requires the clitic *en* only if it is a complement. The agreement facts in such cases are explained by assuming that there is a non-overt non-thematic subject that shares its agreement features with the complement (see section 3.3; see also Perlmutter 1978, 1983, Burzio 1986, or Alsina 1996, for different formal treatments).

examples show that, although the copular verb agrees with an indefinite NP, the clitic *en* can appear, and is required, in such cases.

(10) Pel que fa a les gasolineres, l'objectiu principal
as for the petrol stations, the objective principal
de la banda *(n') han estat sis a l'Hospitalet
of the gang en have.3rd.pl been six in l'Hospitalet
i Cerdanyola.
and Cerdanyola
'As for petrol stations, the main objective of the gang has been six (of them) in l'Hospitalet and Cerdanyola.'

(11) a. Un euro són 166,386 pessetes.
one euro are.3rd.pl 166.386 pesetas
'One euro is 166.386 pesetas.'

b. I un dòlar, quantes *(en) són?
And one dollar how many en are.3rd.pl
'And one dollar, how many (pesetas) is it?'

c. {En/*∅} són cent seixanta.
en are.3rd.pl a hundred and sixty
'It is a hundred and sixty.'

Sentences like (10) and (11b-c) allow the presence of the clitic *en* and would be ungrammatical without it, since the verb's complement is a headless indefinite NP: *sis* in (10), *quantes* in (11b), and *cent seixanta* in (11c). While the presence of the clitic is evidence that the headless NP in these examples is the complement of the copular verb, the verb agrees with this NP and not with the other NP of the clause, such as *l'objectiu principal de la banda* in (10) or *un dòlar* in (11b). In (11c), the subject is non-overt and can be interpreted as coreferential with *un dòlar*.

2.1.5 Agreement in copular sentences

The agreement facts in copular sentences in Catalan (as in Spanish, Italian and other languages) seem to be describable without specific reference to the subject function. The generalization that accounts for these facts is the following: the copula agrees with its obligatory syntactic dependent (whether subject or complement) that is higher in a person-number hierarchy in which second and first person are above third person, and third person plural is above third person singular. So, if one of the obligatory dependents of the copula is first or second person and the other one is third person, it agrees with the former, regardless of the position (and syntactic function) of the agreement trigger:

(12) a. (L'últim) {sóc/*és} jo.
the last am is I
('The last one is me.'/ 'It is me.')
b. (Jo) {sóc/*és} l'últim.
I am is the last
('I am the last one.')

The fact that one of the two syntactic dependents of the copula is a first person expression forces the copula to agree with it, whether it is the subject or not. In (12a), the subject is presumably the NP *l'últim*, given its preverbal position and given the fact that it can be omitted, as shown by the parentheses around it, and yet the copular verb cannot agree with it, as shown by the unacceptability of the third person singular agreement form *és*. In this case, the verb agrees in first person singular with what otherwise appears to be its complement.

When both syntactic dependents of the copula are third person and one of them is plural, the copula shows third person plural agreement, as illustrated in example (1). Again, the syntactic function and, consequently, the position of the agreement trigger is irrelevant for the choice of agreement form.

It does not seem possible to maintain the claim that the agreement trigger is always the subject NP in copular sentences (see Alsina 2004). If we wanted to maintain this claim, we would have to posit subject selection principles specific to the copula sensitive to the person and number of the NPs involved. But that would make incorrect predictions regarding the position of the NPs involved, the possibility of omitting the subject, the facts of raising constructions, and the occurrence of the clitic *en*.

It seems safe to conclude that, in copular constructions, the verb sometimes agrees with its complement.[9] It is because there is no actual inversion in such cases (understood as a marked alignment of thematic roles and grammatical functions or of grammatical functions and surface positions) that I refer to the construction in which the copula agrees with its complement as *Apparent Copular Inversion* (ACopInv).

2.2 A theory of null subjects in OT-LFG

The previous section has established the main facts of copular constructions with a nominal complement in Catalan and has argued that the

[9]The claim that verbs can sometimes agree with a non-subject is by now firmly established on the basis of Icelandic and similar languages. See Andrews 1982 and 1990 for early work in support of this claim. However, in the following sections, I will argue that, in ACopInv, the verb only apparently agrees with a non-subject and that it actually manifests features of the subject.

copula may show agreement with the complement, or, in other words, that the NP that triggers agreement on the copula, in some cases, is not the subject. In the remainder of this paper, I will address the following questions:

1. What does the copula really agree with in ACopInv? (Should the theory allow for agreement with the complement, in a specific set of cases? Or, if the subject is always the agreement trigger, why doesn't the copula show the agreement features of the subject NP in ACopInv?)
2. Why is the phenomenon of apparent inversion (agreement with the complement) restricted to copular constructions?
3. Why does ACopInv only occur in languages of the null-subject variety?
4. What distinguishes these languages from non-null-subject languages?

As for question 3, the connection between the presence of ACopInv in a language and the language being of the pro-drop variety has been proposed by Moro 1997, among others, and can be observed in the examples given in this paper. Catalan is a null-subject language, as we have seen, and has ACopInv; English is a non-null-subject language and the English translations of the ACopInv examples, such as (1b), (4a), (10), (11), (12a), show consistent agreement with the subject, which indicates that English does not have ACopInv. It seems reasonable to assume that this correlation is not accidental and, therefore, to expect the theory to derive it.

In this section, I will address question 4 and propose a theory within the framework of LFG and OT that explains the difference between null-subject languages and non-null-subject languages. The other three questions, 1–3, will be addressed in section 3.

2.2.1 The intuition behind the typological division

Informally speaking, the theoretical difference between the two types of languages is that languages without null subjects have a subject position, whereas languages with null subjects do not have a subject position. The principle that the subject is an obligatory element of the clause, in both types of languages, entails that, in non-null-subject languages, the subject position will have to be filled in every clause, whereas, in null-subject languages, since there is no subject position to fill, the subject may be non-overt, as well as realized in postverbal position.

What is often assumed to be the preverbal subject position in null-subject languages like Catalan is, in fact, a topic position, as has been argued by many authors including Alexiadou and Anagnostopoulou 1998 and Barbosa 2001, for null-subject languages in general, and Bonet 1990, Rosselló 1986, Solà 1992, and Vallduví 1992, specifically for Catalan. An NP in this topic position is entirely optional, since it does not satisfy any obligatory function of the clause, and is connected to the clause through an anaphoric linkage to a pronominal dependent of the clause. This pronominal dependent can be a clitic, in the case of verbal complements, or a null subject, since it is interpreted as a pronoun. All the preverbal "subject" NPs given up to here in the Catalan examples of this paper would have to be analyzed as topics anaphorically linked to null subjects.[10]

It's not that the structural position of subjects in English and other non-null-subject languages — let's call it Spec-IP — does not exist in null-subject languages like Catalan: it's just that it has a different function. Following Vallduví 1992 (see also Bonet 1990 and Solà 1992), we can assume that Spec-IP in Catalan hosts a subset of non-contrastive focus phrases, specifically, *wh*-phrases and a variety of quantified expressions like *ningú* 'no one', *poca cosa* 'not much', *alguna cosa* 'something', etc. Let us say that Spec-IP in null-subject languages is the position of non-contrastive focus. (The topic NP mentioned in the previous paragraph occupies a higher position, such as sister to IP.)

What I want to suggest is that Spec-IP universally can have either of the functions noted: it can host the subject or it can host a focus. The choice of one or the other determines whether we have a null-subject language or a non-null-subject language.[11]

2.2.2 An OT version of LFG

These ideas can best be captured in a framework that separates overt morphosyntactic expressions, syntactic constituents and grammatical categories, such as Spec-IP and the actual words in a phrase, from the grammatical functions and abstract features that correspond to these constituents and words, such as subject or focus. Lexical-Functional Grammar (LFG) is a framework that posits two formally distinct levels

[10] The claim that there is no preverbal subject position in null-subject languages is not unanimously accepted (see, for example, Cardinaletti 1997, Costa 2001, Goodall 2001, among others). To the extent that the analysis in this paper is successful in accounting for ACopInv and crucially relies on that claim, it provides evidence in support of the claim that null-subject languages lack a preverbal subject position.

[11] A language in which Spec-IP is a focus position may also have alternative means of expressing focus (perhaps different types of focus), either through intonation, through morphology or syntactic devices.

of structure to represent these different concepts: c-structure for the former and f-structure for the latter (see Bresnan 1982, Bresnan 2001a, and references cited there). We also need a framework that allows us to capture cross-linguistic variation as different outcomes of competition among constraints. Optimality Theory (OT) does this by allowing the same universal constraints to have different prominence (or ranking) so that the effects of a more prominent constraint may override the effects of a less prominent constraint (Prince and Smolensky 1993, Legendre et al. 1993, Grimshaw 1997a, and many others). I will, therefore, develop these ideas in an OT version of LFG (see Bresnan 1996, 2000, 2001b, Kuhn 2003, among others, for proposals adopting OT in LFG).

The representation of linguistic expressions in LFG is factored out into various structures, or levels of representation, which encode different types of grammatical information by different formal means. In this paper we will be concerned with the two syntactic structures that are traditionally assumed in LFG: c-structure and f-structure.

Both c- and f-structures have their own internal well-formedness conditions (or principles, constraints, rules, etc.), which define a well-formed c- or f-structure in isolation, and the c-to-f-structure mapping constraints, which define a well-formed pairing of c-structure and f-structure. The standard way of interpreting these conditions is to say that a linguistic expression is grammatical if and only if it can be represented by a well-formed pair of c-structure and f-structure, where such a pair is well-formed if and only if both structures satisfy every condition that can apply to them. However, from an OT perspective, it is possible to relativize the application of well-formedness conditions: a linguistic expression is well-formed if and only if it corresponds to the pairing of c-structure and f-structure that *best* satisfies the set of ranked well-formedness conditions applying to these paired structures. Following are some of the constraints applying to c-structure, to f-structure, and to the mapping of c-structure to f-structure, particularly those that will be relevant in this paper.

C-structure is formally modeled as a tree in which the nodes are labeled as grammatical categories and is defined by context-free phrase structure rules, of which the following are relevant examples:

(13) a. IP $\longrightarrow$ XP I′
b. I′ $\longrightarrow$ I VP
c. VP $\longrightarrow$ V XP*

All c-structure nodes are optional: we can assume that all nodes carry some cost (see Bresnan's 2001a Economy of Expression).

F-structure is modeled as a feature structure or attribute-value ma-

trix. Grammatical functions (GFs) are attributes such as SUBJ, OBJ, FOCUS, etc. that take f-structures as values. Other attributes, such as NUM, GEN, etc., take atomic values (for example, PL, FEM, +, etc.). F-structures satisfy the Uniqueness Condition, by which every attribute must take a unique value. Two f-structure well-formedness conditions that we will be concerned with in this paper are the Subject Condition (see Bresnan and Kanerva 1989: 28, Alsina 1996: 20 and references cited there, for precedents) and Completeness (formulated as in Bresnan 2001a: 72):

(14) **SubjCond** (Subject Condition): an f-structure that corresponds to a predicative category (such as a verb or adjective) must include a SUBJ as one of its attributes.

(15) **Compl** (Completeness): every GF designated by a PRED must be present in the f-structure of that PRED.

The c-to-f mapping constraints include the requirement that every c-structure node map onto some f-structure. In what follows, I will notate the mapping between c-structure nodes and f-structures by means of subscripted numbers, so that a c-structure node and an f-structure with the same subscript are understood to be in a mapping (or correspondence) relation. Some of the mapping constraints require a specific correspondence between a particular c-structure node and a particular f-structure attribute, such as the following two mapping constraints:

(16) **SubjPos** (Subject Position): [IP XP_1 I′] ⟶ SUBJ $[\ldots]_1$

(17) **FocPos** (Focus Position): [IP XP_1 I′] ⟶ FOCUS $[\ldots]_1$

These constraints are to be read as conditional statements. (16) should be read as: if there is an XP sister of I′, it maps onto (it is co-subscripted with the f-structure value of) a SUBJ. Likewise, (17) says that an XP sister of I′ maps onto a FOCUS. They are constraints on the mapping between c-structure (a specific phrase-structure configuration — Spec-IP) and f-structure (the SUBJ function or the FOCUS function).

An additional mapping constraint that will be relevant is the idea that features at f-structure must be licensed by c-structure: f-structure features must be provided either by lexical items present at c-structure or by mapping constraints such as (16) and (17). This is a kind of faithfulness constraint (f-structure must be faithful to c-structure) and I will refer to it as F-Faith:

(18) **F-Faith**: at f-structure, atomic features must be lexically specified and GFs must be licensed by a mapping constraint.

According to F-Faith, any atomic feature that is not specified in a

lexical item and any GF that is not licensed by the application of a mapping constraint such as (16) or (17) triggers a violation of principle (18).

If we adopt an OT perspective on the application of constraints, it is not necessary for all constraints to be satisfied for a given structure to be grammatical. Given a particular ranking of constraints, it is possible to violate a constraint provided that constraint violation allows the structure to satisfy a higher ranking constraint. Thus, among the set of competing structures, the grammar selects as well-formed the one that best satisfies the set of ranked constraints. In this view, it is important to define the set of competing structures, as well as the ranking of constraints that defines the grammar of a particular language.

I will assume that the INPUT to the GEN component is an underspecified f-structure indicating only semantically and pragmatically relevant features, such as PRED, FOCUS, etc., but not others such as SUBJ, GEN, etc. (See Bresnan 2000 and Kuhn 2003 for similar ideas.) The GEN component maps this input onto fully specified f-structures and pairs them with c-structures. The candidate set consists of all the f-structure/c-structure pairs corresponding to the same input. GEN cannot add or suppress semantically or pragmatically relevant features.

As for the ranking of constraints, we will only be concerned here with those constraints that are relevant for the analysis at hand. It is clear that there are two constraints proposed in this paper that are necessarily in competition — SubjPos (16) and FocPos (17) — since each one specifies a different assignment of grammatical function to the same c-structure position. The different ranking of these two constraints defines the two types of languages that we want to characterize.

2.2.3 The null subject parameter in OT-LFG

In the grammar of a non-null-subject language like English, constraint (16) ranks higher than constraint (17), and, for a null-subject language like Catalan, constraint (17) ranks higher than constraint (16):

(19) a. Non-null-subject language: (16) >> (17)
b. Null-subject language: (17) >> (16)

Let us assume that SubjCond (14) ranks higher than both (16) and (17) for all languages (or, at least, for the languages under consideration). This means that, in both types of languages, the subject is obligatory in all clauses. Let us also assume that, whereas certain c-structure positions require a particular mapping to f-structure because of constraints such as (16) and (17), other c-structure positions are not associated with any specific GF. This is the case of the VP-internal po-

sition, the XP sister of V introduced by rule (13c): there is no mapping constraint requiring it to map onto any specific GF. We can think of it as an "all purpose" position, as it can satisfy any GF, such as OBJ, OBL, and, even SUBJ, as we shall see. However, the use of this position carries some cost: since there is no mapping constraint licensing a particular GF mapping onto this position, whatever GF is chosen to map onto this c-structure position will trigger a violation of F-Faith (18). Let us assume that, in the languages under consideration, Completeness (15) outranks F-Faith (18). This means that, in a structure with a predicator (or PRED) that designates a GF such as OBJ that is not licensed by any mapping constraint, a violation of Completeness will be worse than a violation of F-Faith and, so, the c-structure may contain a VP-internal XP mapping onto an OBJ at F-structure. This will satisfy Completeness while violating F-Faith, which, under the proposed ranking of these two constraints, is better than a structure that lacks an OBJ and therefore, violates Completeness while satisfying F-Faith.

This "all purpose" position can in principle also map onto a subject, but, if the language has the option of licensing the subject through a mapping principle such as (16), it will be less costly for the SUBJ to map onto the c-structure position referred to by this principle than for it to map onto an unlicensed position such as the VP-internal position. In a non-null-subject language, where principle (16) outranks (17), the NP daughter of IP is reserved for subjects: this NP must map onto a SUBJ, even if that triggers a violation of principle (17). In this way, the ranking in (19a), together with a high ranking status of SubjCond (14) and the existence of F-Faith (18), explains the fact that, in non-null-subject languages, the subject is obligatorily expressed as an XP daughter of IP in all clauses (except when the subject is supplied by the special clause-initial position that licenses wh-phrases, topics, etc.).

Let us assume four competing candidates for a clause:

1. *no subj*: there is no subject (at f-structure) and, consequently, no corresponding XP at c-structure;
2. *null subj*: there is a subject, but there is no corresponding XP at c-structure;
3. *subj SpecIP*: there is a subject corresponding to an XP daughter of IP;
4. *subj VP-int*: there is a subject corresponding to an XP daughter of VP.

In both types of languages, *no subj* triggers a violation of SubjCond, *null subj* triggers a violation of F-Faith, *subj SpecIP* triggers a violation of FocPos, and *subj VP-int* triggers a violation of F-Faith. On the

assumption that null-subject languages and non-null-subject languages have a reverse ranking of SubjPos and FocPos, with F-Faith in between, we derive the correct predictions. As shown in (20), in non-null-subject languages, the optimal structure is *subj SpecIP*, which only violates the lowest of the constraints under consideration.

(20) Subjects in non-null-subject languages:

	SubjCond	SubjPos	F-Faith	FocPos
a. no subj	*!			
b. null subj			*!	
☞c. subj SpecIP				*
d. subj VP-int			*!	

In null-subject languages, the preferred candidates are *null subj* and *subj VP-int*, as they both only violate F-Faith, which is the lowest of the constraints violated by the candidates, as shown in (21).

(21) Subjects in null-subject languages:

	SubjCond	FocPos	F-Faith	SubjPos
a. no subj	*!			
☞b.null subj			*	
c.subj SpecIP	*!			
☞d.subjVP-int			*	

The claim that FocPos (17) ranks higher than SubjPos (16) in null-subject languages means that the Spec of IP can only be used for FOCUS: an XP in this position may, but need not, map onto a SUBJ. Since being a FOCUS is pragmatically different from not being a FOCUS, a structure containing a FOCUS function is in a different candidate set from a structure not containing that function. (20) and (21) illustrate candidate sets in which the SUBJ is not a FOCUS.

In this way, we explain a correlation that has often been observed: languages that allow null subjects also allow postverbal subjects. These languages do not have a subject position (because, in the present theory, SubjPos is below FocPos) and, thus, the subject is free to lack a c-structure correspondent (null subject) or to be realized in the "all purpose" VP-internal position (postverbal subject).

2.3 Why ACopInv occurs only in null-subject languages

Having provided an account of the difference between non-null-subject languages and null-subject languages, we will now address the remaining three questions posed in section 2: what the copula really agrees with in ACopInv, why apparent inversion only occurs in copular con-

structions, and why ACopInv is restricted to null-subject languages.

2.3.1 The copular restriction on apparent inversion

Explaining why the phenomenon of apparent inversion is restricted to copular constructions must appeal to a property that is unique to the copula. I suggest this property is the function (or meaning) of the copula in the clause:

(22) The copula requires identity of index in its subject and complement.

The index, which can be assumed to be a feature of f-structure, is the linguistic representation of referential dependency (see Bresnan 2001a: 250, Sag and Wasow 1999: 106): two GFs with the same index are coreferential (or referentially dependent). A pronoun and its antecedent are assumed to have the same index, and the same can be said about a predicative expression and its subject. The morphosyntactic manifestation of coindexing (identity of indices) is identity of agreement features:

(23) AgrCoi (Agreement of Coindexed GFs): Two GFs with the same index must have the same agreement features (person, number, and gender).

This can be seen in the choice of pronoun form in English, which has to have the same person, number, and gender features as its antecedent. The effect of this constraint is also visible in the choice of agreement form in predicative adjectives as in the following Catalan examples:

(24) La pel·lícula és {divertida /*divertit
the movie.fem.sg is funny.fem.sg funny.masc.sg
/*divertides}.
funny.fem.pl

This constraint is often violated, particularly when the predicative phrase is not headed by an adjective, but by a noun, as we see in (25).

(25) La pel·lícula és un èxit.
the movie.fem.sg is a success.masc.sg

Nouns and adjectives are all specified for gender and number in Catalan, but they differ in that nouns are lexically marked with one gender feature, whereas adjectives are free to take either value for the gender feature. Thus, we can assume that the various gender and number forms of each adjective are in competition, in the same candidate set, and the form chosen is the one that best satisfies constraints such as (23). In contrast, there is no competition among gender forms in nouns.

Therefore, predicative NPs are allowed to violate constraint (23), since there is no competing form that does not violate it.

2.3.2 What the copula agrees with

One of the problems with ACopInv is how to account for the agreement facts without stipulating that the copula agrees with the complement, and not with the subject, in a specific set of cases. However, as we noted in the preceding section, in null-subject languages, there often is no overt subject and what looks like a preverbal subject in most cases (leaving aside focused phrases) is a topic. This topic is coindexed with the null subject, which behaves like a pronoun. So, in copular constructions, the null pronominal subject is coindexed, on the one hand, with a topic and, on the other hand, with the predicative complement. Given this coindexation, it is required by constraint (23) to agree with both the topic and the complement. This requirement can only be satisfied in full if the topic and the complement have the same agreement features. If they do not have the same features of person, number, and gender, one of the two chains of agreement — topic-subject or subject-complement — takes precedence over the other.

The choice between the topic and the complement as agreement triggers for the subject of copular sentences is determined by the person and number features of the GFs involved. We can think of person and number features as forming a hierarchy, such that the higher a feature is in this hierarchy the more marked it is:[12]

(26) **Person-Number Hierarchy:**
1st/2nd person > 3rd person plural > 3rd person singular

A violation of AgrCoi is worse the higher the features involved are in this hierarchy. In OT terms, we can view the combination of constraint ArgCoi with the Person-Number Hierarchy as a set of ranked constraints: failure to satisfy AgrCoi is worse when 1st or 2nd person is involved than when 3rd person plural is involved, than when 3rd person singular is involved. We can express this idea as follows:

(27) **AgrCoi combined with the Person-Number Hierarchy**:
Assign * for every GF that fails to have the same agreement features as a coindexed GF

[12] The idea that there is a universal hierarchy in which first and second person are more marked than third person and plural is more marked than singular has been argued for by many authors including Greenberg 1966, Grimshaw 1997b, Aissen 1999, Corbett 2000, and Siewierska 2004.

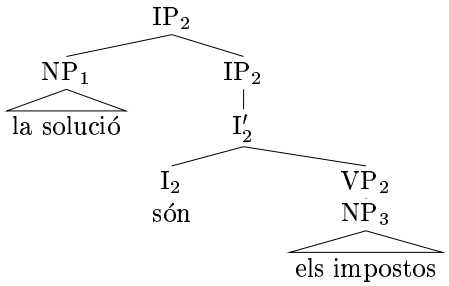
which is 1st or 2nd person. ⟶ **AgrCoi-1st/2nd**
which is 3rd person plural. ⟶ **AgrCoi-3rdpl**
which is 3rd person singular. ⟶ **AgrCoi-else(where)**
Ranking: AgrCoi-1st/2nd >> AgrCoi-3rdpl >> AgrCoi-else

Let us illustrate the theory provided so far with the grammaticality contrast given in example (1b), repeated as (28a) and (28b):

(28) a. La solució són els impostos.
b. * La solució és els impostos.

Recall that the initial NP in these examples, *la solució*, is not the subject, but a topic anaphorically linked to the subject. The subject is a pronoun, at f-structure, which corresponds to no constituent at c-structure. Because of the topic-pronoun relation, the subject is coindexed with the topic, and, because of the subject-predicate relation, the subject is also coindexed with the predicative complement *els impostos*. We can assume that the forms *són* and *és*, like all finite verb forms in Catalan, lexically specify the person and number features of the subject. The lexical entry of *són* states that the subject is third person plural and the lexical entry of *és* states that the subject is third person singular. (29) shows the paired c-structure and f-structure for example (28a). The correspondence between the two structures is notated by coindexing the relevant elements of structure.

(29)



$$\begin{bmatrix} \text{TOPIC} & \begin{bmatrix} \text{PRED} & \text{'solution'} \\ \text{NUM} & \text{sg} \\ \text{PERS} & 3 \\ \text{INDEX} & \text{i} \end{bmatrix}_1 \\ \text{SUBJ} & \begin{bmatrix} \text{PRED} & \text{'pro'} \\ \text{NUM} & \mathbf{pl} \\ \text{PERS} & 3 \\ \text{INDEX} & \text{i} \end{bmatrix} \\ \text{PRED} & \text{'be<arg}_3\text{>'} \\ \text{COMP} & \begin{bmatrix} \text{PRED} & \text{'tax'} \\ \text{NUM} & \mathbf{pl} \\ \text{PERS} & 3 \\ \text{INDEX} & \text{i} \end{bmatrix}_3 \end{bmatrix}_2$$

The representation of example (28b) would only differ from (29) in that the c-structure would have the verb form *és*, instead of *són*, and, in the f-structure, the number feature of the subject would have the value sg, instead of pl (see the crucial elements in boldface in (29)). The competition between the structures corresponding to the examples in (28) is resolved in favor of (28a), as shown in the following tableau:

(30) Competition between (28a) and (28b):

	Subj Cond	F-Faith	AgrCoi-1st/2nd	AgrCoi-3rdpl	AgrCoi-else
☞a. (28a)		***		*	**
b. (28b)		***		**!	*

Both examples have a representation that satisfies the Subject Condition, as in (29). The f-structure in (29), like the f-structure for (28b), fails to satisfy F-Faith three times: a) the subject is not licensed by a mapping principle, b) the PRED feature of the subject is not licensed lexically, if we assume, as I do, that finite verb forms such as *són* and *és* specify the person and number feature of the subject, but not its PRED (see Kuhn 2003: 109) (PRED 'pro' being the least costly of the possible PRED values), and c) the complement is not licensed by a mapping principle. Thus, both representations are equal with respect to constraint F-Faith. AgrCoi-1st/2nd is vacuously satisfied in both cases, as there is no first or second person involved. (29) violates AgrCoi-3rd pl once, as there is one GF, the topic, which is not 3rd person plural, even though it is coindexed with a GF that is 3rd person plural, and it violates AgrCoi-else twice. However, (29) is optimal compared to a structure in

which the topic satisfied AgrCoi-3rdpl, as it would violate F-Faith (and Parse, a high-ranking constraint requiring lexically specified features to appear in the corresponding f-structure), since the number feature of the topic is lexically specified. The structure corresponding to (28b) violates AgrCoi-3rdpl twice, as there are two GFs, the topic and the subject, which are 3rd person singular, but are coindexed with a 3rd person plural GF. Therefore, (29) is optimal.

2.3.3 Why there is no ACopInv in non-null-subject languages

The reason why there is no ACopInv, no (apparent) agreement of the copula with the complement, in non-null-subject languages like English is precisely because there is a lexically specified subject in these languages. A sentence like (28a) can be rendered in English as (31a), but not as (31b):

(31) a. . The solution is taxes.
b. * The solution are taxes.

Example (31a) has an NP in Spec-IP, which, given the constraint ranking of non-null-subject languages illustrated in (20), is required to map onto a subject. Since this NP has lexically specified person and number features, the failure of any of these features to appear in the subject function would cause a violation of Parse. So, the subject of (31) is specified as third person singular. On the assumption that the verb forms *is* and *are* carry person and number specifications of the subject (third person singular and third person plural, respectively), the choice of *is* will yield a well-formed structure, where the information specified by the lexical items of the NP unifies with the information specified by the verb, whereas the choice of *are* causes a violation of the uniqueness principle, as the f-structure of the subject will have inconsistent specifications for the number feature.

ACopInv crucially depends on there not being a lexically specified subject, but on the subject being a null pronominal (a pronoun at f-structure that corresponds to no constituent at c-structure). In this case the subject lacks lexically specified features and so they are free to be identified with those of the discourse topic (or those of a deictic referent), in order to satisfy AgrCoi. If we are dealing with a copular construction, the subject is also required to agree with the predicative complement, and it is only in this situation that the AgrCoi family of ranked constraints may make it appear as if the verb is agreeing with the complement instead of agreeing with the subject. In fact, the verb is always agreeing with the subject (in the sense that the finite

verb always specifies features of the subject); it is just that in copular constructions in null-subject languages the complement wins over the topic in imposing its features on the subject.

The apparent inverse agreement in ACopInv is similar to the apparent agreement with the complement in unaccusative constructions (also known as brother-in-law agreement) noted in footnote 8. In the present analysis, the similarity is captured by assuming that the verb specifies features of the subject in both constructions, as is the norm, and that the subject and the complement share at least the agreement features. In ACopInv the subject shares its agreement features with the complement, as a result of coindexation; in unaccusative constructions without an overt subject, according to Alsina 1995, 1996, the (nonthematic) subject and the complement are represented as having the same f-structure value, which means they share all features. Consequently, in both constructions, the verb appears to agree with the complement because it really agrees with the subject and the subject and the complement share some (or all) of their features.

2.3.4 ACopInv does not occur only with the copula

The current analysis of ACopInv does not include any principle that makes direct reference to the copula. One of the central elements of the analysis — the family of constraints in (27) that require identity of agreement features of coindexed GFs — appeals to a property found in constructions involving the copula, namely, the coindexation of two GFs of the same clause. If this property is found in constructions involving another verb, depending on what the facts turn out to be, it may provide strong support for the analysis or evidence against it. There is another verb, apart from the copula that can be argued also to require coindexation of its subject and complement: the verb *semblar* 'seem'. Interestingly, sentences with *semblar* are truth-conditionally equivalent to identical sentences with a positional reversal of preverbal and postverbal NPs:

(32) a. La Maria sembla la noia del paraigua.
the Maria seems the girl of the umbrella
'Maria appears to be the girl with the umbrella.'

b. La noia del paraigua sembla la Maria
the girl of the umbrella seems the Maria
'The girl with the umbrella appears to be Maria.'

In this pair of examples, the two NPs involved have the same agreement features and, so, there is no reason to expect any variation in the form of the verb. However, when the agreement features of the two NPs

involved are different, we find that the verb *semblar* has the form that shows agreement with the NP higher in the person-number hierarchy (26), regardless of where this NP appears in the clause:

(33) a. Tu {sembles /*sembla} la noia del
you.2nd.sg seem.2rd.sg seem.3rd.sg the girl of the
paraigua.
umbrella
'You appear to be the girl with the umbrella.'

b. La noia del paraigua {sembles /*sembla}
the girl of the umbrella seem.2nd.sg seem.3rd.sg
tu
you.2nd.sg
'The girl with the umbrella appears to be you.'

(34) a. Les fulles {semblen /*sembla} l' òrgan
the leaves seem.3rd.pl seem.3rd.sg the organ
vital de les plantes.
vital of the plants
'The leaves appear to be the vital organ of plants.'

b. L' òrgan vital de les plantes {semblen /*sembla}
The organ vital of the plants seem.3rd.pl seem.3rd.sg
les fulles.
the leaves
'The vital organ of plants appears to be the leaves.'

The position of the NPs in (33b) and (34b) indicates that the postverbal NP is the complement; however, it is this NP that triggers agreement on the verb. The NP that triggers agreement in (33) and (34) is the same one that would trigger agreement if the verb were the copula, instead of *semblar*. These facts are immediately explained if, as seems reasonable, we assume that *semblar*, like the copular verb, requires coindexing of its subject and complement. These facts would be problematic if the apparent inverse agreement of ACopInv depended on a lexical feature of the copula not shared with any other verb: there would then be no reason to expect apparent inverse agreement with any other verb. In the current analysis, *ser* and *semblar* share the essential property that gives rise to apparent inverse agreement: coindexation of subject and complement.

2.3.5 The asymmetric copula

A problem with the analysis of copular constructions presented here might seem to arise when both the topic and the complement are first

and second person. The analysis does not resolve the conflict, as both would be equal in imposing their features on the subject, and yet the data show that, in these cases, the conflict is systematically resolved in favor of the topic:

(35) a. Jo {sóc/ *ets} tu.
I am are.2nd.sg you.2nd.sg
'I am you.'

b. Tu {ets /*sóc} jo.
You.2nd.sg are.2nd.sg am I
'You are me.'

An important difference between these two examples and the examples analyzed so far is that (35a-b) are not truth-conditionally equivalent, unlike what happens in all other cases examined so far, for example, in (1). (35a) means something like 'I play your role' or 'I pretend to be you' and (35b) means something like 'You play my role' or 'You pretend to be me'. It is clear that in (35) the referent of the topic (subject) is not identical to that of the complement: 'you' and 'I' do not refer to the same individuals. This is unlike all the other examples considered so far, where there is referential identity between the topic (subject) and the complement.

The explanation I want to propose for cases like (35) is that, although the copula normally imposes coindexing (and referential dependency) between the subject and the complement, the requirement of subject-complement coindexing in some cases is dropped and then the copula has a meaning like "X play the role of Y". This use of the copula is not restricted to situations where both subject and complement are first or second person, although it is the only option in such cases, since it is not possible to interpret a first and a second person in the same utterance as coreferential. It occurs in other cases, as we see comparing (36a) and (36b):

(36) a. El senyor Ramon sóc jo. (*sóc* = am.1st.sg)
'I am Mr. Ramon.'

b. El senyor Ramon és jo. (*és* = is.3rd.sg)
'Mr. Ramon is me/plays my role.'

Example (36a) establishes referential identity between the topic (subject) and the complement. This example could be used when the concept of "el senyor Ramon" is present in the discourse in order to establish the identity of this individual. (36b), on the other hand, keeps the referents of the subject and the complement distinct and could be used to indicate that Mr. Ramon is taking my place, in some sense.

(36a) contains an instance of the "common" copula, which requires coindexing of the subject and the complement: since the features of the complement are "stronger" than those of the topic according to (27), they are imposed on the subject and reflected in the form of the copula. (36b) contains an instance of the "asymmetric" copula: since the subject and the complement are not coindexed, the subject shows the features of the topic. (Italian has another morphological reflex of the difference between the two uses of the copula: there is a contrast between *sono io* 'it is me' and *è me/*io* 'he/she is me' (Moro 1997: 64, 270) (my translations). The difference in meaning between these two uses of the copula in Italian is visible in the translations of the examples in Cecchetto and Oniga 2004: 145–146, although they erroneously attribute the choice of *me* or *io* to case concord.)

2.4 Conclusion

If the claim in this paper is correct, the phenomenon of ACopInv is one of the hallmarks of a null-subject language, together with the possibility of null subjects and postverbal subjects. (Naturally, ACopInv is not visible in null-subject languages that lack a copula, such as Arabic.) These three features of null-subject languages are derived, in the OT-LFG theory proposed here, from the constraint ranking that defines null-subject languages (illustrated in (21)). We can say that what characterizes null-subject languages is the absence of a subject position: a subject can, then, either be null (correspond to no phrase in c-structure) or appear in the "all-purpose" VP-internal position. As a null subject, it is pronominal and constrained to agree with the discourse entity it is coindexed with, like all pronominals. In the copular construction, it is also coindexed with the complement and constrained to agree with it. The potential feature mismatch between the two coindexed elements is resolved by means of a hierarchically ranked family of constraints that favors agreement with the expression containing the more marked features. This hierarchically ranked family of constraints is only visible in null-subject languages, where the subject lacks lexically specified features. In non-null-subject languages, the subject corresponds to a phrase in the c-structure with lexically specified features and preserving these features in the f-structure takes precedence over the constraints that require agreement with coindexed elements.

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