

INVERSION, RECONSTRUCTION, AND THE STRUCTURE OF RELATIVE CLAUSES*

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0. *Introduction*

The goal of this chapter is to argue in favor of a double-headed analysis of restrictive relative clauses (Platero 1974; Sauerland 1998, 2000). One of the head positions is the SpecCP slot of the relative clause, while the other is the NP the relative clause is adjoined to. Contra Platero and Sauerland, I argue that there is only one head position, the other one being taken up by an empty, expletive-like element that I dub ‘*eNP*.’ I also argue for Sauerland’s and Aoun and Li’s (2003) hypothesis that both the matching and the raising analyses are made available by UG. However, whereas they assume that each analysis involves a different syntactic structure, I argue that there is only one structure, the differences between ‘raising’ and ‘matching’ arising from an indeterminacy on the way in which the ‘real’ relative head and *eNP* are merged. Moreover, this indeterminacy is also shown to be responsible for certain reconstruction asymmetries in Spanish relative clauses that had not been noticed so far.

The article is organized as follows. In section 1, I introduce the relevant data set from Spanish and compare it to its English counterpart. Section 2 consists of a brief review of the double-headed analysis of relative clauses, and the modifications I introduce. In section 3, I take a brief excursus so as to link the variations in word order within relative clauses to variations in word order in other parts of the language. In section 4, I return to the asymmetries introduced in section 1, and show how they can be accounted for in terms of the theory developed so far. Finally, section 5 contains a number of open questions that I leave for future research.

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1. *Some asymmetries in English and Spanish*

1.1 *English*

The discovery of the reconstruction/antireconstruction contrast in (1) is usually attributed to Williams and van Riemsdijk (1981). Descriptively, an R-expression contained in a complement PP, embedded in turn in a fronted *wh* phrase, is interpreted as if it were in its base position, hence the Condition C violation in (1a). On the other hand, if the R-expression belongs in a relative clause, as in (1b), no reconstruction takes place, and coreference is possible.

- (1) a.* [Which picture [_{PP} of John_i]] did he_j see *t*?
 b. [Which picture [_{RC} that John_i took]] did he_j see *t*?

Particular details aside, many analyses of reconstruction (Lebeaux 1988, 1992; Chomsky 1993; Heycock 1995; Epstein et al. 1998; Sauerland 1998, 2000; Fox 1999; Stepanov 2001 a, 2001b) assume that the offending R-expression is in the c-command domain of the binder at the relevant level of representation in (1a), whereas this is not the case in (1b). Here I adopt the spirit of Lebeaux's (1988, 1992) analysis. He argues that (1) stems from a dichotomy between complements (PPs) and adjuncts (relative clauses and some PPs), ultimately reducible to theta assignment. Specifically, he argues that complements, since they receive a theta role, must be present at the level where theta relations are expressed, namely, D-Structure. On the other hand, adjuncts do not receive theta roles, therefore their insertion can be delayed until S-Structure. Stepanov (2001 a, 2001b) reinterprets Lebeaux's proposal in a DS/SS-less system as cyclic versus postcyclic insertion: Cyclically inserted phrases enter the derivation before their heads undergo further operations; postcyclically inserted ones adjoin to their heads at a later point.¹ Under this hypothesis, together with the assumption that reconstruction is LF activation of a lower, unpronounced copy (Chomsky 1993; Bobaljik 2002), we arrive at the (simplified) LF representations in (2), which derive the asymmetries in (1).

- (2) a. [which *x*] he saw [*x* picture [of John]]
 b. [which *x* [that John took]] he saw [*x* picture]

The contrast between PPs and relative clauses follows from the assumption that binding theory applies at LF (Chomsky 1993; Fox 1999). In (2a), *John* is c-commanded by a coreferential pronoun, therefore causing a Condition C

¹ Stepanov (2001a, 2001b) argues that adjuncts must be inserted postcyclically. However, my analysis will rely on weakening *must* to *may*. This option has also been explored (e.g.) by Lebeaux (1992) and Fox (1999).

violation. In (2b), on the other hand, there is no copy of the relative clause containing *John* in the c-command domain of *he*, so binding theory is satisfied. This is the analysis I will follow for the remainder of this chapter.

1.2 Spanish

As shown in (3), Spanish PPs show reconstruction effects in the same way as their English counterparts. Therefore, I will ignore them in this chapter. It is the relative clauses in (4) that show a more intriguing pattern: anti-reconstruction effects parallel to (1b) only as long as the SV order is maintained inside the relative clause (4a). If the order is VS, they reconstruct (4b). Example (4c) is provided to show that swapping the positions of the name and the pronoun renders the sentence grammatical. I take this to indicate that the ungrammaticality of (4b) is, effectively, due to reconstruction, and not something else.²

- (3) *¿[*Qué foto* [*de Juan_i*]] *ha visto él_i t?*
 what picture of Juan has seen he
- (4) a. ¿[*Qué libro* [*que Juan_i escribió*]] *ha publicado él_i?*
 what book that Juan wrote has published he
- b. *¿[*Qué libro* [*que escribió Juan_i*]] *ha publicado él_i?*
 what book that wrote Juan has published he
- c. ¿[*Qué libro* [*que escribió él_i*]] *ha publicado Juan_i?*
 what book that wrote he has published Juan

The sentences in (4) constitute the empirical contribution of this chapter, since they have not been discussed anywhere in the literature. With regard to this set of data, José Camacho (personal communication, n.d.) suggests that, since Romance postverbal subjects are usually focused, information structure (IS) considerations may force a disjoint reference in (4b). I will not consider this option. For one, (4c) indicates that we can account for this phenomenon with a purely configurational—and therefore simpler—version of binding

² Interestingly, this effect also shows up in French and Italian. I am grateful to Johan Rooryck and Dennis Delfitto (personal communications, n.d.) for constructing the following examples for me:

- (i) a. [*Quale fotografia* [*che Gianni_i ha fatto*]] (*pensi que*) *lui_i, abbia visto?*
 what picture that Gianni has made think that he has seen
- b. *[*Quale fotografia* [*che ha fatto Gianni_i*]] (*pensi que*) *lui_i, abbia visto?*
 what picture that has made Gianni think that he has seen
- (ii) a. [*Quelle histoire* [*que Jean_i a racontée*]] *a-t-il_i inventée de toutes pièces?*
 what story that Jean has told has-he invented of all pieces
- b. *[*Quelle histoire* [*qu'a racontée Jean_i*]] *a-t-il_i inventée de toutes pièces?*
 what story that-has told Jean has-he invented of all pieces

theory. Moreover, in an IS approach, what is relevant is that the postverbal subject is focused. It is not clear to me whether its binding-theoretic status should be taken into account. If it is not, we would predict that (4c) should be ungrammatical in the same way as (4b), contrary to fact. If it is, we would get the right results, but we would simply be reduplicating something we can achieve independently with a strictly configurational binding theory.³

To sum up, the data from English show that there is a correlation between reconstruction and cyclic insertion on the one hand and antireconstruction and postcyclic insertion on the other. Since (4b) shows reconstruction effects, we can assume that VS relatives are inserted cyclically, as opposed to SV relatives. This chapter is an attempt to answer why reconstruction is related to inversion in this way.

2. *On the analysis of relative clauses*

2.1 *Competing approaches*

There exist in the transformational literature two major trends in the analysis of relative clauses. One of them is the ‘empty operator’ or ‘matching’ analysis, the classical reference for which is Chomsky (1977). According to this approach, the head NP is base generated in its base position, and the relative itself is a CP adjoined to the head.⁴ The position the head should have occupied inside the relative is taken up by a phonetically unrealized λ operator that moves to SpecCP. This movement turns the CP into a predicate. Thus, the set the CP denotes can intersect with the set denoted by the head and yield the right interpretation, as in (5).

- (5) The matching analysis:
 The $[_{NP} [_{NP} \text{girl}_j] [_{CP} Op_i \text{ that I saw } t_i]]$ (where $i = j$)

The second line of analysis is usually referred to as the ‘raising’ or ‘promotion’ approach. Its first detailed layout is Vergnaud (1974), and it has been revived in the last decade by Kayne (1994) and much subsequent work.⁵ The core ideas of this analysis are (a) that the head NP is generated in the gap position and raises to the SpecCP position and (b) that the relative CP is a

³ As I was finishing this chapter, I came across Gutierrez Bravo (2002, 2003), who gives an interesting analysis of word order in Mexican Spanish in terms of IS. He does not discuss reconstruction phenomena, however. Unfortunately, time constraints prevent me from including an evaluation of the extent to which his work is (in)compatible with my hypothesis.

⁴ The usual analysis is that it is adjoined to NP in restrictive relatives and to DP in appositives.

⁵ The most thorough analysis of relative clauses under this approach is probably Bianchi (1999, 2000). See also many of the papers in Alexiadou et al. (2000), de Vries (2002), and Bhatt (2002).

complement of the external determiner.⁶ The conjunction of these two hypotheses yields the right word order in (6).

- (6) The raising analysis:
the [_{CP} girl_i that I saw *t_i*]

The implicit assumption in the literature is that one of these analyses should suffice to account for all (restrictive) relatives, and the discussion has focused on which one is more appropriate, with equally strong arguments on both sides. However, Sauerland (1998, 2000) and Aoun and Li (2003) have proposed that both analyses are actually made available by UG and are necessary to account for different properties of relativization. Nonetheless, while Sauerland and Aoun and Li argue that both the matching and the raising analyses exist as independent syntactic entities—that is, (5) and (6)—I make a stronger claim in this chapter. My proposal is that there is one single structure for relative clauses, but there are two possible ways to construct it. Each of these options yields a derivation with different properties, which can account for the differences predicted by having two separate structures.

2.2 *The ambiguity of English relatives*

Sauerland (1998, 2000) observes that English restrictive relatives are ambiguous between the matching and the raising analyses. On the one hand, sentences like (7) call for a matching analysis, where the head *relatives of John* is not fully represented in the gap position. Otherwise, we would expect a Condition C violation. Since the sentence is grammatical, Sauerland concludes that what is in the gap position must be an impoverished representation of the head, rather than a full copy.

- (7) The [relatives of John_i][that he_i hates *e*]

On the other hand, data like (8) require a raising analysis, which leaves a full copy of the head in the gap position. In (8a), anaphor binding requires a copy of *each other* to be in the c-command domain of the binder. Similarly, the reading of (8b) in which *every doctor* takes scope over *two patients* requires that a copy of the latter be in the gap position.

- (8) a. The [interest on each other_i][that John and Mary_i showed *e*]
b. I saw the [two patients_i][that every doctor visited *e* today]
(every doctor >> two patients)

⁶ Though see Platzack (2000), who argues that the relative CP is a complement to an external NP.

Sauerland's (1998, 2000) solution to this paradox is reminiscent of Platero's (1974) analysis of Navajo relatives,⁷ which can be either externally or internally headed. His proposal is that there are two instances of the head—one inside and one outside the relative CP—and one of them must undergo deletion.⁸ If it is the CP-external head that deletes (8b), we get an internally headed relative; otherwise an externally headed one (8c).

- (9) a. [[_{CP} *ashkii at'ééd yiyiiltsa nee*] *ashkii yalti'* (base structure)
 boy girl saw C boy speaks
 "The boy that the girl saw is speaking."
 b. [[_{CP} *ashkii at'ééd yiyiiltsa nee*] ~~*ashkii*~~ *yalti'* (internally headed)
 c. [[_{CP} ~~*ashkii*~~ *at'ééd yiyiiltsa nee*] *ashkii yalti'* (externally headed)

Acknowledging the existence of both matching and raising relatives in English, Sauerland (1998, 2000) adopts Platero's (1974) double-headed analysis for the former type, but with two amendments. First, he stipulates that in English it is always the internal head that undergoes deletion. That is, English matching relatives always have the structure in (9c) for Navajo, obviating the pre-/post-nominal distinction. This claim is modeled in Bresnan's (1973) analysis of English comparatives, schematized in (10b).⁹ The difference seems to be that the deletion rule targets nouns/NPs in one case and adjectives/APs in the other.

- (10) a. I saw a girl [_{CP} ~~girl~~ that was wearing a red dress]
 b. The table is wider than the rug is ~~wide~~

The second difference is that Sauerland (1998, 2000) assumes a 'vehicle change' (VC) operation (see vanden Wyngaerd & Zwart 1991 and Fiengo & May 1994), whereby "an R-expression or *wh*-trace in the antecedent of ellipsis can correspond to a pronoun in the elided material" (Sauerland 2000:13).¹⁰ The pair in (11) is given as evidence for this process.

⁷ Actually, Sauerland (1998, 2000) does not mention Platero's (1974) analysis, but the core idea in both approaches is obviously the same. Thanks to Alex Grosu (personal communication, Day Month Year) for mentioning Platero's paper to me.

⁸ Bear in mind that these copies are related not derivationally, but through a construal rule. In present-day terms, they would constitute separate items in the Numeration. For this reason, I will refer to them as 'instances' or 'tokens,' rather than 'copies.'

⁹ Though see Chomsky's (1977) analysis of comparatives, where he makes use of an empty operator, so only one adjective is present and the deletion rule is unnecessary.

¹⁰ VC works on the hypothesis that *wh* traces and R-expressions are [-pronominal, -anaphoric] elements. VC changes the [pronominal] feature value, yielding a [+pronominal, -anaphoric] representation that corresponds to pronouns and *pro*.

- (11) a. * The [story about Mary_i] [that she_i told *e*]
 b. The [story about Mary_i] [that she_i thinks [Peter told *e*]]

One consequence of turning an R-expression into a pronoun is a change in its binding theory status: It goes from being subject to Condition C to abiding by Condition B. This seems to be the cause of the contrast in (11). Because of VC, *Mary* changes to *her* in the internal head, and after reconstruction to the gap position, this head is in the c-command domain of *she*. In (11a), the gap is in the same binding domain as the binder, hence the Condition B violation. However, the addition of a second embedding in (11b) creates a new domain in which Condition B cannot operate. As a consequence, the latter sentence is grammatical.¹¹

2.3 More SV/VS asymmetries in Spanish

The goal of this section is to apply the previously described tests to Spanish in order to get a fuller set of data. We begin by noticing that, if the SV order is maintained, the judgments for the Spanish sentences parallel those for English (12).

- (12) a. *Los [parientes de Juan_i] [que él_i odia *e*] viven lejos de aquí*
 the relatives of Juan that he hates live far from here
 b. *El [interés del uno en el otro_i] [que María y Juan_i mostraron *e*]*
 the interest of one on the other that María and Juan showed
 c. *Vi a [los dos pacientes] [que cada medico visitó *e* hoy]*
 saw to the two patients that each doctor visited today
 (*cada medico >> dos pacientes*)
 d. * *La [historia sobre María_i] [que ella_i contó *e*]*
 the story about María that she told
 e. *La [historia sobre María_i] [que ella_i piensa [que Pedro contó *e*]]*
 the story about María that she thinks that Pedro told

However, the judgments are different for some of the VS counterparts of the sentences in (12), shown in (13).

- (13) a. * *Los [parientes de Juan_i] [que odia él_i *e*] viven lejos de aquí*
 the relatives of Juan that hate s he live far from here

¹¹ Jeroen van Craenenbroeck (personal communication, Day Month Year) asks why (11a) is ungrammatical but (7) is not, given that, at first sight, they seem to involve a similar [NP PP] structure. This contrast is not surprising, because it also appears in main clauses. Whatever accounts for (i) versus (ii) also accounts for (7) versus (11a):

- (i) John_i saw some relatives of his_i
 (ii) * Mary_i told a story about her_i

- b. *El [interés del uno en el otro]_i [que mostraron María y Juan_i e]*
 the interest of one on the other that showed María and Juan
- c. *Vi a [los dos pacientes]_i [que visitó cada medico e hoy]*
 saw to the two patients that visited each doctor today
 (cada medico >> dos pacientes)
- d. **La [historia sobre María_i]_i [que contó ella_i e]*
 the story about María that told she
- e. ??*La [historia sobre María_i]_i [que piensa ella_i [que Pedro contó e]]¹²*
 the story about María that thinks she that Pedro told

The generalization seems to be that Spanish SV relatives can be accounted for in the same way as their English counterparts, in terms of a mixed matching/raising analysis, whereas VS relatives call for a pure raising analysis. The two crucial examples are (13a) and (13e), where the gap contains not an impoverished copy of the head, but a full one. This is evidenced by the binding theory violations they induce, compared to (12a) and (12e). The question, again, is how SV inversion can be related to these paradigms.

2.4 A revision of the double-headed analysis

The conclusion of the last section—that SV relatives can receive a mixed matching/raising analysis while VS relatives are only derivable through a raising analysis—is descriptively adequate. However, it begs the question of why such a split should exist, and precisely in this way, out of all logical possibilities. In this section, I will introduce some amendments to Sauerland's (1998, 2000) double-headed analysis that will allow us to establish a direct correlation between the matching analysis and SV order on the one hand and the raising analysis and VS order on the other.

First, I retain the assumption that every relative clause contains two head positions. This is an intuitively natural way to think about relatives. A relative clause is essentially a construction in which a given NP is playing a role in two

¹² Admittedly, as one referee pointed out, the contrast between (12e) and (13e) is fairly subtle. To my ear, it is easier to perceive if the bare pronoun is replaced by the emphatic form *ella misma* “she herself,” which forces reference to *María* rather than to some other woman in the discourse.

(i) *La historia sobre María que ella misma piensa que Pedro contó*
 the story about María that she herself thinks that Pedro told

(ii) ??/*? *La historia sobre María que piensa ella misma que Pedro contó*

To complete this point, note in the following dialogue that it is independently possible to have *ella misma* in postverbal position.

(iii) ✓ ¿Y Pedro? – *María dijo que ella misma lo había asesinado*
 and Pedro? María said that she herself him had murdered

(iv) ✓ ¿Y Pedro? – *María dijo que lo había asesinado ella misma*

clauses at the same time. There are two ways to formalize this observation. One is implicit in Kayne's (1994) raising analysis: There is, effectively, a single NP, and it somehow comes to play a role in both clauses. The other possibility is implicit in both Chomsky's (1977) empty operator and Platero's (1974) and Sauerland's (1998, 2000) double-headed analysis: There are two NPs, one per clause, and one of them is not pronounced.

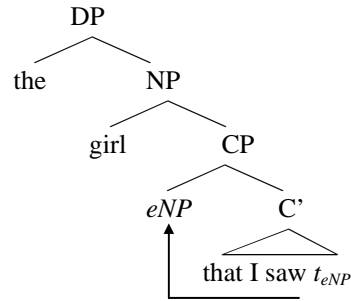
Notice, though, that what I assume is that there are two head positions. At this point, I depart from Sauerland's (1998, 2000) line of analysis and assume that there is only one 'real' head NP, which may occupy either of the two head positions, but, by definition, only one. The other position is occupied by an element I will refer to as '*eNP*.' The purpose of this element is to act as a placeholder of the 'real' head in the head position the latter is not occupying. It is important to stress that I do not place any restrictions on the placement of these two elements. That is, it is possible to have the 'real' head in the clause-external position and *eNP* in the clause-internal one, and vice versa. The reasons behind this assumption will be made clear in a later section.

What is *eNP*? As I said, I assume it is a duplication of the 'real' head NP, with complex internal structure.¹³ I will also assume that it has no reference of its own, but rather it has to assume whatever reference the 'real' head has. Nonetheless, it contains a small set of formal features, such as Case, ϕ , Animacy, and so on. In English and Spanish, it is phonetically null, but, in principle, nothing prevents it from being realized in other languages, for instance, as a resumptive pronoun, or even as a duplication of the 'real' head (see fn. 12).

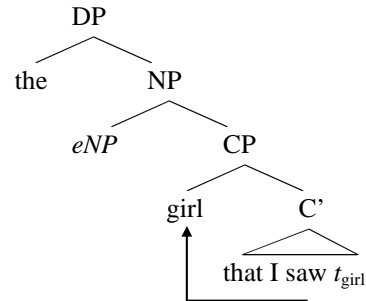
Given these assumptions, we can construct a unique structure for relative clauses that allows for two different ways of building it up. I will continue to refer to these two options as 'matching' (14) and 'raising' (15) relatives, although I want to stress that these structures do not formally correspond to the structures presented in (5) and (6), respectively. I only maintain the terminology for the sake of simplicity.

¹³ The idea of *eNP* being syntactically articulate might seem strange at first thought. However, see Grosu's (2003) analysis of free relatives, which he argues are CPs adjoined to a null external head consisting of a number of projections. My analysis goes a little beyond Grosu's in that, while the structure of his external head is invariant, I assume that the structure of *eNP* varies so as to mimic the structure of the 'real' head. Interestingly, there seems to be empirical evidence in favor of this hypothesis. Susagna Muntaña (personal communication, Day Month Year) informs me that Spanish children sometimes produce sentences of the form *el gato que he visto el gato*, literally, "the cat that I've seen the cat." In other words, the head is duplicated inside the relative. As will become clear in the upcoming discussion, this can be easily accounted for under the present hypothesis. However, I have not yet looked in detail at this kind of data, therefore I will not discuss them further in this chapter.

(14) Matching relatives:



(15) Raising relatives:



Semantically, (14) and (15) are equivalent.¹⁴ Virtually all the analyses of relatives I know of posit movement of some element from the gap position to SpecCP with the purpose of creating an operator-variable chain.¹⁵ In (14), movement of *eNP* fulfills the same role as operator movement in the traditional matching analysis. The variable is the trace/copy of *eNP*, and the binder is *eNP* itself. The same holds for (15), with the difference that it is *girl* that creates and binds the variable. Therefore, the intersection between the relative and the head takes place entirely inside CP.

3. *Inversion in Spanish*

3.1 *Obligatory inversion in Spanish*

As we have seen, inversion is linked to reconstruction in Spanish. I take this to suggest that SV inversion in relatives is not a free, ‘stylistic’ process. Rather, it seems as though it interacts with some other operation. To extend this line of thought, let us look at the different contexts in which inversion is obligatory in Spanish, as shown in (16) through (18).¹⁶

¹⁴ Thanks to Crit Cremers and Alex Grosu for clarifications and discussion on this point.

¹⁵ A notable exception is Adger and Ramchand (2002), who argue that, in Gaelic languages, lambda abstraction is established between the relative complementizer and a pronominal element in the gap position via the Agree operation.

¹⁶ In this chapter, I only try to derive some generalizations about inversion. I am not committed to how inversion should actually be analyzed. In particular, I believe that the proposal I present here is compatible with a T-to-C movement analysis of inversion as well as with a subject-in-VP approach.

- (16) Matrix *wh* questions:¹⁷
- a. *¿Qué ha visto Juan?*
what has seen Juan
 - b. * *¿Qué Juan ha visto?*
- (17) Embedded *wh* questions:
- a. *Me pregunto [qué ha visto Juan]*
I wonder what has seen Juan
 - b. * *Me pregunto [qué Juan ha visto]*
- (18) Focus fronting:
- a. *Un Mundo Feliz ha leído Juan (y no Rebelión en la Granja)*
Brave New World has read Juan and not *Animal Farm*
 - b. ?* *Un Mundo Feliz Juan ha leído (y no Rebelión en la Granja)*

On the other hand, inversion is not obligatory in the contexts in (19)-(22):

- (19) Declarative sentences:
- a. *(Esta mañana) ha leído Juan el periódico.*
this morning has read Juan the newspaper
 - b. *(Esta mañana) Juan ha leído el periódico.*
- (20) In situ questions:
- a. ? *(María piensa) que ha leído Juan qué*
María thinks that has read Juan what
 - b. *(María piensa) que Juan ha leído qué*
- (21) Topic fronting:¹⁸
- a. *Un Mundo Feliz # lo ha leído Juan.*
Brave New World it has read Juan
 - b. *Un Mundo Feliz # Juan lo ha leído.*
- (22) Successive cyclic *wh* movement:¹⁹
- a. *¿Qué piensa María [que ha leído Juan t]?*
what thinks María that has read Juan
 - b. *¿Qué piensa María [que Juan ha leído t]?*

How can we set both groups apart? Following Rizzi (1997, 2001), I assume that (16)-(18) have quantificational force, that is, they contain an operator-

¹⁷ I am aware of the fact that the obligatoriness of inversion with different types of *wh* words shows a great deal of dialectal variation (Bakovic 1998; cf. also Suñer 1994). The data reported here come from my dialect of northern Spain, where inversion seems to be obligatory with all *wh* words.

¹⁸ Following Rizzi (1997), I will assume that foci differ from topics in that the former show an intonational break and a clitic doubling the topic.

¹⁹ Torrego (1984) marks sentences like (22b) as ungrammatical. However, my informants (and myself) find these examples perfectly acceptable, though it might be true that, in a minimal pair, (22a) might be preferred to (22b). In any event, I believe Torrego's judgments could be accommodated with a minimal revision of (24).

variable chain, whereas this is not the case in (19)-(22). Let us formulate this as (23):

- (23) The inversion generalization (preliminary version):
 Inversion is obligatory if the clause in question contains an operator-variable chain.
 Otherwise, it is not.

This statement, as such, runs into problems. To begin with, it would be possible to argue that in situ questions (20) involve covert movement of the *wh* word. Similarly, following Cinque (1990), one might object that in CLLD constructions like (21) there is empty operator movement, the topic being base generated in its surface position. Finally, we might also wonder why inversion is not obligatory in the intermediate landing sites of *wh* movement in (22), given that these positions are links of an operator-variable chain. For these reasons, let us reformulate (23) as (24):

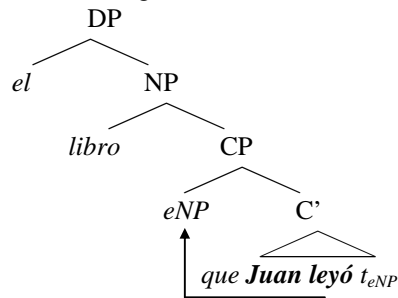
- (24) The inversion generalization (definitive version):
 Inversion is obligatory if
 a. the clause in question contains an operator-variable chain
 AND
 b. the head of the chain has some phonological content.

At present, I cannot derive this generalization from anything. However, I will show that (24) is useful to account for the relative clause data presented earlier. Therefore, for the time being, let us accept it as I have just phrased it.

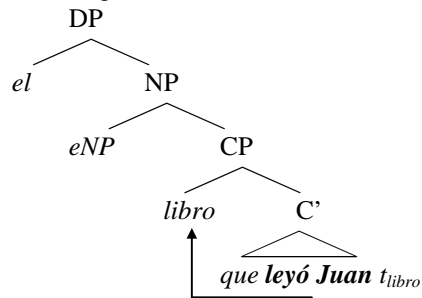
3.2 *Inversion in relatives*

Relative clauses also contain an operator-variable chain. Therefore, we can assume that they also abide by (24). What (24) says is, roughly, that overt A-bar movement causes inversion, as opposed to covert—or lack of—A-bar movement. Recall that, according to the hypothesis presented in section 2, both options are available in relative clauses. If the ‘real’ head is inside the relative CP, its raising to SpecCP would be an instance of overt A-bar movement, and would trigger inversion. On the other hand, movement of *eNP* will not trigger inversion, since it has no phonological matrix. Thus, (14) and (15) have the structures (25) and (26) in Spanish:

(25) Matching relatives:



(26) Raising relatives:



Notice that this hypothesis requires having an empty double of the ‘real’ head (namely, *eNP*) from the very beginning, rather than as a consequence of deletion, as Sauerland (1998, 2000) proposes. The reason is that, by definition, PF deletion applies to a finished derivation. As a consequence, if the two heads were phonetically realized, inversion would always be triggered. This would happen irrespectively of which of the heads is deleted later on. That is, under this system, the mere existence of SV relatives favors having an unpronounced second head that is generated as such, rather than derived through deletion at a later stage.

4. *Back to the asymmetries*

4.1 *(Anti)reconstruction of the relative clause head*

The structures in (25) and (26) amount to saying that SV relatives have an impoverished copy of the ‘real’ head in the gap position, whereas VS relatives have a full one. This derives the asymmetries in (12) and (13). Let us begin with the former. Examples (12a), (12d), and (12e) fall out from assuming that the gap position contains a pronoun instead of the R-expression present in the ‘real’ head. The only requirement, then, is that the pronoun and its binder are not in the same binding domain. This condition is met by (12a) and (12e), but not by (12d), hence the grammaticality of the former and the ungrammaticality of the latter.

Examples (12b) and (12c) require further discussion. In (12b), the anaphor in the ‘real’ head is properly bound, even though the system proposed here implies that the gap only contains an impoverished copy of the ‘real’ head.²⁰ Thus, it seems as though we have a paradox here. The solution to this problem relies on how much of an ‘impoverished copy’ *eNP* is. Recall that I assumed earlier (see fn. 12) that *eNP* mimics the syntactic structure of the ‘real’ head. By ‘impoverished,’ I mean that *eNP* contains no referential elements, as was

²⁰ Thanks to Jairo Nunes (personal communication, Day Month Year) for raising this point.

proposed earlier. That is, the R-expressions of the ‘real’ head correspond to pronouns in *eNP*, which is the same effect as VC (though see the next section for an argument of why this hypothesis is preferable to VC). One way to derive this state of affairs is to assume that Full Interpretation bans the presence of unpronounced R-expressions, since the information they carry would not be recoverable. Therefore, the only elements admitted in such contexts would be pronouns and anaphors, which take their reference from an appropriate antecedent. The consequence is that an anaphor in the ‘real’ head would also correspond to an anaphor in *eNP*. In this way, we derive the grammaticality of (12b). A similar treatment can be applied to (12c). Since the gap contains an element with the same syntactic structure as the ‘real’ head, wide scope of *cada medico* “every doctor” follows in the same way as anaphor binding in (12b).

On the other hand, the VS relatives in (13) have been argued to contain a full copy of the ‘real’ head in the gap position. In other words, whatever is in the ‘real’ head will also be present in the gap. If the ‘real’ head contains an R-expression, as in (13a), (13d), and (13e), we predict that the gap cannot be c-commanded by any element that qualifies as a binder for the R-expression, lest we have a Condition C violation. As we can see, the prediction is fulfilled. Anaphor binding (13b) and wide scope of *cada medico* “every doctor” (13c) also follow without any further stipulation, since all necessary elements (the anaphor in the former case and *dos pacientes* “two patients” in the latter) are present in the gap position as a result of the movement operation.

4.2 (Anti)reconstruction of the entire relative clause

The observation this chapter started off with is that, in Spanish, a relative contained in a fronted *wh* phrase must reconstruct to the base position if it displays VS order, but not otherwise. In this section, I try to derive this generalization from the analysis I developed earlier. Given that I have hypothesized that VS order obtains whenever the ‘real’ head occupies the clause-internal position, what we need is a mechanism that ensures that the relative CP will adjoin cyclically in this situation, but not if the ‘real’ head is in the clause-external position.

Notice, to begin with, that the relation between the ‘real’ head and *eNP* is asymmetric, in the sense that the presence of *eNP* entails the presence of another NP (the ‘real’ head) that it can be related to, whereas a regular NP does not entail the presence of *eNP*. The latter case would simply result in an NP without any relative CP adjoined to it. Starting from this assumption, let us propose that insertion of *eNP* must be followed as soon as possible by insertion of the ‘real’ head, but not the other way around. Now consider a case in which

eNP is in the clause-external position. Obviously enough, the ‘real’ head will be in the clause-internal position. This is precisely the situation where cyclic insertion of the relative CP is forced by the assumptions I have just laid out. Once *eNP* is introduced in the derivation, the ‘real’ head must also be introduced. But, since the ‘real’ head is embedded inside the relative CP, the only way to introduce the former is to adjoin the entire CP to *eNP*. In order to satisfy the ‘as-soon-as-possible’ requirement, adjunction must take place before any other operations. As a consequence, we derive the observation that VS relatives are inserted cyclically.

Consider, on the other hand, a situation where it is the ‘real’ head that occupies the clause-external position. Since the presence of the NP that constitutes the ‘real’ head does not entail the presence of *eNP*, there is nothing forcing cyclic adjunction of the relative CP. Instead, adjunction can be delayed until a later point, when the head DP has undergone movement operations.²¹

Notice finally that this analysis relies on having something like *eNP* generated as such, rather than as a result of deletion, as Sauerland (1998, 2000) proposes. If we adopted Sauerland’s hypothesis, there would be no obvious way to force cyclic adjunction in some cases but not in others. On the other hand, if we assume *eNP* is an element of the numeration in its own right, the asymmetry can be easily derived. It follows from this plausible assumption that the relation between the ‘real’ head and *eNP* is asymmetric.

5. *Open questions*

5.1 *English*

In English, inversion is banned from embedded contexts. Therefore, we cannot use the same test as in Spanish to determine which one of the two structures, (14) or (15), is being used, or even if either structure is used at all. On the one hand, it seems as if restrictive relatives could be fully covered if only (14) was used in English. On the other hand, the null hypothesis is that English, like Spanish, can resort to both structures. At present, I do not know of any conclusive evidence in favor of either option (though see Sauerland 1998, 2000; Aoun & Li 2003, for discussion).

²¹ A related question is, when *eNP* is in the clause-internal position, why is cyclic adjunction not forced in order to relate it to the clause-external ‘real’ head? The answer capitalizes on the assumption that insertion of the ‘real’ head is required only when *eNP* enters the derivation. Therefore, we can propose that, in this situation, the relative CP containing *eNP* is not constructed in parallel. Rather, it would not be derived until it is time for it to be adjoined to the ‘real’ head.

5.2 *Relative and resumptive pronouns*

In Spanish, *that* relatives are used for subject and direct object relativization, that is, the two grammatical functions that do not require a preposition. In other cases, relative pronouns are used. Although the judgments are slippery, it seems that inversion has the same effects in sentences with relative pronouns, as in (27):

- (27) a. *El [amigo de María_i] [con el que ella_i ha discutido t]*
 the friend of María with the that she has argued
 b. ?? *El [amigo de María_i] [con el que ha discutido ella_i t]*

However, it is not obvious at all how to construct these sentences under the perspective of the theory presented here. The toughest problem comes from the variety of forms available for sentences with relative pronouns (some properties of pronouns are discussed by Brucart 1992), shown in (28):

- (28) a. P + (D) + *que_C* → *la chica con (la) que Juan ha hablado*
 the girl with the that Juan has talked
 b. P + *quien_D* → *la chica con quien Juan ha hablado*
 the girl with which Juan has spoken
 c. P + D + *cual* → *la chica con la cual Juan ha hablado*
 the girl with the *cual* Juan has spoken

There is also a fourth type, which involves no relative pronoun, but resumption of the Hebrew type, that is, in non-island contexts (cf., e.g., Aoun, Choueiri, & Hornstein 2001 for real vs. apparent resumption in Lebanese Arabic), as in (29):

- (29) *La persona que los apuntes son suyos puede pasar a recogerlos*
 the person that the class-notes are his/hers can come to pick-up-CL
 “The person who owns the class notes can come to pick them up.”²²

One way to analyze these resumptive pronouns would be to say that they are simply spelled-out copies of *eNP*. In the best of worlds, the difference between languages with and without resumption could be reducible to a parametric difference between spelling *eNP* out or not. One thing that does not follow from the hypothesis presented here is the fact that resumptive pronouns always take place in clause-internal position. That is, given the possibility for

²² This sentence was heard in a radio program; the speaker had found a folder with class notes and was looking for the owner. Sentences like this are almost exclusively produced in spoken contexts. In written communication, the predominant form is the relative pronoun *cuyo* “whose.”

eNP to appear in the clause-external head position, what prevents structures like (30b)?

- (30) a. [DP...NP [CP ...resumptive pronoun...]]
 b. * [DP ...resumptive pronoun [CP ...NP...]]

5.3 Correlatives and internally headed relatives

Actually, the pattern in (30b) recalls a correlative clause, as in Hindi. Unfortunately, typological studies (de Vries 2002) reveal that, in correlative clauses, the relative CP nearly always precedes the pronoun, which does not fall out from the theory presented here at all. However, the theory, in principle, provides the elements to derive correlative clauses in a similar way to ‘regular’ relative clauses. In any event, I must leave this issue open.

On the other hand, internally headed relative clauses are explained fairly easily. Following the idea of Platero (1974) schematized in (9) (and taken up again recently by Kayne 1994 and Bianchi 1999, 2000), such a clause would simply be one in which the copy of the ‘real’ head in a structure like (14) or (18) that is spelled out is the one in the gap position, and not in SpecCP.

To sum up, one of the strongest points of the theory presented in this chapter is that it provides a means to derive all kinds of relatives—both internally and externally headed, with and without resumption, and correlatives—in a strikingly similar way. There are still many problems remaining at this stage, which will hopefully be solved in the future.

REFERENCES

- Adger, David & Gillian Ramchand. 2002. “Moving Relatives Can Be Avoided (If We Choose to AGREE)”. Paper presented at the On Wh- Movement workshop, Leiden-Utrecht, December 2002.
- Alexiadou, Artemis, Paul Law, André Meinunger, & Chris Wilder. 2000. *The Syntax of Relative Clauses*. Amsterdam & Philadelphia: John Benjamins.
- Aoun, Joseph, Lina Choueiri, & Norbert Hornstein. 2001. “Resumption, Movement, and Derivational Economy”. *Linguistic Inquiry* 32.371-403.
- Aoun, Joseph & Yen-hui Li. 2003. *Essays on the Derivational and Representational Nature of the Grammar: The diversity of wh- constructions*. Cambridge, MA: MIT Press.
- Bakovic, Eric. 1998. “Inversion and Optimality in Spanish”. *Is the Best Good Enough?* ed. by Pilar Barbosa, Danny Fox, Paul Hagstrom, Martha McGinnis, & David Pesetsky, 35-58. Cambridge, MA: MIT Press.
- Bhatt, Rajesh. 2002. “The Raising Analysis of Relative Clauses: Evidence from adjectival modification”. *Natural Language Semantics* 10.43-90.
- Bianchi, Valentina. 1999. *Consequences of Antisymmetry: Headed relative clauses*. Berlin: de Gruyter.

- , 2000. "The Raising Analysis of Relative Clauses: A reply to Borsley". *Linguistic Inquiry* 31.123-140.
- Bobaljik, Jonathan. 2002. "A-Chains at the PF Interface: Copies and 'covert' movement". *Natural Language and Linguistic Theory* 20.197-267.
- Bresnan, Joan. 1973. "Syntax of the Comparative Clause Construction in English". *Linguistic Inquiry* 4.275-343.
- Brucart, José. 1992. "Some Asymmetries in the Functioning of Relative Pronouns in Spanish". *Catalan Working Papers in Linguistics* 7.113-143.
- Chomsky, Noam. 1977. "On Wh- Movement". *Formal Syntax* ed. by Peter Culicover, Thomas Wasow, & Adrian Akmajian, 71-132. New York: Academic Press.
- , 1993. "A Minimalist Program for Linguistic Theory". *The View from Building 20* ed. by Kenneth Hale & Samuel J. Keyser, 1-52. Cambridge, MA: MIT Press.
- Cinque, Guglielmo. 1990. *Types of A' Dependencies*. Cambridge, MA: MIT Press.
- de Vries, Mark. 2002. *The Syntax of Relativization*. Ph.D. dissertation, University of Amsterdam.
- Epstein, Samuel, Erich Groat, Ruriko Kawashima, & Hisatsugu Kitahara. 1998. *A Derivational Approach to Syntactic Relations*. Oxford: Oxford University Press.
- Fiengo, Robert & Robert May. 1994. *Indices and Identity*. Cambridge, MA: MIT Press.
- Fox, Danny. 1999. "Reconstruction, Binding Theory, and the Interpretation of Chains". *Linguistic Inquiry* 30.157-196.
- Grosu, Alexander. 2003. "A Unified Theory of Standard and Transparent Free Relatives". *Natural Language and Linguistic Theory* 21.247-331.
- Gutierrez Bravo, Rodrigo. 2002. *Structural Markedness and Syntactic Structure: A study of word order and the left periphery in Mexican Spanish*. Ph.D. dissertation, University of California, Santa Cruz.
- , 2003. "Subject Inversion in Spanish Relative Clauses". Paper presented at Going Romance 17, University of Nijmegen, November 2003.
- Heycock, Caroline. 1995. "Asymmetries in Reconstruction". *Linguistic Inquiry* 26.547-570.
- Kayne, Richard. 1994. *The Antisymmetry of Syntax*. Cambridge, MA: MIT Press.
- Lebeaux, David. 1988. *Language Acquisition and the Form of the Grammar*. Ph.D. dissertation, University of Massachusetts, Amherst.
- , 1992. "Relative Clauses, Licensing, and the Nature of the Derivation". *Syntax and Semantics* 25.209-239.
- Platero, Paul. 1974. "The Navajo Relative Clause". *International Journal of American Linguistics* 40.202-246.
- Platzack, Christer. 2000. "A Complement-of-N Analysis of Restrictive and Non-restrictive Relatives: The case of Swedish". *The Syntax of Relative Clauses* ed. by Artemis Alexiadou, Paul Law, Andre Meinunger, & Chris Wilder, 265-308. Amsterdam & Philadelphia: John Benjamins.
- Rizzi, Luigi. 1997. "The Fine Structure of the Left Periphery". *Elements of Grammar* ed. by Liliane Haegeman, 281-335. Dordrecht: Kluwer.
- , 2001. "Locality and Left Periphery". Ms., University of Siena.
- Sauerland, Uli. 1998. *The Meaning of Chains*. Ph.D. dissertation, Massachusetts Institute of Technology.
- , 2000. "Two Structures for English Restrictive Relative Clauses". Ms., University of Tübingen.
- Stepanov, Arthur. 2001a. *Cyclic Domains in Syntactic Theory*. Ph.D. dissertation, University of Connecticut.

- , 2001b. "Late Insertion and Minimalist Phrase Structure". *Syntax* 4.94-125.
- Suñer, Margarita. 1994. "Verb Movement and the Licensing of Argumental Wh- Phrases in Spanish". *Natural Language and Linguistic Theory* 12.335-372.
- Torrego, Esther. 1984. "On Inversion in Spanish and Some of Its Effects". *Linguistic Inquiry* 15.103-129.
- vanden Wyngaerd, Guido & Jan-Wouter Zwart. 1991. "Reconstruction and Vehicle Change". *Linguistics in the Netherlands* 1991.151-160.
- Vergnaud, Jean-Roger. 1974. *French Relative Clauses*. Ph.D. dissertation, Massachusetts Institute of Technology.
- Williams, Edwin & Henk van Riemsdijk. 1981. "NP Structure". *The Linguistic Review* 1.171-218.