

Lingering Challenges to the Raising to Object and Object Control Constructions

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1.0 Introduction

1.1 Background

There are currently three main approaches to the so-called (subject) raising to object construction illustrated in (1):

- (1) Cindy believes Marcia to be a genius.

The COVERT RAISING account assumes that in the surface string ‘Marcia’ is in the embedded clause; at LF Marcia (or the relevant features associated with Marcia) raises to a main clause position where it is syntactically licensed (by checking case features) (e.g., Lasnik & Saito 1991; Chomsky 1995). This account assumes that the main verb ‘believes’ appears in VP (or vP). The OVERT RAISING account differs from the covert raising account in assuming that the movement to syntactically license the embedded subject is part of the overt syntax (Lasnik & Saito 1991; Koizumi 1993; Runner 1995);

thus, this account additionally assumes that the main verb ‘believes’ moves to a position higher than the landing site of ‘Marcia’. This position is usually assumed to be VP- (or vP-) external. The third approach is the LEXICALIST account of the construction—initially proposed by Bresnan (1982)—I will focus here on the Head-driven Phrase Structure version (see, e.g., Pollard & Sag 1994; Sag, Wasow & Bender 2005). This account shares with the overt raising account the assumption that ‘Marcia’ appears in the main clause in the surface string; it differs from both raising accounts, though, by assuming a monostratal syntax, which means that though ‘Marcia’ is the object of ‘believes’ in the phrasal syntax, it is also associated with the syntactic and semantic features of the embedded predicate (‘to be a genius’) by a kind of coindexing called structure-sharing, and not movement.

What all of these accounts have in common, which make them different from the previous “exceptional case-marking” (Chomsky 1981) account—which claims that the embedded subject ‘Marcia’ is never part of the main clause—is that at some level of representation the embedded subject ‘Marcia’ is a kind of direct object in the main clause. Thus, many of the observations noting that ‘Marcia’ behaves like a main clause object in various ways find an immediate explanation (cf., Postal 1974; Lasnik & Saito 1991; Runner 1995, 1998; and for an overview, Runner 2006).

1.1 Goals

This article provides an overview of the three of these approaches to raising to object. It also examines the recent movement theory of control, focusing on the domain of object

control. The goal of the article is to describe these accounts, outline their strengths, but also to point out challenges they each face. Though the paper does not provide its own alternative account of raising to object, it reaches a number of conclusions. First, the covert “LF” raising account, though successful at accounting for certain interpretational facts about the construction, does not provide an analysis of the word order facts (Section 2). Second, the overt raising account, which can account for the word order facts that the covert account cannot, faces two main challenges; there remain important open questions about verb placement and though none of the current approaches to extraction can easily explain it, extraction and raising to object interact in complex ways that are still not well-understood (Section 3). Third, the movement theory of control, which treats object control in a way parallel overt raising to object faces not only the challenges the overt raising account faces, but several others particular to object control (Section 4). Finally, I suggest that the HPSG analysis of raising to object can account straightforwardly for the word order facts, and with the appropriate constraints can account for the extraction facts that the other accounts cannot face (Section 5). Section 6 provides a summary.

2.0 Covert Raising

2.1 Introduction

Beginning in the seventies and throughout the eighties the standard account of (1) within transformational grammar was the so-called “exceptional case marking” (ECM) account (see Chomsky 1981). On that account, the embedded subject ‘Marcia’ was part of the embedded clause throughout the derivation. The ECM account had supplanted an earlier raising account, which placed ‘Marcia’ in the main clause in the surface string (the historical antecedent of the new overt raising account discussed below). The ECM account is now rarely applied to English raising to object constructions, though an updated version has been reintroduced to account for similar constructions in some other languages (Massam 1985, Bruening 2001). See Davies & Dubinsky (2004) for a thorough review of the range of analyses applied to this construction.

The covert raising account is an attempt to explain some of the observations that favored the raising account, while still maintaining the claim that in the surface string the thematic subject of the embedded clause, ‘Marcia’, appears in the embedded clause (see (2)). At the level of Logical Form (LF) ‘Marcia’ or the relevant features associated with that DP raise into the main clause (see (3)). Thus, at LF, ‘Marcia’ is in the object position of ‘believe’, which is taken to be some functional specifier position (Spec,AGRoP or Spec,vP). This approach is first developed in Lasnik & Saito (1991).

- (2) Spellout: [Cindy [_{VP} believes [_{TP} Marcia to be a genius]]]
- (3) LF: [Cindy believes Marcia [_{VP} ~~believes~~ [_{TP} ~~Marcia~~ to be a genius]]]

Here and throughout the discussion of minimalist analyses strike through will be used to indicate a “moved” item; this is in order to stay neutral on the question of whether the item has moved leaving a trace, has been copied and deleted, or has had only the relevant formal features moved.

Some evidence in favor of the claim that ‘Marcia’ appears in the main clause at LF comes from Lasnik & Saito (1991), who provide examples showing that ‘Marcia’ c-commands matrix material only in the raising construction (see (4a)) and not when it is unambiguously within the embedded clause (4b). Here the negative polarity item (NPI) ‘any’ is assumed to require a c-commanding negated phrase (here ‘none of the defendants’) in order to be licensed. The negated phrase appears only to be able to license the NPI in the raising construction (4a), suggesting that it does indeed appear in a higher (c-commanding) position in the main clause (see Lasnik & Saito 1991; Runner 1995, 1998 for further discussion).

- (4) a. The DA proved [none of the defendants to be guilty] during any of the trials.
- b. *The DA proved [that none of the defendants were guilty] during any of the trials.

The main problem for the covert raising account (as well as the ECM account it replaced) is that it makes the wrong predictions for the surface ordering of the embedded subject and certain kinds of main clause material, which the next section describes.

2.2 Interpolation with main clause material

The main empirical challenge to the covert raising account comes from evidence that the allegedly embedded subject (underlined in the examples below) can be interpolated with clearly matrix clause material, such as adverbs and verbal particles (italicized). Arguments like this have been made by Postal (1974), Johnson (1991), Runner (1995), and others:

- (5) Mike expected Greg *incorrectly* to take out the trash.
- (6) She made Jerry *out* to be famous.

For the adverb ‘incorrectly’ to receive a matrix interpretation it is typically assumed that it must be in the matrix clause in (5). This means the NP immediately preceding the adverb must also be in the main clause. The particle ‘out’ is assumed to be part of the main clause in (6), again implying that the NP immediately preceding it must also be in the main clause. This is unexpected if the embedded subject is indeed in the embedded clause in the surface string. Though this article does not directly address the ECM analysis, examples such as (5) and (6) cast doubt on that as well, since like the covert raising account, it assumes that the underlined phrases are in the embedded clause. If the

covert raising account is to be maintained a good explanation for these facts is needed. Indeed, examples like these have led some researchers to favor the overt raising account, to which we now turn.

3.0 Overt Raising

3.1 Introduction

The overt raising account differs from the covert raising account in assuming that the movement to syntactically license the embedded subject is part of the overt syntax:

(7) Spellout: [Cindy believes Marcia [_{VP} believes [_{TP} ~~Marcia~~ to be a genius]]]

The overt raising account was first introduced in Rosenbaum (1967) and most strongly argued for in Postal (1974). As pointed out above, it fell into disfavor within the transformational grammar literature partly due to arguments made in Chomsky (1973), some of which are discussed below. More recently the overt raising account has been resuscitated, by Johnson (1991), Koizumi (1993, 1995) and Runner (1995, 1998).

On the overt raising account the “embedded” subject (‘Marcia’ in (7)) is actually part of the main clause object in the surface string; thus, this analysis provides the basis for an account of the examples in (5) and (6), above. And since the embedded clause thematic subject is in the main clause at LF, it can also account for interpretational effects

suggesting it is in a higher position, as in the examples in (4), above (again, see Lasnik & Saito 1991, and Runner 1995, 1998 for discussion).

Though the overt raising approach has been adopted by many working in the minimalist program (e.g., Koizumi 1993, 1995; Runner 1995, 1998; Lasnik 1995, 1999, and others), there are still important questions that have not been adequately dealt with.

First, given the surface order of the main verb and the raised object, the overt raising account must additionally assume that the main verb ‘believes’ (in (7)) moves to a position to the left of the landing site of the raised subject ‘Marcia’. However, there is no consensus in the literature on what position that is (Section 3.2). Second, though in many ways the raised subject has properties similar to regular main clause direct objects, this NP behaves unexpectedly with regards to two extraction constructions. Both of these observations have been known since Chomsky (1973), but as far as I can tell, they have still not been adequately dealt with. Without an analysis of these cases, the overt raising account’s success is threatened (Section 3.3).

3.2 *Verb position*

As just noted, the overt raising account must assume that the verb moves to a position higher than the raised subject. It is not clear what the identity of this higher head position is, though it is usually assumed to be external to the main VP (or vP). Importantly, it cannot be T, or whatever the head position the main verb in French raises to; otherwise the well-known differences between English and French verb position would not be accounted for:

(8) English: NP ADV verb NP

(9) French: NP verb ADV NP

Developments within the minimalist program, initiated in Chomsky (1995, chapter 4), have shunned syntactic positions lacking sufficient semantic motivation. Thus simply positing a functional head position as a landing site for the main verb is ad hoc. One possibility for a position with some semantic motivation could be a head associated with inflectional aspect (AspP).

(10) [Cindy [_{AspP} believes [Marcia [_{VP} believes [_{TP} Marcia to be a genius]]]]]

The main verb would move out of VP to an aspectual head position above the position where the raised subject lands, correctly deriving the V-NP order. It is important to note that this position would have to be present regardless of the actual aspectual

properties of the clause since, as far as I can tell, there are no known differences in object placement based on inflectional aspect in English. Thus, even in the presence of aspectual auxiliaries such as ‘have’ (see (11)) and ‘be’ (see (12)) the main verb would raise to this position higher than the raised subject, otherwise the incorrect order *Aux-NP-V would result. One might think that the actual aspectual auxiliaries themselves would be the heads of AspP. A possibility for explaining (11) and (12) would be to assume that the auxiliaries do head AspP but raise to T abandoning the Asp head position to which the main verb can raise. This would account for the similarity between French main verb position and English auxiliary position. However, even when another auxiliary is present in T and thus the auxiliary from Asp cannot have raised, the main verb appears in a position above the raised embedded subject. Compare (11) and (12), with single aspectual auxiliaries with (13), containing a modal and an auxiliary. Thus, it is not clear how exactly this AspP interacts with actual aspectual auxiliaries.

- (11) [Cindy has [_{AspP} believed [_{VP} ~~believed~~ [_{TP} ~~Marcia~~ to be a genius]]]] for years]
- (12) [Cindy is in court [_{AspP} proving [_{VP} ~~proving~~ [_{TP} ~~Marcia~~ to be innocent]]]] as we speak]
- (13) [Cindy might have [_{AspP} expected [_{VP} ~~expected~~ [_{TP} ~~Marcia~~ to be proven innocent]]]]]

In addition, this aspectual head cannot be the head of the AspP assumed by, e.g., Borer (1994), since Spec,AspP is the landing site for object movement on her approach.

If the head position to which the main verb moves were that Asp head, and object movement were to its specifier position, then the order *NP-V would incorrectly result. That is, if Spec,AspP is the landing site for object movement then to further derive the correct order additional verb movement would have to apply, taking the main verb to an even higher VP- and AspP-external position. This places us back in the same position we started in: what is this higher position to which the verb moves? A similar point can be made for the claim that if the embedded subject moves to Spec,vP, the verb itself must move to a higher vP-external position; if not, and it just lands in v and remains, again the *NP-V order would result.

One possible alternative for identifying the main verb position is to assume the “Split VP” analysis (Travis 1991, Koizumi 1993, 1995, Harley 1995, Carnie 1995, and others). This would divide the lexical verbal projection into two parts, a lower part associated with object properties and an upper part associated with subject properties. On that view, the raised object moves to a functional specifier above the lower VP and the main verb raises above that to the upper VP head. This correctly derives the order V-NP:

(14) [Cindy [_{VP} believes [_{FP} Marcia [_{VP} believes [_{TP} Marcia to be a genius]]]]]

One conceptual drawback to the Split VP account is that, unlike the vP/VP approach pursued by Chomsky (1995) and others (cf., Kratzer’s 1996 voiceP), it does not automatically link external theta role assignment/checking with accusative Case-checking, which on the latter approach can both be localized to v; such an approach laid the foundation for an explanation of Burzio’s Generalization that only verbs that assigned

external theta roles also assigned accusative Case. On the vP/VP approach, v is the source for both the external theta role and the accusative Case feature.

A second drawback is empirical. Evidence from languages like Icelandic (15), Irish (16) and W. Ulster English (17), shows that in certain cases a shifted object, arguably moved to the VP-external object position, can precede a VP-internal subject. In (15)-(17) the VP-internal subjects are underlined, and the shifted objects are italicized; the VP boundaries are marked by '|'. This argument was made for Icelandic by Jonas (1996), and for Irish and W. Ulster English by McCloskey (2000) and (2001), respectively.

- (15) Þá máluðu *bilanai* stundum |einhverjir strákar ti rauðas
then painted cars-the sometimes |some boys red
'Then some boys sometimes painted the cars red.' (Thráinsson 2001)
- (16) Le linn *an airgid* a thabhairt |dí dhó
When the money give[-fin] |to-her to-him
'when she gave him the money' (McCloskey 2001)
- (17) Who was throwin' *stones* |all (around Butchers' Gate) (yesterday)?
(McCloskey 2000)

In the Icelandic example (15), Jonas (1996) argues that the thematic subject (einhverjir strákar ti 'some boys') is within the VP while the shifted object (*bilanai* 'cars-the') is outside of the VP. The main verb precedes the shifted object. For the Irish example in (16), McCloskey argues that the NP glossed 'to-her' (dí) is the thematic subject of the clause; it appears within the VP. The main verb and a shifted object (*an*

airgid ‘the money’) appear VP-externally. Finally, for the W. Ulster English example in (17), McCloskey argues that the quantifier ‘all’ is stranded in the base position of the wh-moved subject ‘who’, in the VP; the main verb and the object ‘stones’ have moved to VP-external positions. These authors each carefully argue for the claim that the VP boundary is between the subject and the (higher) object (see their original articles for details). The Split VP account generates the subject within the higher VP and the object within the lower one. The object then moves to a functional specifier above its own (lower) VP. The data presented in (15)-(17) suggest that the Split VP would have to treat object shift in these languages as a phrasal movement to an additional higher VP-external position, in order to get the correct order. In other words, even if the Split VP approach will work in some cases, in others, what ends up looking like the Chomsky-style vP/VP approach laid out above will still be needed, along with the challenges it brings along.

Finally, an additional way to salvage the Chomsky-style vP/VP approach could come from developments in research on the “left periphery”. As more research establishes more and more complexity on the left edge of the clause the possibility of a semantically motivated candidate for the main verb’s position might be found. Depending on how these approaches fare—the Chomsky-style vP/VP approach, the Split VP approach, or a left periphery account—these verb-position obstacles to the overt raising account may be overcome.

3.3 Interaction with extraction

A second set of challenges to the overt raising account that to my knowledge have not been adequately addressed come from Chomsky (1973), and are then discussed in Postal (1974). Chomsky noted that there is a contrast between extraction out of a phrase which is unambiguously a direct object and extraction out of a supposed raised subject (p. 249).

- (18) a. Who did John hear [stories about ___]?
b. *Who do you expect [stories about ___] to terrify John?

Postal's (1974) response to contrasts like this was to point out that whatever blocks extraction from subject in general can block the extraction in (18b) since the raised subject was a subject underlyingly. An obstacle to accepting this explanation at face value now comes from certain other more recent assumptions about underlying representations. It is now usually assumed that passive and unaccusative subjects start out as direct objects. Though the examples do seem somewhat improved (for some speakers), extraction out of a passive or unaccusative subject that has raised to object is still degraded (see Runner 1995, 1998 for discussion):

- (19) ?*Which one of us do you believe [a picture of ___] to have been stolen?
(20) ?*Which one of us do you believe [a picture of ___] to have arrived last night?

On the assumption that these phrases started out as objects and ended up as objects Postal's original counterargument would not stand as is. At first glance it might appear that certain recent analyses of the constraint against extraction out of subject may be able to account for these examples, for example Nunes & Uriagereka's (2000) "neo-Unified" CED approach, or Stepanov's (2001) "eclectic" approach to subject extraction. Though for different reasons, both of these analyses rule out extraction from a phrase that has undergone movement. In the examples above, the raising to object examples, regardless of underlying position, have all undergone movement; thus these accounts would seem to correctly rule these examples out. However, most analyses of the overt raising account not only assume that there is movement in the case of the raising construction, but that there is in general movement of objects from a VP-internal base position to a VP-external functional specifier in which the NP is licensed by checking Case features. Nunes & Uriagereka (2000) and Stepanov (2001) design their accounts to distinguish subjects, which they argue move (in English), from direct objects, which they argue do not. To rule out just the raising examples above, a different account of object licensing would have to be developed and ultimately the approach would have to treat raised subjects and main clause objects in structurally very different ways. It has always been one of the appeals of the raising to object analysis that it treats raised subjects and main clause direct objects in the same structural way in the main clause.

Davies & Dubinsky's (2003) subjacency analysis, however, can be extended to the examples above. They argue that while direct objects can be NPs, and allow extraction out of them, subjects are always DPs. This comes from an EPP requirement in T. Thus, if the embedded infinitives above all contain T, with its EPP requirement, the phrases that

raise through that position will have to be DPs, not NPs, and being DPs will block further sub-extraction.

However, a real puzzle comes from a footnote in Chomsky (1973) that is then elaborated on in Postal (1974). In the first part of the puzzle, casting doubt on the raising to object analysis, Chomsky notes that there is a contrast between tough movement of an unambiguous direct object (his example involved object control) and tough movement of a supposed raised subject (p. 254):

- (21) a. It was easy for Jones to force Smith to recover
- b. Smith was easy for Jones to force to recover.
- (22) a. It was easy for Jones to expect Smith to recover.
- b. *Smith was easy for Jones to expect to recover.

Postal (1974, p. 194) agrees with Chomsky's contrasts and adds more examples to illustrate that quite generally raising to object cannot feed tough movement:

- (23) a. It is hard to believe Bill to be insane.
- b. *Bill is hard to believe to be insane.
- (24) a. It was no problem to prove Melvin to be a Venusian.
- b. *Melvin was no problem to prove to be a Venusian.

This is somewhat surprising given that tough movement in English can usually target any kind of object NP (including object of PP). If tough movement is analyzed as involving

an A' dependency (Chomsky 1977) then the contrast between (22b)/(23b)/(24b) and (25)/(26) is particularly mysterious.

(25) The man (who) the police believe ___ to have seen Big Foot...

(26) Who do the police believe ___ to have seen Big Foot?

In the second part of the puzzle, Postal does note that this effect goes away in what we might now call small clause structures, as illustrated by the contrast between (b) and (c) examples below:

(27) a. It is hard to consider Jones (to be) competent

b. *Jones is hard to consider to be competent

c. Jones is hard to consider competent.

(28) a. It will be easy to prove Melvin (to be) guilty.

b. *Melvin will be easy to prove to be guilty.

c. Melvin will be easy to prove guilty.

Thus, an NP raised out of an infinitival clause is ineligible for tough movement, while one associated with a small clause may undergo it.

One possibility would be to attribute this contrast to different underlying representations, in which only the infinitival examples involve raising, while the small clause examples are base generated with the object outside of the small clause. Tough

movement would have to be restricted to applying only to “true” objects—not to derived objects.

Postal considers—and rejects—this possibility. He points out that independent of tough movement both the raising examples and the small clause examples disallow extraction out of the object NP (examples based on Postal 1974, p. 195):

- (29) a. I considered [a picture of Joan] (to be) indecent.
b. *Who did you consider [a picture of ___] (to be) indecent?
- (30) a. They proved [a memo about that] (to be) inaccurate.
b. *Who did they prove [a memo about ___] (to be) inaccurate?

These examples seem to suggest that even in the small clause case the postverbal NP is “subject-like” enough to disallow sub-extraction, casting doubt on the proposal to treat it entirely differently. As mentioned above, the Nunes & Uriagereka (2000) and Stepanov (2001) approaches to blocking extraction out of subjects do not correctly distinguish raised subjects from true objects. Even if those approaches could be extended to make that distinction, these examples add an additional complication. If the NP in the small clause version does not undergo raising (making it eligible for tough movement) then it is predicted to be parallel to direct objects in other respects: namely it should allow sub-extraction, which it does not. Further, the Davies & Dubinsky (2003) subjacency approach cannot be straightforwardly extended to these examples since crucially the small clause structures do not contain T, which is the source of the EPP requirement for

DP and not NP structure. Extraction out of these NPs should be acceptable on that account.¹

We will turn to the third part of this puzzle below (Section 4) when raising to object and object control are compared.

3.4 Summary

To summarize, for the overt raising account to be successful it will still have to answer certain questions regarding the placement of V—either a VP-/vP-external position, or a Split VP-internal position. In addition, the success of overt raising account will rely on developing an account of the complex range of extraction restrictions it faces.

4.0 Object control challenges to the Movement theory of Control

4.1 Introduction

Recent developments in the minimalist program have allowed the possibility that multiple theta roles can be assigned (or checked), by moving a phrase into more than one theta position during a derivation. This development paves the way for a movement analysis for control constructions such as (31a), with the subject NP receiving one theta role in the embedded clause and then moving to the main clause to receive its second theta role (31b). This approach has been presented and defended in a series of papers by

Hornstein and Boeckx (Hornstein 1999, 2001; Boeckx & Hornstein 2003, 2004) and has inspired some lively debate (Culicover & Jackendoff 2001; Landau 2003).

- (31) a. Marcia tried to visit Wally.
b. Marcia tried [~~Marcia~~ to visit Wally]

Much of the discussion of the movement theory of control has focused on subject control. This section explores some of the ramifications of treating object control as movement, paying attention to its parallelism to raising to object.

This section is organized as follows. Since the object controller is always assumed to be in the main clause in the overt syntax, the movement theory of control must treat object control in a way parallel to the overt raising analysis. As such, it faces the word order challenges that the overt raising account faces (Section 4.2). In addition, the overt movement account predicts the same extraction restrictions faced by the overt raising account; however, the object controller behaves like a base-generated main clause direct object in every way, in contrast to a raised object (Section 4.3). Section 4.4 discusses some unusual cases of object control which do not seem easily amenable to a movement analysis, such as control by an NP in a PP; it further discusses cross-linguistic variation in agreement patterns that have been interpreted to suggest that while raising to subject, raising to object and subject control indeed should be treated as movement, the cross-linguistic facts suggest that object control may in some cases involve movement, but in other cases should be treated as involving an embedded null *pro* subject.

4.2 Overt raising to object

It has uncontroversially been assumed that the object NP in an object control sentence like (32) is in the main clause in the surface string. Given that, then the movement analysis of object control would have to be placed in the overt raising camp (33).

(32) Marcia encouraged Cindy to try out for the band.

(33) Marcia encouraged Cindy [_{VP} encouraged Cindy [_{TP} Cindy to try out for the band]]

As such it will face the same set of the challenges as the overt raising approach. First, as pointed out in Section 3.2, above, is the question of where the verb appears. The embedded subject moves into the main clause to a position to the right of the position the main clause verb ends up in. As pointed out above, there are several possible solutions to those problems (e.g., Split VP, left periphery heads, etc.).² Presumably, whichever solution is applied to overt raising to object will extend to object control.

4.3 Interaction with extraction

A real challenge to treating object control as movement comes from the extraction contrasts discussed above in Section 3.3. First, beginning with Chomsky's (1973) observation that extraction out of true objects is acceptable while extraction out of

supposed raised subjects is unacceptable (34a) vs. (34b), if object control involves raising we might expect control to pattern like raising (34b), but it does not (34c) (based on Chomsky 1973, p. 249).

- (34) a. Which famous person did John hear stories about?
- b. *Which famous person do you expect stories about to terrify John?
- c. Which famous person did Martha persuade friends of to sign her program?

As pointed out above (Section 3.3), all of the recent accounts of extraction out of subject can account for (34a) vs. (34b) (setting aside for the moment the assumption that the object in (34a) may have moved). However, they incorrectly rule out (34c) as well. Nunes & Uriagereka (2000) and Stepanov (2001) both claim that phrases that have moved cannot undergo sub-extraction, wrongly predicting (34c) to be ungrammatical; and Davies & Dubinsky (2003) could account for (34b) by claiming that the embedded clause has an EPP feature that needs checking, which requires the moving NP to be a DP. DPs block sub-extraction. This analysis should extend to (34c) and incorrectly rule it out as well.

Second, Chomsky (1973) himself provided the pair in (25)-(26) (repeated here from (21)-(22), above), illustrating that raising to object cannot feed tough movement, but object control can.

- (35) a. It was easy for Jones to force Smith to recover
- b. Smith was easy for Jones to force to recover.

- (36) a. It was easy for Jones to expect Smith to recover.
b. *Smith was easy for Jones to expect to recover.

This contrast is unexpected on the movement theory of control since both raising to object and control should involve main clause object NPs that should be able to be targeted by tough movement.

The third part of the puzzle pointed out above in Section 3.3 comes from comparing raising to object, small clauses and object control. Object control allows sub-extraction, while the other two do not (cf., (34c) vs. (30b) and (34b)). Object control and small clauses allow tough movement, while raising to object does not (cf., (35b) and (28c) vs. (36b)).

These constructions seem to vary along two dimensions: the thematic status of the object (thematic vs. non-thematic) and the infinitival status of the predicate (infinitival vs. small clause). Object control involves a thematic main clause NP associated with an infinitive; raising to object involves a non-thematic main clause NP associated with an infinitive; the small clause construction involves a main non-thematic main clause NP associated with a non-infinitival predicate. If object control as movement and the overt raising account are to be maintained, the tough movement and extraction constraints will have to be formulated to account for these differences.³

4.4 Object of PP controller

Besides the care that must be taken to properly distinguish object control and raising to object when combined with other phenomena, there are constructions in which a raising to object analysis seems untenable. The severest of these are cases where the controller is embedded in a prepositional phrase (based on Sag & Pollard 1991):

(37) Rene signaled/appealed to Jean to leave the room.

If this is a case of object control, then the derivation must include movement into the object position of a PP, a kind of movement rarely proposed (though see below):

(38) Rene signaled/appealed [_{PP} to Jean] [_{TP} ~~Jean~~ to leave the room]

There are a number of directions to proceed with examples like (38). One possibility is to embrace the claim that this is also an example of movement-derived object control, and that raising to object of PP is a less-recognized, but available, movement operation. Indeed, McCloskey (1984) argued for a raising to object of PP analysis for certain constructions in Irish (for discussion, see also Stowell 1989); and more recently Postal (2004) has argued for such an analysis for verbs such as ‘depend (on)’ in English. Such movement could perhaps be treated as sideward movement (Nunes 2001), or as movement following “reprojection” of PP into DP (Boeckx 2003, Hornstein & Uriagereka 2002).

In fact, one could argue that all along raising to object of PP has been available (for object control cases like (38)), but it had not been recognized as such. Since prepositions are thought to be theta role assigners, any movement to object of PP would by definition create a control construction, rather than a raising one. True raising would require movement into a PP whose head does not assign a theta role. In addition to Postal's 'depend (on)' cases, candidates for such an analysis might include examples with the prepositional complementizer 'for' (39) as well as Pullum & Postal's (1988) examples of object of PP expletives (40):

(39) For John to leave now would be embarrassing.

(40) I'll see to it that you get paid.

A second possibility for treating prepositional object control cases would be to suggest that they do not involve obligatory control as defined by Hornstein (1999); in this case the infinitive would have a *pro* subject, with somewhat different properties. In favor of this is the possibility of split antecedents here:

- (41) a. Rene appealed to Jean to leave the party together/earlier than they'd planned.
- b. Rene₁ appealed to Jean₂ [*pro*₁₊₂ to leave the party together/earlier than they'd planned]

It is possible to interpret the embedded predicate as having both Jean and Rene as subject. If the possibility of split antecedents is indicative of *pro* instead of a movement analysis of object control, then maybe at least this case of control out of a PP need not be analyzed as movement.

A third possibility for treating object control in general suggests itself by looking at raising and control structures cross-linguistically. It may not be an ‘either-or’ situation: some cases of object control may involve raising while others involve *pro*-type structures. Hudson (1998, 2003) investigates control and raising in Russian, Icelandic and Ancient Greek, to which Przepiórkowski & Rosen (2004) add Polish and Czech. Based on patterns of case-agreement, Hudson (1998, 2003) and Przepiórkowski & Rosen (2004) argue that raising to subject, raising to object and subject control are (almost always) best treated as what within their framework they refer to as “structure sharing” (see Section 5, below). For our purposes, this is the equivalent of movement in a transformational analysis. However, in contrast to raising to subject, raising to object and subject control, object control varies from language to language, in some cases involving structure sharing (movement) and in some cases likely involving a null pronominal. Here are some Polish examples from Przepiórkowski & Rosen (2004):

(42) Piotr bał się przyjść niespokojny.

Piotr-NOM feared come-INF uneasy-NOM

‘Piotr was afraid to come uneasy.’

(43) Kazałem Piotrowi być miłym / *miłemu.

Ordered-1.SG.MASC Piotr-DAT be-INF nice-INS / nice-DAT

‘I ordered Peter to be nice.’ (Polish, from Przepiórkowski & Rosen 2004)

In clear raising cases in Polish such as (42) the embedded predicate agrees with the case features of its subject, the raised nominal ‘Piotr’, which is nominative. However, in the object control example (43), the predicate appears in a default instrumental case and cannot appear in the dative case of its subject ‘Piotrowi’. This case agreement can be taken as an indication of movement. In this case raising to subject involves movement, but object control does not. They assume the object control case involves a null *pro* in the embedded clause.

Their argument that object control differs cross-linguistically in a way that the other constructions do not is supported by the cross-linguistic survey presented in the table in (44). Table 1 is reproduced from Przepiórkowski & Rosen (2004) who also include the Hudson (1998, 2003) data. It illustrates the full set of patterns for subject and object raising and control. The left-most column (“ θ -marked”) indicates the status of the phrase in the main clause: raising (“no”) vs. control (“yes”). The second column (“function”) indicates whether it is subject (“subj”) or object (“obj”) raising or control. The other columns indicate whether a structure sharing (i.e., movement) analysis is called for (“SS”) or not (“PRO”).⁴

(44) Table 1 (from Przepiórkowski & Rosen, 2004)

<i>Anchor</i>		<i>Structure (Structure Sharing or PRO)</i>				
θ -marked	function	<i>Russian</i>	<i>Icelandic</i>	<i>A. Greek</i>	<i>Polish</i>	<i>Czech</i>
no	subj	SS	SS	SS	SS	SS
yes	subj	SS	SS (??PRO)	SS	SS	SS
no	obj	--	SS	SS,PRO	--	SS
yes	obj	(SS),PRO	SS,PRO	SS,PRO	PRO	SS,PRO

What these generalizations suggest is that a structure-sharing or movement-type analysis probably is correct for subject control, raising to subject and raising to object. However, sometimes a structure-sharing/movement analysis will be correct for object control, and sometimes it will not. In the case of examples like (36) and other object control examples in English, it may not be.

4.5 Summary

The final part of this section discussed the argument from Hudson and Przepiórkowski & Rosen that bears on the question of the feasibility of the movement theory of control. The data support treating subject control in a way parallel to raising to subject and raising to object. However, it appears that object control may be another matter cross-linguistically. In some cases it should be treated like raising and in others more like it has traditionally been treated, as involving a null pronominal in the

embedded clause. The Hornstein and Boeckx proposal to extend the movement analysis to control is broadly consistent with these facts since they do endorse the use of a null pronominal in some control constructions. However, they strongly argue that all cases of “obligatory” control involve movement. If object control is obligatory control this part of the analysis may have to be abandoned.

Further, we saw above that the extraction facts surrounding object control, especially when compared to raising to object and small clauses, are complex. Attempting to collapse (all) object control in English to something parallel to raising to object raises more questions than it answers.

5.0 A lexicalist approach

5.1 Introduction

I would now like to turn to a lexicalist account of raising to object. Bresnan (1982) first proposed a lexicalist analysis of raising to object, and both modern Lexical-Functional Grammar (LFG) and Head-driven Phrase Structure Grammar (HPSG), among other lexicalist frameworks, have analyses of this construction. I will focus here on the HPSG approach to raising to object (see, e.g., Pollard & Sag 1994; Sag, Wasow & Bender 2003).

The HPSG account shares with the overt raising account the assumption that ‘Marcia’ in (1), repeated here as (45), appears in the main clause in the surface string.

(45) Cindy believes Marcia to be a genius.

It differs from the movement accounts, though, by assuming a monostratal syntax, which means that though ‘Marcia’ is the object of ‘believes’ in the phrasal syntax, it is associated with the syntactic and semantic features of the embedded predicate (‘to be a genius’) by a kind of complete phrase coindexing called structure-sharing, and not movement. In a sense, the NP ‘Marcia’ is equally associated with the main clause verb and the embedded clause verb; but in the surface string it is in the main clause. While a complete introduction to HPSG is beyond the scope of this paper (but see Sag, Wasow & Bender 2003 for a good introduction), I will present some of the details relevant to the analysis of raising to object and object control.

As in other lexicalist frameworks, HPSG employs a highly articulated theory of lexical types. Lexical items are sorted into types depending on shared properties. These shared properties follow from the claim that these lexical items are subject to shared constraints. Taking a very simple example to illustrate, transitive and intransitive verbs differ in whether they have direct object NPs, but they share the fact that they both combine with a subject NP. Thus, one constraint is that there is a type of lexical item that has at least as one of its constraints that it has a subject NP argument. On one dimension (whether the item has a subject NP) these two items are the same type, but on another (whether they take a direct object), they are different types.

To account for raising to object and object control constructions, Sag, Wasow & Bender (2003) propose constraints like the (somewhat simplified) examples in (46) and

(47). These are general constraints on the lexemes which participate in the raising to object and object control constructions.

(46) *object-raising-verb-lexeme*: ARG-ST < NP, $\boxed{1}$, [SYN [VAL [SPR < $\boxed{1}$ >]]]>

(47) *object-control-verb-lexeme*: ARG-ST < NP, NP_i, [SYN [VAL [SPR < NP_i >]]]>

The raising to object verb ‘believe’ will be typed as an object raising verb lexeme. And the constraint in (46) places restrictions on what items appear in the argument structure (ARG-ST) of a lexeme of that type. This constraint states that the argument structure of this class of lexemes contains three phrases. The first is an NP. The second item in the argument structure is indicated by the “tag” $\boxed{1}$. Tags are used in HPSG to indicate structure-sharing, which is a kind of coindexing that means the entire syntactic item is identical to whichever other item is tagged the same way. In this case there is another $\boxed{1}$ within the third argument on this type’s argument structure. What this constraint says is that the second argument and the specifier (SPR) of its third argument are structure-shared. Other constraints in the grammar guarantee that the second phrase is an NP. This constraint, along with the other constraints in the grammar, will provide the relevant input for a sentence structure like (48):

(48) Cindy [_{VP} believes Marcia [_{VP} to be a genius]]

An object control verb like ‘persuade’ will be typed as an object control verb lexeme and will be subject to the constraint in (47). It is identical to the constraint on object

raising verbs in (46) except that the item in the argument structure is an NP coindexed with rather than structure shared with the specifier of the third argument. Coindexation in HPSG as in other frameworks is a shorthand used to indicate intended reference (such indexation is used for binding for example). The constraint in (47), along with other constraints in the grammar, provides the input for a sentence structure such as (49):

(49) Cindy [_{VP} persuaded Marcia [_{VP} to be her friend]]

On the HPSG account, the sentence structures for (48) and (49) look identical. The main difference resides in the different relationships between ‘Marcia’ and the lexical subject of the embedded verb: in (48) they are the same NP, and in (49), they are simply coindexed. In neither structure is there a structural position in the embedded clause containing a trace or a *pro*. The tree simply contains an infinitival VP. The argument structures of the individual lexemes are where the differences in the constructions are instantiated.

Since the HPSG account assumes that the position of ‘Marcia’ in (45) is as sister of the verb ‘believe’, this approach does not face the problems of the covert raising account, or the questions of where the verb and/or object are that the overt raising account faces. The following section will outline an HPSG analysis of the extraction contrasts noted in the previous sections.

5.2 *Interaction with extraction*

Let's begin with constraints on sub-extraction. As discussed above, extraction out of the raised subject is blocked (50a), while it is allowed out of the object in an object control structure (50b). To account for the constraint on extraction out of subjects, Pollard & Sag (1994) proposed their Subject Condition (p. 195), which states a restriction on the initial element in a lexeme's argument structure list (i.e., the subject NP) that it cannot be "slashed"—meaning it cannot contain a gap.⁵ In the object control case it is an object that is slashed, thus correctly predicting its acceptability.

- (50) a. *Which famous person do you expect stories about to terrify John?
b. Which famous person did Martha persuade friends of to sign her program?

Also as pointed out above small clause subjects appear to be similarly restricted. If predicates taking small clauses are treated like modified raising predicates, being constrained by (46), the Subject Condition will correctly rule out sub-extraction from small clause subjects as well.

Turning to tough movement, as we have seen, object control constructions can license tough movement ((51), repeated from above), while raising to object constructions cannot (52). In HPSG, tough movement is licensed by the lexical constraint on the set of predicates that participate in the alternation (the "tough" predicates). There have been two general approaches to tough movement in HPSG. One is to treat it as an unbounded dependency (following work in transformational grammar treating it as a species of long distance wh-movement). On that view the lexical entry of the tough predicate introduces the slash feature, thus allowing the long distance dependency (e.g., Pollard & Sag 1994).

The other alternative is to treat tough movement as a kind of local raising construction (Grover 1995). Both approaches constrain the tough predicate to allow only object NPs to raise. If this constraint refers to specifiers it will correctly rule out tough movement of a raised subject, thus correctly distinguishing between (51) and (52).

- (51) a. It was easy for Jones to force Smith to recover
b. Smith was easy for Jones to force to recover.
- (52) a. It was easy for Jones to expect Smith to recover.
b. *Smith was easy for Jones to expect to recover.

However, as we saw above, the puzzle is more complex: small clause subjects, which we treated as specifiers (of the small clause head), may also participate in tough movement. As pointed out above, the main difference between the small clause and regular raising to object construction is the nature of the predicate out of which raising takes place. With raising the predicate is an infinitival VP, whereas with the small clause it can be a simple AP, PP or NP. The generalization is that tough movement of a specifier is possible only if it is not a specifier of a verb. I will not formulate the constraint here, but the tough movement predicate constraint can be elaborated to build in this restriction.

I have only sketched out how the HPSG analysis proposed in Sag, Wasow & Bender (2003) might be extended to account for the extraction contrasts we have been focusing on in this paper. It is relatively clear that the account can be extended in this way. The success of this approach will depend not only on whether the constraints can be formulated appropriately, but also on the predictions made by these constraints when

interacting with other constraints in the grammar; this is an undertaking I leave for future research.

6.0 Summary

This article reviewed three current approaches to raising to object in English. Though the covert (LF) raising approach can straightforwardly account for the relevant interpretational asymmetries, it does not explain the possibility of interpolated adverbials and particles. The overt raising account can handle the word order facts. However, it faces two other challenges. First, verb position is still potentially a problem, depending on the viability of the split VP approach or developments in research on the left periphery. Second, extraction out of the raised subject and tough movement of the raised subject are both impossible; none of the current approaches to extraction can account for the complex set of restrictions the construction faces. The movement theory of control must treat object control in a way parallel to raising to object. As such it faces the same word order challenges. Also, the complex array of restrictions associated with raising to object are incorrectly predicted to hold of object control. In fact, the object controller acts in every way like a base-generated main clause object. In addition, control out of PP in English and cross-linguistic differences between on the one hand subject control, raising to subject, and raising to object and on the other hand object control, suggest that only in some cases should object control be treated in a way parallel to raising to object. Finally, an HPSG account of both raising to object and object control was presented. The

HPSG approach immediately accounts for the word order facts and the extraction facts, with several additional constraints in place. The highly articulated theory of lexical types allows for these quite specific type constraints.

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¹ One possibility would be to assume that the main clause functional head that is triggering the raising to object in the first place has an EPP feature to license; then raised phrases would have to be DPs and sub-extraction would be blocked. The fact that raising contexts lacking infinitival structure never allow expletives, which are often thought to be a kind of symptom of an EPP requirement, casts doubt on this suggestion.

² It is not clear to me if Hornstein (1999) assumes a vP/VP or Split VP structure in his original discussion of the phenomenon. However, he does seem to assume that the controlled object raises to a position within the main clause VP, as opposed to external to it.

³ The one other predicted possibility would be an object control small clause construction: involving a thematic main clause NP and a non-infinitival small clause. I am not aware of examples of this combination, but it should allow both sub-extraction and tough movement.

⁴ A reviewer suggests caution in comparing Polish object control with Russian cognate constructions, as there is some variability in the choice of default case.

⁵ The Subject Condition actually places this restriction unless there is another member also containing a slash, thus accounting for subject parasitic gaps.