

# A Short Note on Non Obligatory Control

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## Introduction

Assume that a movement approach to obligatory control is essentially correct. And assume that NOC is due to the presence of *pro* in a Spec position.<sup>1</sup> The question remains: how to account for the distribution of *pro*? More specifically, even if we assume that PRO is an NP-t and that movement is preferred to *pronominalization*, what prevents a DP that could not be a licit antecedent of PRO (=NP-t) nonetheless binding a *pro* in the same position?

## 1 Section 1

Some concrete examples will make the problem clear.

- (1) John persuaded Mary to leave
- (2) John<sub>1</sub> persuaded Mary<sub>2</sub> [PRO\*<sub>1/2</sub> to leave]
- (3) John<sub>1</sub> persuaded Mary<sub>2</sub> [pro<sub>1/\*2</sub> to leave]

Sentence (1) has the structure (2). Given (2) and the assumption that PRO=NP-t we can explain why *Mary* is the antecedent and *John* cannot be: For *John* to be the antecedent requires that it move over *Mary* on its way to Spec v and this violates minimality. Thus, it cannot be the antecedent. Movement of *Mary* from the embedded clause to the object of *persuade* does not violate minimality and it is a licit A-movement (if we assume, as a movement account must, that movement into theta positions is ok). So, *given* (2), we explain why *Mary* is and *John* isn't an antecedent of PRO in (1). *However*, why can't (1) be analyzed as (3). Here we have *pro* in place of *PRO* and the relation of *John* to *pro* should be fine. Moreover, in this structure, *Mary* should not be a possible antecedent on the assumption that movement trumps *pronominalization* (assumed independently).<sup>2</sup> Thus, we can explain why (3) with *pro* indexed 2 is out (because, (2) with index 2 is good). But what is still in need of explanation is what is wrong with (3) with *pro* bound by *John*.

Let me phrase the problem another way: I have assumed elsewhere that coupling between an antecedent and a pronoun is licit *just in case movement cannot establish the same relation*. Thus, if one can move from a position to

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<sup>1</sup> These assumption are defended in various places. See, Hornstein 2001, Boeckx and Hornstein 2003, 2004 and references therein.

<sup>2</sup> See Hornstein 2001 for discussion as well as Hornstein 2005 (this volume).

another one cannot bind a pronoun in the position of the trace. This is the assumption that movement is cheaper than pronominalization. However, this implies that if movement is *not* possible between positions A and B then binding should be. What we see in (3) is a concrete example of this option. However, we also see that it is impossible; (1) cannot be interpreted with *John* as the leaver. So, why so given the basics of the movement theory?

## 2 Section 2

Before trying to provide an answer, note that there is other evidence that ties *pro* (and hence NOC) to the impossibility of movement: NOC is always licensed inside islands. Thus, for example, in (4) the subject of the gerund can be bound by *John* and this binding has all the hallmarks of NOC (see Hornstein 1999, 2001 for discussion).

(4) John said that [pro washing himself delighted Mary]

Interestingly, we can also get OC here.

(5) John said that [PRO washing herself delighted Mary]

The relation between *John* and *pro* in (4) cannot be formed by movement as extraction from a subject gerund (to the matrix subject position) is illicit. Thus, *pro* is allowed to mediate this relation. However, in (5) movement from the subject of the gerund to where *Mary* sits is licit (sideward movement see Kiguchi and Hornstein 2004) so PRO is required here and *pro* relating to *Mary* is not. If this is correct, one cannot say that the position occupied by PRO cannot be occupied by *pro* because it can be!<sup>3</sup> What cannot occur is the following: DP binds *pro* is ok though a structure where PRO replaces *pro* with the same binding is also ok. If this is correct, then it is not that clauses or structures are classified as OC or NOC. Rather it is relations that are OC or NOC and a key idea is that NOC is only ok where OC is not and that OC is formed by movement so that one will

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<sup>3</sup> It can also be occupied by an overt pronoun:

- (i) John<sub>1</sub> believed that him<sub>1</sub> washing behind his ears delighted Mary

As expected, moreover, an overt pronoun with *Mary* as antecedent is illicit.

- (ii) John believed that \*her<sub>1</sub>/PRO<sub>1</sub> washing behind her ears delighted Mary<sub>1</sub>

The latter is expected if Move blocks pronominalization. The PRO here is an NP-t residue of sideward movement.

typically find NOC inside islands.<sup>4</sup> However, as should be clear, this does not help us with (3) above as here the movement is illicit yet the structure is not available.

### 3 Section 3

Consider another problematic case:

- (6) John kissed Mary without *ec* getting embarrassed
- (7) John<sub>1</sub> kissed Mary<sub>2</sub> without PRO<sub>1/\*2</sub> getting embarrassed
- (8) John<sub>1</sub> kissed Mary<sub>2</sub> without *pro*\*<sub>1/2</sub> getting embarrassed
- (9) John<sub>1</sub> kissed Mary<sub>2</sub> without *him*\*<sub>1/2</sub> getting embarrassed

Here is a case of adjunct control. If the structure of (6) is (7) then we can account for why *John* must be the antecedent of PRO (it is OC and formed by sideward movement). This also explains why (8) with *pro* anteceded by *John* is out and why (9) with *him* bound by *John* is out: again, move trumps pronominalize. However, what is left unexplained is why (8) with *pro* and *Mary* coindexed is not an option. Note, if anything, this is even more troublesome than (3) above as (9) indicates that an overt pronoun bound by *Mary* is perfectly ok. So why is a null pronoun not ok? Note, this fact suggests that the problem noted here is not a purely grammatical one. Pronouns bound by subjects are ok in this position. However, *null* pronouns are not. Why?

### 4 Section 4

If we insist that the problem in (3) and the one in (8) get a unified approach (not an obvious requirement, but not a bad one either) then the facts in (9) indicate that more than grammatical requirements are at issue. What else can be at stake? I would like to suggest that parsing is at issue. More particularly, I would like to suggest that the grammar does *not* block the structure in (3) with *John* as antecedent nor (8) with *Mary* binding *pro*. Both are grammatically fine.

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<sup>4</sup> This is an important point. In the best case, a Movement Theory of Control (MTC) will refrain from describing certain sentential types as OC or NOC. The latter two descriptive predicates do not apply to clausal types (they are not like ‘interrogative’ or ‘declarative’ but rather like ‘bound’ and ‘free.’ One does not distinguish clauses as ‘reflexive’ or ‘pronominal’ by whether they contain an anaphor or pronoun and by parity of reasoning, one should not identify sentences as ‘(obligatory) control’ clauses. OC and NOC are relations between nominal expressions, not selection/subcategorization relations between arguments and types of clausal complements.

Let me put this another way: selection/subcategorization accounts are rather stipulative. Thus to the degree that one needs to advert to such to cover some set of data one surrenders explanatory ambitions. As such, these descriptive resources should never happily employed.

However, neither would ever be accepted by a well behaved parser.<sup>5</sup> Why not? Let's make the following assumptions:

- a. Parsers move from left to right and project structure rapidly and deterministically on the basis of local information
- b. Parsers are transparent wrt grammars. So, if grammars encode a condition, parsers respect it.<sup>6</sup>

Given these two assumptions, we will expect parsers to prefer traces to pronouns (because the grammar does) and consequently, that parsers will assume that a gap is to be analyzed as an NP-t if it can be and as a *pro* only if cannot be treated as an NP-t. This basically is what b above means. Moreover, being a parser, it will be sensitive to earlier information. So, as it builds structure left to right, a parser will prefer to treat a potential gap as a NP-t (rather than a *pro*) if it can *ceteris paribus*.<sup>7</sup> Given this, let's return to the NOC cases above.

## 5 Section 5

Consider (1) again, repeated here as (10).

(10) John<sub>1</sub> persuaded Mary<sub>2</sub> to leave

As the sentence is parsed we arrive at *to* and the parser realizes that it must assign a subject to the embedded clause. Moreover, the parser “sees” that the subject is a null category, either a *pro* or PRO (=NP-t). As the parser incorporates the principles of the grammar, it prefers to ‘drop’ a trace here if it can. Recall, that grammars “prefer” movement to pronominalization, so given that parsers and grammars are mutually transparent, the parser “prefers” to drop a trace here if it can. As it can, it does. Thus we get (11).

(11) John<sub>1</sub> persuaded Mary<sub>2</sub> [PRO/NP-t to leave]

Furthermore, this NP-t must have *Mary* as antecedent via minimality and so (10) gets the parse in (11) which requires that *Mary* antecede the PRO. Let's put this another way. What's wrong with (12)?

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<sup>5</sup> If we also assume that producers and parsers meet similar constraints, then this would not be produced either. Such an assumption is natural in any kind of analysis-by-synthesis model.

<sup>6</sup> This does *not* imply that grammars are identical to parsers, only that the latter respect the design features of grammars. For discussion of the transparency relation between grammars and parsers see Berwick and Weinberg 1984.

<sup>7</sup> There is one important *ceteris* suggested below.

(12) John<sub>1</sub> persuaded Mary<sub>2</sub> [pro<sub>1</sub> to leave]

It would require that at *to* the parser drop a *pro* in this position, for the only ec that could take *John* as antecedent is a null pronoun. However, to drop a *pro* requires ignoring the parser's preference for a NP-t over a pronoun; a preference the parser has in virtue of being structurally transparent to the grammar which prefers movement over pronominalization. This makes (12) computationally unavailable and this accounts for the lack of the indicated interpretation.

The same account extends to (8), repeated here as (13).

(13) John<sub>1</sub> kissed Mary<sub>2</sub> without pro\*<sub>2</sub> getting embarrassed

This too is parsing inadmissible. When the parser gets to the gerund and needs to drop an ec, it must drop an NP-t if it can. Thus it prefers a PRO to a *pro*. As a PRO *can* be licitly dropped here, it must be. If it is, however, then *John* must be the antecedent. Thus, if there is an ec in adjunct, it will be analyzed as a PRO (NP-t) by the parser and so the indicated reading in (13) will be unavailable.

Observe that this account turns on there being an ec in the adjunct. By “seeing” nothing there, the parse must “decide” what sort of ec to drop into the subject position. As it prefers dropping traces if it can, it drops a trace and not a null pronoun. However, *if* there is an overt pronoun occupying the same position, the parser is not faced with any choice as to what it must do and as pronouns *are* grammatically licit here, we can derive sentences like (14) with an overt pronoun anteceded by *Mary*.

(14) John<sub>1</sub> kissed Mary<sub>2</sub> without her<sub>2</sub> getting embarrassed

Consider now the last set of cases. We noted that examples like (15) are fine with the indicated interpretation.

(15) John believes that [pro washing himself] would delight Mary

Here the parser gets to the subject gerund and “encounters” an ec. It can treat it as an NP-t or a *pro*. Note, however, that it is inside an island and *if* it wants to link *John* to this element, it must treat it as a *pro*. Observe, that *if* it were a NP-t this relationship would be illicit as it would require movement from an island.<sup>8</sup> As a *pro* is not allowed here for this relation, a *pro* is licensed by the grammar. However, this does not end matters. Note that (16) is also acceptable.

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<sup>8</sup> More specifically, *upward* movement from the island.

(16) John believes that [PRO washing herself] would delight Mary

The PRO here is an NP-t residue of sideward movement. So, it seems that the parser *can* drop a trace here. Why then doesn't this prevent dropping a *pro* in (15)? The answer is that the parser here meets competing demands. It is known that parsers like to assign interpretations to empty categories (and dependent elements in general) quickly.<sup>9</sup> In cases such as these, then, the parser has competing preferences: it would both like to assign an interpretation to the ec and it would prefer to treat the ec as a trace rather than a pronoun. However, in contexts like (15) and (16) these desiderata pull in opposite directions: if the ec is understood as a *pro* it can be related to *John* and so provided with an interpretation at this point. However, this will also require overriding its preference for a trace over a pronoun. On the other hand, if it drops a trace here then it cannot resolve the interpretation of the ec *at this point* as there is no antecedent yet available for the PRO (NP-t). Recall, this is a case of sidwards movement *to the right* and so the antecedent will only become visible downstream. In short, both options have their virtues and so both parses are available.<sup>10</sup>

It is instructive to compare (15) and (16) with (12) and (13) above. In the latter two cases, these pair of demands coincide. The antecedent for the ec is to the left of the ec in both cases. Thus, whether the ec is analyzed as a trace or a null pronoun the ec can be interpreted at the same point. Thus, the desire to interpret the ec quickly does not compete with the parsers desire to drop a trace rather than a *pro* and so the trace is dropped. The only relevant cases, then will be when there are competing demands and these arise just in case the antecedent for the ec may be downstream from the ec.

If this is roughly on the right track, then some predictions follow. Consider a sentence like (17) uttered discourse initially.

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<sup>9</sup> See, for example, Badecker and Straub (2002), Nicol and Swinney (1989) and Osterhout and Mobley (1995) for discussion. Thanks to Nina Kazanina for very helpful discussion and references.

<sup>10</sup> It is possible that different speakers weight these options differently. Nina Kazanina tells me (p.c.) that she found many speakers for whom sentences like (15) with *John* as antecedent become very odd when *Mary* is encountered. This suggests that these speakers value transparency more than reference resolution. I get similar effects with sentences like (i):

- (i) John said that after washing himself Mary danced with Dave
- (ii) John said that Mary danced with Dave after washing himself

It goes without saying, I hope, that the proposal above is not a fully worked out account and that much more detailed work needs to be done to flesh it out.

(17) having to wash behind the ears made Mary angry at Bill

Here, there is no parsing advantage to interpreting the *ec* as a null pronoun (there is nothing to link the *ec* to so that it can be quickly interpreted). As such, we would expect the parser to drop a PRO here, giving us a structure like (18).

(18) [PRO having to wash behind the ears] .....

Thus, the parser will analyze the *ec* as a residue of of sideways A-movement. The antecedent of this will then *necessarily* be *Mary*.<sup>11</sup> Note, were there a *pro* here it should be able to have *Bill* as antecedent. However, this reading seems unavailable in (17). If we substitute *his* for *the* in (17) Mary is doing the washing behind Bill's ears! Note, however, that an overt pronoun can have *Bill* as antecedent.

(19) him having to wash behind the ears made Mary angry at Bill

The reason is that a pronoun *is* grammatically permitted and the parser does nothing more than put what it hears where it hears it. Thus, what cannot occur here, because of parsing preferences, is a null pronoun, *viz. pro*. Overt pronouns are fine, as are traces due to sideward A-movement (*viz.* OC PROs).

## 6 Conclusion

To my knowledge, there is no standard account of the distribution of NOC PRO. Hornstein 1999, 2001 proposed treating NOC PRO as essentially *pro*, a null pronoun, in contrast to OC PRO which is a trace of A-movement. The interpretation of NOC PRO then reduces to figuring out the distribution of *pro*. The proposal here is that its distribution is a dual function of the grammar and the parser. I have relied on the assumption, common in the parsing literature, that parsers use the same sorts of principles as grammars, they are *transparent* to grammars. I have also assumed that parsers like to resolve the interpretation of *ecs* quickly, that parsers are *eager* to resolve the interpretation of *ecs* (and pronouns more generally). These two assumptions together combine to provide the beginnings of an account of NOC by predicting where and when *pros* will be structurally licensed.

## References

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<sup>11</sup> For details, see Kiguchi and Hornstein. This paper provides further evidence that the *ec* here is an OC PRO and not a *pro*.

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