Intervention Effects in Control Structures

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1. Introduction

Control – a non-local phenomenon?

At first sight, control seems to involve a non-local dependency: Since the controller is part of the matrix clause and the controllee is embedded in the complement clause, they are seperated from each other by a least one clause boundary.

(1) $[_{matr.clause}$ controller ... $[_{emb.clause}$ controllee ... $]]$

Consequence:

This is not compatible with a local derivational view of syntax in which the accessible domain is restricted by the *Phase Impenetrability Condition* (PIC) (cf. Chomsky 2000, 2001, 2008); in (1), at least one phase boundary (= embedded CP) intervenes between controller and controllee.

Existing theories of control:

While this is problematic for the traditional *PRO-based theories of control* (including Landau 2000, 2004, who develops a theory based on the phase model[1]), the *Movement Theory of Control* (MTC) (cf. Hornstein 1999, 2001 and subsequent work) does not face this problem. Following the MTC, the controllee is not a distinct argument on its own but just a copy of the controller left behind by A-movement.

Summary:

Ability to handle ...	local derivational implementation
traditional PRO-based theories	✗
MTC	✓

2. Locality Problems for the MTC

2.1 Intervention Effects in Icelandic (cf. Wood 2012)

Observation by Wood (2012):

- Control across the intervening sentential pronoun það in (2) works.
- However, topicalization (cf. (3)) or raising (cf. (5)) across such a pronoun is illicit.

(2) Þeir   ákváðu (það)   að PRO heimsækja Ólaf.
they.MASC.NOM decided (it.ACC) to   visit   Olaf.ACC
'They decided to visit Olaf.'   (cf. Wood 2012:323)

(3) Ólaf$_1$ ákváðu þeir   (*það)   að PRO heimsækjat$_1$.
Ólaf.ACC decided they.MASC.NOM (*it.ACC) to   visit
'Olaf, they decided to visit.'   (cf. Wood 2012:323)

Note:

As to raising structures and the insertion of the intervening pronoun það, it could be argued that the ungrammaticality results from the different structures involved in raising constructions, namely their lack of the CP-layer in the embedded clause.

This is why Wood (2012) uses the verb *byrjaði* (*begin*) as an illustration: As (4) shows, it behaves like a raising verb insofar as it preserves the quirky Case it gets from the embedded predicate *bore*, although it involves at the same time *að*, which occurs in C.

(4) Mér$_1$ byrjaði að t$_1$ leiðast.
me.DAT began to   bore
'I began to feel bored.'   (cf. Wood 2012:324)

Ad (5):

In the raising context in (5), the insertion of það is excluded.

(5) *Haraldur$_1$ byrjaði það   að t$_1$ senda henni   bréf.
Harold.NOM began it.ACC to   send her.DAT letters.ACC
'Harold began to send her letters.'   (cf. Wood 2012:324)

Result:

The intervening pronoun það blocks movement of all sorts: Both standard A'- and A-movement across það are impossible (cf. (3), (5)). By contrast, control across það is licit (cf. (2)).[2]

Conclusion:

If control is movement, this is unexpected. It suggests that the type of movement involved in control underlies locality restrictions which are less strict than those regulating other types of movement; this contradicts the underlying idea of the MTC according to which control involves A-movement, the most local type of movement.

Consequence for the MTC:

These intervention effects pose a problem for the MTC.

2.2 Intervention Effects in German

Observation 1:

In German, we can also find sentential pronouns of this type. As has been observed before (cf., for instance, Webelhuth 1992:101f., Müller 1995:230f.), they occur optionally (like það in Icelandic) and block CP topicalization; cf. (6).

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[1]At some point, his theory involves an Agree relation between a functional head in the matrix clause and PRO in the embedded SpecT position for which he has to accept a relaxation of the PIC.

[2]In fact, Wood (2012) already suggests that if A'-movement across the pronoun is blocked, "A-movement past this pronoun would be unexpected [...] [since] A-movement is in general governed by stricter locality constraints." (cf. Wood 2012:324).

(6) a. Ich bereue (es), dass Maria wegfährt.
     b. Dass Maria wegfährt bereue ich (*es).   (cf. Webelhuth 1992:101)

Observation 2:

As (7)-(10) show, the pattern can be extended to non-finite complement clauses and topical-ization involving extraction out of the embedded CP: As in Icelandic, the latter is illicit (cf. (7-b)-(10-b)), while control across the intervening pronoun is not blocked (cf. (7-a)-(10-a)).

(7) a. Er hat (es) bereut/bedauert, Maria verletzt zu haben.
     b. Maria hat er (*es) bereut/bedauert verletzt zu haben.

(8) a. Er bittet dich (darum), die Unterlagen morgen mitzubringen.
     b. Die Unterlagen bittet er dich (*darum), morgen mitzubringen.
                                                    (cf. Bierwisch 1963:135)[3]

(9) a. Er hat (darauf) gehofft, dieses Spiel zu gewinnen.
     b. Dieses Spiel hat er (*darauf) gehofft zu gewinnen.

(10) a. Ich habe dich doch noch (dazu) überredet, diesen Job zu übernehmen.
      b. Diesen Job habe ich dich doch noch (*dazu) überredet zu übernehmen.

Underlying assumptions concerning the examples with sentential pronoun:

Following Bennis (1986), Vikner (1995), Müller (1995) and others, it is assumed that the sen-tential pronoun is referential and occupies the complement position of the verb. Furthermore, it is assumed that the embedded CP is base-generated in the complement position of the pronoun and then undergoes (obligatory) extraposition (cf., for instance, Müller 1995:231). Extraposition is considered to be right-adjunction (to vP or TP, derived by movement; cf., among many others, Bierwisch 1963, Reinhart 1980, Büring & Hartmann 1995, Müller 1995, 1997).

Consequences for the MTC:

The MTC would have to find a way to extract the controller DP (*er* in (7)) out of the embedded CP.

Possibility 1:

First, the controller DP is moved out of the CP, then the latter is extraposed. Consequence: The controller DP would have to move across the intervening pronoun which normally blocks movement (cf. (7-b)-(10-b)).[4,5]

Note:

It is more difficult in German to show that the pronoun also generally blocks A-movement. But consider the ambiguous verb *beginnen* in (11) and (12), which can only occur with *damit* in control structures. (In fact, it is not completely clear to me anyway to what extent the A/A'-distinction really plays a role here; cf. also footnote 2.)

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[3]Thanks to Marcel Pitteroff for bringing these data to my attention.

[4]Why movement is blocked by the intervening sentential pronoun is not at issue here (following Wood 2012, it might be a violation of the A-over-A principle). However, whatever the reason is, it would also have to block control under the MTC.

[5]Note moreover that this would be the underlying derivation for the grammatical versions of (7-b)-(10-b) without intervening pronoun (i.e. extraction takes place before extraposition).

(11) *raising:*
      Ich glaube, dass es bald (*damit) beginnt, heftig zu regnen.

(12) *control:*
      Ich glaube, dass er (damit) begann, Briefe zu schreiben.

Possibility 2:

First, extraposition takes place, then the controller DP is extracted. In this scenario we end up with a configuration similar to that of control into adjuncts – the controller DP must leave an adjunct in the end, namely the extraposed CP.

MTC analysis – extraction out of adjuncts:

The analysis for control into adjuncts proposed by the MTC relies on sideward movement. However, this particular case considered here is not completely parallel, since the analysis of adjunct structures like (13) normally relies on an interarboreal operation; i.e., the controller DP *John* is not moved out of the adjunct and into the matrix clause in one step. Instead, the DP is copied while the adjunct and the matrix vP are still unconnected. Then the copy is inserted into the matrix vP, and only then is the adjunct merged into the derivation.

(13) $John_1$ saw Mary [$_{adjunct}$ after <$John_1$> eating lunch].
                                        (cf. Boeckx, Hornstein & Nunes 2010:88)

(14) Er_1 hat (es) bedauert, [$_{adjunct}$ <er_1> Maria verletzt zu haben].

Difference:

Although (13) and (14) look similar at first sight, there is a crucial difference: In examples like (14) (= (7-a)) sideward movement cannot apply, since the extraposed CP is a derived adjunct which has already been merged into the derivation before; hence, movement of the controller DP out of this adjunct would yield a CED effect.

Conclusion:

The German data also pose a problem for the MTC; potential derivations either face a CED effect or are blocked by the intervening pronoun.

Recall that...

PRO-based theories do not involve movement and therefore do not care about intervening pronouns.

Summary:

Ability to handle ...	local derivational implementation	intervention effects
traditional PRO-based theories	✗	✓
MTC	✓	✗

3. A Hybrid Theory of Control (HTC)

Summary – locality problems of the existing theories:

• locality problem of the MTC: the locality restrictions imposed on it by equating control with A-movement are too strict (cf. intervention effects and also control into adjuncts)

• locality problem of the PRO-based analyses: non-local dependency between controller and controllee (not compatible with the PIC)

Proposal:

→ a new, hybrid theory of control which combines the advantages of both theories

3.1 The HTC in a Nutshell

Underlying assumptions:

(i) PRO ≠ residue of A-movement; the θ-Criterion holds (cf. PRO-based theories)

(ii) θ-roles = features which are checked when they are assigned to an argument (cf. MTC)

(iii) numeration of an OC structure without an argument like PRO violates the θ-Criterion (more θ-roles than arguments) → feature mismatch in the numeration

(iv) repair strategy to save the derivation: an incomplete copy/phonetically empty argument is generated in the numeration (= can be called PRO)[6]

(v) PRO has to be syntactically licensed in the derivation by another argument under Agree to be referentially identified.

(vi) licensing mechanism for OC = Agree with the first available referential DP: controllee/PRO = probe, controller = goal (≠ Landau 2000, 2004)

(vii) only restriction: goal and probe have to be accessible at the same time in the derivation; involves upward probing (cf. also Schäfer 2008, Wurmbrand (to appear))

(viii) This can be achieved by assuming that the controllee/PRO moves in the syntactic derivation from phase edge to phase edge until it can be licensed.

(ix) vP and CP are phases.

(x) referential identification: PRO bears a feature called [REF], which is valued by the controller under Agree; as a result, PRO and the respective DP are interpreted as coreferent.

Comparison MTC – HTC:
• The HTC also involves movement and can thus profit from many advantages of the MTC; however, the controllee does not have to move all the way up to the position of the controller – it can stop as soon as the controller enters the derivation.
• It is exactly this difference between the MTC and the HTC which makes the latter superior with respect to intervention effects and also control into adjuncts, since the controllee is not forced to move across a movement-blocking item or out of an island to be licensed.
• control into adjuncts in the HTC:
It suffices if the controllee moves to the edge of the adjunct since the controller is accessible

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[6]This repair strategy which compensates for the mismatch in the numeration might not involve the generation of a completely independent item; instead, it might be an instance of argument split and one of the available arguments is copied (cf. Assmann 2012 for a similar proposal concerning the analysis of parasitic gaps) – however, the result is a copy which is incomplete or defective in the sense that it lacks the original reference of the argument, and so the newly created argument has to be syntactically licensed to be referentially identified.

at the same time at some point of the derivation.

• intervention effects:
It suffices if the controllee moves to the phase edge preceeding the intervener in order to be licensed by the controller.

Illustration: subject control in the HTC

(15)   John$_1$ tries PRO$_1$ to win.

Step 1: Feature mismatch & repair by PRO insertion
To prevent a crash because of feature mismatch, PRO insertion takes place; cf. (16).

(16)   a.   *Underlying numeration:*
                Num = {John$_{[\theta]}$, tries$_{[*\theta*]}$, to, win$_{[*\theta*]}$} → feature mismatch
        b.   *PRO insertion:*
                Num = {John$_{[\theta]}$, tries$_{[*\theta*]}$, to, **PRO**$_{[\theta,REF]}$, win$_{[*\theta*]}$}

Step 2: deriving the embedded clause

In Specv, PRO is inserted as external argument of *win* and can check the latter's [$*\theta*$]-feature. Then it moves to the embedded SpecT position to check the EPP, and finally to the edge of the embedded CP in order to remain accessible, since it still needs to value its [REF]-feature; cf. (17).

(17)   a.   [$_{vP}$ PRO$_{[\theta,REF]}$ win$_{[*\theta*]}$ [$_{VP}$ t$_{win}$]]
        b.   [$_{TP}$ PRO$_{[REF]}$ to$_{[EPP]}$ [$_{vP}$ t$_{PRO}$ win [$_{VP}$ t$_{win}$]]]
        c.   [$_{CP}$ PRO$_{[REF]}$ [$_{TP}$ t$'_{PRO}$ to [$_{vP}$ t$_{PRO}$ win [$_{VP}$ t$_{win}$]]]]

Step 3: deriving the matrix clause

After having merged the matrix verb *try*, the matrix subject *John* enters the derivation in Specv and checks the [$*\theta*$]-feature of the matrix predicate.

Step 4: Agree between John *and PRO*

PRO is still accessible when *John* is merged into the structure (*John* is then in Specv of the matrix clause and PRO in SpecC, the edge of the preceding phase), and the [REF]-feature can finally be valued by the matrix subject under Agree. Thus, PRO inherits the referential features of *John*, i.e., the two arguments corefer; cf. (18).

(18)   [$_{vP}$ **John**$_{[\theta]}$ hopes$_{[*\theta*]}$ [$_{VP}$ t$_{hopes}$ [$_{CP}$ **PRO**$_{[REF]}$ [$_{TP}$ t$'_{PRO}$ to [$_{vP}$ t$_{PRO}$ win t$_{win}$]]]]]

3.2 Intervention Effects and the HTC

Advantage of the HTC:

The controllee only has to move until it can be licensed by the controller; i.e., it suffices if it moves to the phase edge preceding the phase in which the controller enters the derivation.
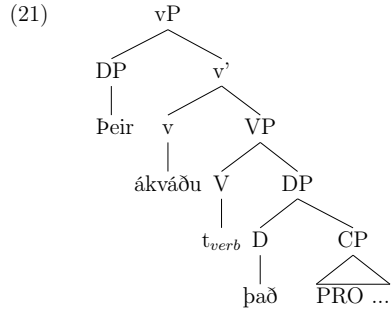
Analysing the Icelandic data:

The controllee can move to the edge of the embedded CP; cf. (20), (21).
(i) This is below the sentential pronoun, so movement is not blocked.

(ii) In the next phase (the matrix vP), the matrix subject enters the derivation. It can license the controllee under Agree and thus function as its controller.

(19) Þeir   ákváðu (það)   að PRO heimsækja Ólaf.
     they.MASC.NOM decided (it.ACC) to   visit   Olaf.ACC
     'They decided to visit Olaf.'

(20) [$_{vP}$ **Þeir** ákváðu [$_{DP}$ það [$_{CP}$ **PRO**$_{[REF]}$ að [$_{IP}$ ~~t'$_{PRO}$ t$_{PRO}$ heimsækja Ólaf~~]]]].

(21)
```
                    vP
                   /  \
                 DP    v'
                  |   /  \
                Þeir v    VP
                     |   /  \
                  ákváðu V   DP
                         |  /  \
                      t_verb D  CP
                             |   /\
                            það PRO ...
```
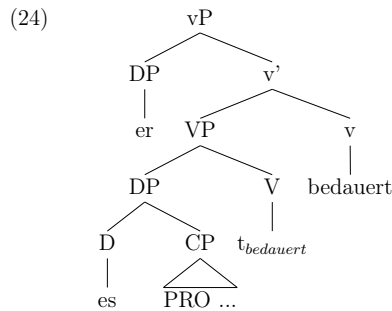
Analysing the German data:

Before extraposition takes place, *er* can already license PRO at the edge of the embedded CP (this is the first point in the derivation when both DPs are accessible at the same time); cf. (23), (24).

(22) Er hat es bedauert, Maria verletzt zu haben.

(23) [$_{vP}$ **er** [$_{VP}$ [$_{DP}$ es [$_{CP}$ **PRO**$_{[REF]}$ [$_{IP}$ ~~t'$_{PRO}$ t$_{PRO}$ Maria verletzt zu haben~~]]] t$_{bedauert}$] bedauert]]

(24)
```
                  vP
                 /  \
               DP    v'
                |   /  \
               er  VP    v
                  / \    |
                DP   V  bedauert
               / \   |
              D  CP t_bedauert
              |  /\
             es PRO ...
```

Summary – advantage of the HTC:

(i) involves movement: as a result, the non-local dependency is split up → the HTC is compatible with a local derivational theory based on the PIC (advantage over PRO-based theories)

(ii) although the controllee moves, it does not have to move across intervening pronouns/out of islands (advantage over the MTC)

7

Ability to handle ...	local derivational implementation	intervention effects
traditional PRO-based theories	✗	✓
MTC	✓	✗
HTC	✓	✓

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8