Movement and Binding

Fabian Heck & Gereon Müller

Universität Leipzig
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Terminology (Chomsky (1981)):
An item is called an anaphor if it is a reflexive pronoun or a reciprocal pronoun. An item is referred to as a pronoun if it is a personal pronoun. An item is called an R-expression ("referential expression") if it has the categorial feature [D] and does not qualify as an anaphor or as a pronoun (in the technical sense). Typically, R-expressions are names or definite DPs; but they may also include other kinds of DPs.
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Note:
These notions are used by the three fundamental constraints of binding theory, viz., Principle A, Principle B, and Principle C. The constraints are representational; for the time being, we can take them to apply to syntactic output (S-structure) representations.
Principles A, B, C of the Binding Theory

(1) a. **Principle A**
   An anaphor is bound in its binding domain.

b. **Principle B**: A pronoun is not bound in its binding domain.

c. **Principle C**: An R-expression is not bound.
Principles A, B, C of the Binding Theory

(1)  
   a. **Principle $A^r$**:
       An anaphor is bound in its binding domain.
   b. **Principle $B^r$**:
       A pronoun is not bound in its binding domain.
   c. **Principle $C^r$**:
       An R-expression is not bound.

*Note:*
The notions of *binding* and *binding domain* need to be clarified. For present purposes, (2) and (3) will suffice.

(2) **Binding:**
   $\alpha$ binds $\beta$ iff (a), (b), and (c) hold:
   a. $\alpha$ and $\beta$ are co-indexed.
   b. $\alpha$ occupies an A-position.
   c. $\alpha$ c-commands $\beta$. 
Question:
What is an A-position? For present purposes, we can assume that A-positions are specifiers of lexical categories (N, V, A, P), and of the functional categories D and T. SpecC is not an A-position (neither are modifier positions or, irrelevantly, complement positions).

(3) **Binding domain:**
The binding domain of some category $\alpha$ is the minimal XP that dominates a category $\beta$ ($\beta \neq \alpha$) such that (a) or (b) holds:

a. $\beta$ is an external argument.
b. $\beta$ is a finite T.
Consequences of Principle A

Note:
In general, principles A and B predict that anaphors and pronouns are in complementary distribution. By and large, this seems to be correct (but there are a number of principled exceptions that we will ignore here, in particular in DP-internal contexts).

(4) Consequences of Principle A:

a. \([\text{CP} \ C \ [\text{TP} \ \text{John}_1 [\text{T}' \ \emptyset [\text{VP} \ t_1 \ \text{likes} \ \text{himself}_1 ]]]]])

b. \(*[\text{CP} \ C \ [\text{TP} \ \text{John}_1 [\text{T}' \ \emptyset [\text{VP} \ t_1 \ \text{thinks} \ [\text{CP} \ \text{that} \ [\text{TP} \ \text{Mary}_2 [\text{T}' \ \emptyset [\text{VP} \ t_2 \ \text{likes} \ \text{himself}_1 ]]]]]]])]

c. \(*[\text{CP} \ \text{Fritz}_1 \ \text{glaubt} \ [\text{CP} \ \text{dass} \ \text{himself}_1 \ \text{dumm} \ \text{ist} ]]
\text{Fritz}_{nom} \ \text{believes} \ \text{that} \ \text{himself} \ \text{stupid} \ \text{is}

d. \ [\text{CP} \ C \ \text{John}_1 \ \text{believes} \ [\text{TP} \ \text{himself}_1 \ \text{to be} \ [\text{AP} \ t_1 \ \text{clever} ]]]

e. \ \text{John}_1 \ \text{likes} \ [\text{DP} \ \emptyset [\text{NP} \ \text{stories} [\text{PP} \ \text{about} \ \text{himself}_1 ]]]

f. \(*[\text{John}_1 \ \text{likes} \ [\text{DP} \ \text{Bill}'s]_2 [\text{NP} \ \text{stories} [\text{PP} \ \text{about} \ \text{himself}_1 ]]]

Fabian Heck & Gereon Müller (Leipzig)
Consequences of Principles B, C

(5) Consequences of Principle B:

a. *[CP C [TP John₁ [T' Ø [VP t₁ likes him₁ ]]]]

b. [CP C [TP John₁ [T' Ø [VP t₁ thinks [CP that [TP Mary₂ [T' Ø [VP t₂ likes him₁ ]]]]]]]]

c. [CP Fritz₁ glaubt [CP dass er₁ dumm ist ]]

Fritzₙₒₙₚ believes that he stupid is

d. *[CP C John₁ believes [TP him₁ to be [AP t₁ clever ]]]

e. ?John₁ likes [DP Ø [NP stories [PP about him₁ ]]]

f. John₁ likes [DP Bill's₂ [NP stories [PP about him₁ ]]]

(6) Consequences of Principle C:

a. *[CP C [TP He₁ [T' Ø [VP t₁ likes John₁ ]]]]

b. *[CP C [TP He₁ [T' Ø [VP t₁ thinks [CP that [TP Mary₂ [T' Ø [VP t₂ likes John₁ ]]]]]]]]

c. *He₁ likes [DP Bill's₂ [NP stories [PP about John₁ ]]]
Question:
Is there evidence that, e.g., a representational principle A must apply at S-structure, but not at D-structure or LF? Yes, there is:

(7) An argument against Principle A at D-structure: Movement to SpecT makes A-binding possible:

a. **D-structure representation:**
\[
[\text{CP} \ C \ [\text{TP} \ T \ [\text{VP} \ [V' \ \text{seems} \ [\text{PP} \ \text{to himself}_1] ] ] \ [\text{TP} \ \text{to be} \ [\text{AP} \ \text{John}_1 \ \text{clever}]]]]
\]

b. **S-structure representation:**
\[
[\text{CP} \ C \ [\text{TP} \ \text{John}_1 \ [T' \ T \ [\text{VP} \ [V' \ \text{seems} \ [\text{PP} \ \text{to himself}_1] ] ] \ [\text{TP} \ t'_1 \ \text{to be} \ [\text{AP} \ t_1 \ \text{clever}]]]]]
\]

*Note:*
At D-structure, *himself* is not A-bound; it finds an A-binder only after movement of the DP *John* to the matrix subject position (where [*nom*]/[*D*] on the finite T is deleted).
A CED-Related Problem

An independent problem:
The structure of VP adopted here is not unproblematic: It does not matter whether PP is a modifier or optionally selected – it seems clear that TP cannot occupy a complement position. Hence, it should be predicted to be a barrier blocking movement of the DP John via the Condition on Extraction Domain. Essentially, this reflects the recurring problem with double object constructions in the present system. Ultimately, the solution will have to be that there is an additional empty verb-like functional head that seems raises to by LI-movement in (7). If so, PP can be viewed as a specifier (or modifier), and TP as the complement of seems prior to LI-movement to the higher head position.
A remark on notation:
So far, we have assumed that movement leaves a trace that is co-indexed with the moved item. Now we assume that binding also involves co-indexing; but this time, two separate categories are involved that are not related via movement. If the indices for binding and the indices for movement are treated in the same way (and they usually are), ambiguities may arise in syntactic representations. To avoid such ambiguities, a letter (a or b) is added to indices where needed in what follows. Only those items are related by movement that have an identical letter accompanying the general index – but for the purposes of binding theory, an identical number is sufficient to ensure co-indexing.
Why Principle A cannot apply (only) at LF: Quantifier raising makes A-binding impossible:

a. S-structure representation:

\[
* \left[ \text{CP} \ C \left[ \text{TP} \ Each \ other_1 \ \left[ T' \ T \left[ \text{VP} \ t_1 \ like \ \left[ \text{DP}_1 \ all \ students \ \right] \right] \right] \right] \right]
\]

b. Logical Form representation:

\[
* \left[ \text{CP} \ C \left[ \text{TP} \ \left[ \text{DP}_{1/b} \ all \ students \ \right] \ \left[ \text{TP} \ each \ other_{1/a} \ \left[ T' \ T \left[ \text{VP} \ t_{1/a} \ like \ t_{1/b} \ \right] \right] \right] \right] \right]
\]
**Note:**
This analysis presupposes that quantifier raising (QR) is an LF movement operation that moves quantified phrases like *all students* to an outer SpecT position at LF. Given that SpecT is an A-position, a reciprocal in a lower SpecT would be predicted to be A-bound within TP at LF. Hence, under these assumptions, the evidence in (8) might be taken to suggest that Principle A does not solely apply at LF. (If it applies at S-structure and LF, (8) does not raise a problem anymore: The derivation is ill formed because there is one level of representation where its output representation violates a constraint.)
Problems with Principle A: Legitimate Unbound Anaphors

Note:
Movement operations applying to an anaphor or an XP that contains an anaphor can create contexts in which the anaphor is not bound at S-structure. Hence, we would expect a violation of Principle A' at S-structure, and therefore ungrammaticality. However, ungrammaticality does not arise in these S-structure configurations (see van Riemsdijk & Williams (1981), Barss (1984; 1986), Chomsky (1995)).
Problems with Principle A: Legitimate Unbound Anaphors

Topicalization of an Anaphor

(9) Topicalization of the anaphor:

a. D-structure representation:
   \[
   \text{CP C [TP does not really [DP_{1/a} John ] like [DP_{1/b} himself ]]} \]

b. S-structure representation:
   \[
   \text{CP [DP_{1/b} Himself ] C [TP [DP_{1/a} John ] does not really t_{1/a}}
   \text{ like t_{1/b} ]]} \]
Problems with Principle A: Legitimate Unbound Anaphors

Topicalization or Wh-Movement of an XP with an Anaphor

(10) Topicalization or wh-movement of an XP containing the anaphor:

(i) D-structure representation:
Mary wondered \([CP\  C\ [TP\ T\ [VP\ [DP_{2/a}\  Bill\ ]\ saw\ [DP_{1}\ which\ picture\ of\ himself_{2/b}\ ]]]]\)

(ii) S-structure representation:
Mary wondered \([CP\ [DP_{1}\ which\ picture\ of\ himself_{2/b}\ ]\ C\ [TP\ [DP_{2/a}\  Bill\ ]\ T\ [VP\ t_{2/a}\ saw\ t_{1}\ ]]]]\)

(i) D-structure representation:
\([CP\  C\ [TP\ does\ not\ really\ [DP_{1/a}\  John\ ]\ like\ [DP_{2}\ [D\ \emptyset\ ]\ books\ about\ [DP_{1/b}\ himself\ ]]]]\)

(ii) S-structure representation:
\([CP\ [DP_{2}\ [D\ \emptyset\ ]\ Books\ about\ [DP_{1/b}\ himself\ ]\ C\ [TP\ [DP_{1/a}\  John\ ]\ does\ not\ really\ t_{1/a}\ like\ t_{2}\ ]]]]\)
Note:
A weaker version of this problem arises if we assume that wh-in situ phrases move to a SpecC[+wh] position at LF, as in (11): The wellformedness of (11) shows that Principle A cannot apply solely at LF, like (8) did.

(11) LF wh-movement of a wh-phrase containing an anaphor:
a. S-structure representation:
   Mary wondered [CP [DP$_{1/a}$ who ] C [TP $t'_1/a$ T [VP $t_{1/a}$ saw [DP$_2$ which picture of himself$_{1/b}$ ]]]]
b. LF representation:
   Mary wondered [CP [DP$_{2}$ which picture of himself$_{1/b}$ ] [C' [DP$_{1/a}$ who ] C [TP $t'_1/a$ T [VP $t_{1/a}$ saw $t_2$ ]]]]
Problems with Principle A: Legitimate Unbound Anaphors

Psych Verbs

Note:
Belletti & Rizzi (1986) observe the same kind of phenomenon in psych verb constructions. A basic assumption (for which they provide independent motivation) is that the arguments that act as subjects in these constructions are not the external argument of the psych verb; rather, they are “derived” subjects in the sense that they must move across a higher argument into the subject position, as in (12). (As with double object constructions, problems arise with respect to linear precedence statements unless we are willing to adopt a more complex structure of VP. For now, we put those problems aside.)

(12) Structure of psych verb constructions:

\[
[TP [DP_1 \text{ This picture }] T [VP [V' \text{ bothers } t_1 ] [DP_2 \text{ John }]]]
\]
Movement to SpecT of a DP containing an anaphor, English:

(13)

a. *[TP [DP₁ Each other’s₂ parents ] T [VP t₁ promised [DP₂ the girls ] to buy cars ]]

b. [TP [DP₁ This picture of himself₂ ] T [VP [V’ bothers t₁ ] [DP₂ John ]]]
Movement to SpecT, Italian

(14) Movement to SpecT of a DP containing an anaphor, Italian:

a. \[ TP [DP_{1} \text{Questi pettegolezzi su di sé}_{2} ] T [VP [V^{'} \text{these gossips about himself} preoccupano t_{1} ] Gianni_{2} più di ogni altra cosa ]]} worry Gianni more than anything else

b. \* [TP [DP_{1} \text{Questi pettegolezzi su di sé } ] T [VP t_{1} [V^{'} \text{these gossips about himself descrivono Gianni}_{1} meglio di ogni biografia ufficiale ]]} describe Gianni better than any official biography
Finding a New Binder

**Note:**
Not only can an anaphor contained in a moved XP escape the structural binding domain of a subject antecedent without inducing ungrammaticality; it can also find a new binder in the matrix clause this way. The ambiguity of examples like (15), (17) thus provides a second argument against assuming that Principle A applies at D-structure (recall (7)), and an argument against assuming that Principle A applies at S-structure (compare (9), (10), (13), (14)).
Wh-Movement Feeds A-Binding 1

(15) **Wh-movement to SpecC makes A-binding possible, first example:**

a. **D-structure representation:**

\[
\begin{align*}
&\left[CP\ C_{-wh}\right] TP\ T\ VP\ \left[DP_1\ John\right] \text{ wondered } \left[CP\ C_{+wh}\right] TP\ T \\
&\quad VP\ \left[DP_2\ Bill\right] \text{ saw } \left[DP_3\ \text{which picture of himself}_{1,2}\right]\]
\end{align*}
\]

b. **S-structure representation:**

\[
\begin{align*}
&\left[CP\ C_{-wh}\right] TP\ \left[DP_1\ John\right] T\ VP\ t_1\ \text{wondered } \left[CP\ \left[DP_3\ \text{which picture of himself}_{1,2}\right] C_{+wh}\right] TP\ \left[DP_2\ Bill\right] T\ VP\ t_2 \\
&\quad \text{saw } t_3\]\]

(16) **Long-distance binding is impossible without movement:**

\[
\begin{align*}
&\left[CP\ C_{-wh}\right] TP\ \left[DP_1\ John\right] T\ VP\ t_1\ \text{wondered } \left[CP\ \text{whether } TP\ \left[DP_2\ Bill\right] T\ VP\ t_2\ \text{saw } \left[DP_3\ \text{a picture of himself}_{*1,2}\right]\}\]
\end{align*}
\]
Problems with Principle A: Legitimate Unbound Anaphors

Wh-Movement Feeds A-Binding 2

(17) Wh-movement to SpecC makes A-binding possible, second example:

a. D-structure representation:

\[
\begin{align*}
\text{[CP} & \text{C}\{\text{+wh}\} \ [\text{TP} \text{ does } \ [\text{VP} \ [\text{DP}_1 \text{ John} ] \text{ think } \ [\text{CP} \ [\text{C}\{-wh\} \text{ that } ] \ [\text{TP} \text{ T } [\text{VP} \ [\text{DP}_2 \text{ Bill } ] \text{ liked } [\text{DP}_3 \text{ which picture of himself}_{1,2}]]){}}}]]
\end{align*}
\]

b. S-structure representation:

\[
\begin{align*}
[\text{CP} [\text{DP}_3 \text{ Which picture of himself}_{1,2}] [\text{C}\{\text{+wh}\} \text{ does } ] \ [\text{TP} \ [\text{DP}_1 \text{ John } ] \text{ T } [\text{VP} \ t_1 \text{ think } [\text{CP} t'_3 [\text{C}\{-wh\} \text{ that } ] \ [\text{TP} \ [\text{DP}_2 \text{ Bill } ] \text{ T } [\text{VP} \ t_2 \text{ liked } t_3 ]]])]] ?
\end{align*}
\]

(18) Long-distance binding is impossible without movement:

\[
\begin{align*}
\text{[CP} & \text{C}\{-wh\} \ [\text{TP} \ [\text{DP}_1 \text{ John } ] \text{ T } [\text{VP} \ t_1 \text{ thinks } [\text{CP} \ [\text{C}\{-wh\} \text{ that } ] \ [\text{TP} \ [\text{DP}_2 \text{ Bill } ] \text{ T } [\text{VP} \ t_2 \text{ liked } [\text{DP}_3 \text{ this picture of himself}_{1,2}]]){}}}]]
\end{align*}
\]
Reconstruction

Conclusion:
If a representational version of Principle A is to be maintained, it must be revised in such a way that the effects of movement (no loss of binding options after S-structure movement, new binding options may arise after S-structure movement) can be “imitated” by the constraint. Intuitively, the creation of “new” binding options can be taken to support the idea that the constraint applies at S-structure; and the persistence of “old” binding options requires a concept of reconstruction. Here is a possible solution (that essentially goes back to Barss (1984); also see Barss (1986) for an even more complicated version of the general idea in terms of so-called Chain Accessibility Sequences).

(19) Principle A\textsuperscript{r} (revised):
At S-structure, an anaphor is chain-bound in its binding domain.
### Problems with Principle A: Legitimate Unbound Anaphors

#### Chain Binding

(20) **Chain-Binding:**
\[ \alpha \text{ chain-binds } \beta \text{ iff (a), (b), and (c) hold:} \]

a. \( \alpha \) and \( \beta \) are co-indexed.
b. \( \alpha \) occupies an A-position.
c.  
   (i) \( \alpha \) c-commands \( \beta \), or  
   (ii) \( \alpha \) c-commands a trace of \( \gamma \), where \( \gamma = \beta \) or \( \gamma \) dominates \( \beta \).

(21) **Binding domain** (as before):  
The binding domain of some category \( \alpha \) is the minimal XP that dominates a category \( \beta \) (\( \beta \neq \alpha \)) such that (a) or (b) holds:

a. \( \beta \) is an external argument in SpecX.
b. \( \beta \) is a finite X.
Technical Problem

**Note:**
There is a potential technical problem: Suppose that an anaphor has been topicalized in a root clause, as in (9-b), repeated here in (22). Here, the anaphor does not seem to have any binding domain: The only XP that dominates the anaphor is CP, which does not have a $\beta$ in the sense of (21). How, then can the anaphor in (22) fulfill Principle A in (19)? One assumption could be that the definition of binding domain is modified in such a way that the root CP qualifies as a binding domain if otherwise no binding domain can be determined.

(22) **Topicalization of the anaphor:**

$$\left[ CP \left[ DP_{1/b} \text{ Himself } \right] C \left[ TP \left[ DP_{1/a} \text{ John } \right] \right. \right.$$ 
\left. \text{ does not really } t_{1/a} \text{ like } t_{1/b} \right]$$
Predicate Movement

Question:
Why is there no ambiguity in (23-ab) (see Barss (1986), Huang (1993))? 

(23)  
  a. \([\text{AP}_3 \ t_1 \ \text{How proud of himself}_{1, \ast_2}] \ \text{did John}_2 \ \text{say} \ [\text{CP} \ t'_3 \ \text{Bill}_1 \ \text{became} \ t_3]?)
  
b. \([\text{VP}_3 \ t_1 \ \text{Criticize himself}_{1, \ast_2}] \ \text{John}_2 \ \text{thinks} \ [\text{CP} \ t'_3 \ \text{Bill}_1 \ \text{will not} \ t_3]?)
Predicate Movement

Question:
Why is there no ambiguity in (23-ab) (see Barss (1986), Huang (1993))? 

(23) a. \([\text{AP}_3 \ t_1 \ \text{How proud of himself}_{1/\ast 2} \ ] \ \text{did John}_2 \ \text{say} \ [\text{CP} \ t'_3 \ \text{Bill}_1 \ \text{became} \ t_3 \ ]? \)

b. \([\text{VP}_3 \ t_1 \ \text{Criticize himself}_{1,\ast 2} \ ] \ \text{John}_2 \ \text{thinks} \ [\text{CP} \ t'_3 \ \text{Bill}_1 \ \text{will not} \ t_3 \ ]\)

Answer:
Recall that the structure of VP and AP is based on the argument structure of V and A, respectively (all arguments of a predicate are merged within that predicate’s maximal projection); and that only maximal projections (XP) can undergo wh-movement or topicalization to SpecC. Hence, the fronted XPs in (24-ab) have (unbound) traces in specifier position that continue to erect a binding domain for the anaphors after the movement operation.
General problem

The new representational Principle A is not conceptually attractive because it simply states properties of binding that should independently result from the role of movement in syntax.
Problems with Principle C: Illegitimate Unbound R-Expressions

Observation:
Just as movement does not destroy anaphoric options, it does not create new options for R-expressions (or pronouns).

(24) **Topicalization of R-expressions:**
   a. *[\(CP\ C [TP \text{He}_{1/a} \text{ does not really } t_{1/a} \text{ like } \text{John}_{1/b}]\)]
   b. *[\(CP \text{John}_{1/b} C [TP \text{he}_{1/a} \text{ does not really } t_{1/a} \text{ like } t_{1/b}]\)]

(25) **Wh-movement of an XP containing the R-expression:**
   a. *He\textsubscript{1} was willing to discuss [\(DP_2 \text{ the claim } [CP \text{ that } \text{John}_{1} \text{ was asleep }]\)]
   b. *[\(DP_2 \text{ Which claim } [CP \text{ that } \text{John}_{1} \text{ was asleep }]\)] was he\textsubscript{1} willing to discuss t\textsubscript{2} ?
Principle C: Reconstruction

*Note:*
Again, a problem arises for the assumption that Principle C applies at S-structure. And again, a reformulation of Principle C that relies on the notion of chain-binding will fix the problem. (Similar conclusions hold for Principle B.)

(26) **Principle C'** (revised):
An R-expression is not chain-bound.

*Note:*
However, there is an interesting exception to the generalization that movement does not change binding options for R-expressions. Examples like (27) seem well-formed for many speakers. This is known as an anti-reconstruction effect.
Principle C: Anti-Reconstruction

(27) Anti-reconstruction with wh-movement of an XP containing the R-expression:

\[ \text{Which claim } \text{CP that John}_1 \text{ made } ] \text{ was he}_1 \text{ willing to discuss t}_2 \text{?} \]

Note:

(25-b) and (27) form a minimal pair. The crucial difference is that CP is an argument of N in (25-b), and a modifier of N in (27).

Standard solution (Lebeaux, Freidin):
Non-arguments can be inserted late and counter-cyclically.
A Derivational Reinterpretation of the Principles of Binding Theory

Note:
Throughout, the system in [1] ("Phrase Structure and Derivations") is adopted again, i.e., Move and Merge alternate throughout a derivation, and sentences grow until they reach the root C.
Note:
Except for (27), Principle C can straightforwardly be reinterpreted as a derivational constraint that holds at every step of the derivation. No recourse to concepts like chain-binding is necessary: As soon as an R-expression is bound, the constraint will be violated, and ungrammaticality arises.

(28) **Principle C\textsubscript{d}**: 
An R-expression is not bound.

(29) **An illustration of Principle C\textsubscript{d} effects**:

a. \*\[ [\text{CP} \ C \ [\text{TP} \ [\text{DP}_1 \ \text{He}] \ [\text{T}' \ \emptyset \ [\text{VP} \ t_1 \ \text{likes} \ [\text{DP}_1 \ \text{John}]]]]]]] 
b. **Derivation**: 
Merge ( [V \ \text{likes}], [\text{DP}_1 \ \emptyset \ \text{John}]) \rightarrow [\text{VP} [V \ \text{likes}] [\text{DP}_1 \ \emptyset \ \text{John}]]

c. Merge ( [\text{DP}_1 \ \text{he}], [\text{VP} [V \ \text{likes}] [\text{DP}_1 \ \emptyset \ \text{John}]] ) \rightarrow
Principle A

**Assumption:**
Let us assume that Principle A is a derivational constraint that restricts every syntactic operation.

(31) **Principle A$^d$:**
An anaphor is bound in its binding domain.

**Note:**
Since anaphors are usually first be merged with a predicate before its antecedent enters the phrase marker (except for cases like (7)), a straightforward derivational reinterpretation of Principle A makes problematic predictions: The anaphor may not have a binding domain yet at the point where it is introduced. But then, a presupposition failure would arise, and Principle A could not be fulfilled.
A wrong prediction:

a. \[CP \ C \ [TP \ John_1 \ [T' \ Ø \ [VP \ t_1 \ likes \ himself_1 ]]\]]

b. Derivation:
   Merge ( [V likes], [DP_1 himself] ) \rightarrow *[VP [V likes] [DP_1 himself]]
   (\rightarrow \text{Violation of Principle } A^d!)

Note:
One might want to fix this problem by revising Principle $A^d$ as in (33):

(33) **Principle $A^d$ (revised):**
If an anaphor $\alpha$ has a binding domain $\beta$, then $\alpha$ is bound in $\beta$. 
The Problem is Still There

Consequence:
This still does not help: It will be impossible for an anaphor to extend its binding domain (and find an antecedent in a higher clause) by movement; but this is needed for cases like (15), (17).

Conclusion:
The problem with Principle $A^d$ in (31)/(33) is that it is assumed to hold at every derivational step. The universal quantification embodied in this assumption works well for constraints like Principle B and Principle C (and for locality constraints like those discussed in [2] and [3]), but not for a constraint like Principle A. Here, an existential quantification is needed, as in (34) (see Belletti & Rizzi (1986), Epstein et al. (1998)).

(34) **Principle $A^g$** (second revision):
An anaphor is bound in its binding domain at some point of the derivation.
**Note:**
This accounts for all the data discussed so far. However, it seems that (34) cannot simply be checked at any given step of the derivation. Rather, the whole derivation must be considered, and there must be at least one step where the anaphor is bound within its binding domain. Hence, (34) does in fact qualify as a global constraint; it is not local anymore.

(35) **A final interesting example:**
Mary wondered \([CP [DP_3 \text{ which claim } CP \text{ that pictures of herself disturbed Bill } ]] \) he made t\(_3\).

**Note:**
(i) **herself** and **Mary** can be co-indexed.
(ii) **Bill** and **he** cannot be co-indexed.
... and a very final interesting example.

(36) Which paper that he gave to Mary did every student think that she would like t?

Conflicting requirements?

(37) Principle $C^d$:
An R-expression is not bound.

(38) Weak Crossover Constraint$^g(?)$:
A bound variable pronoun must be A-bound.