

Minimality and the end of Agr

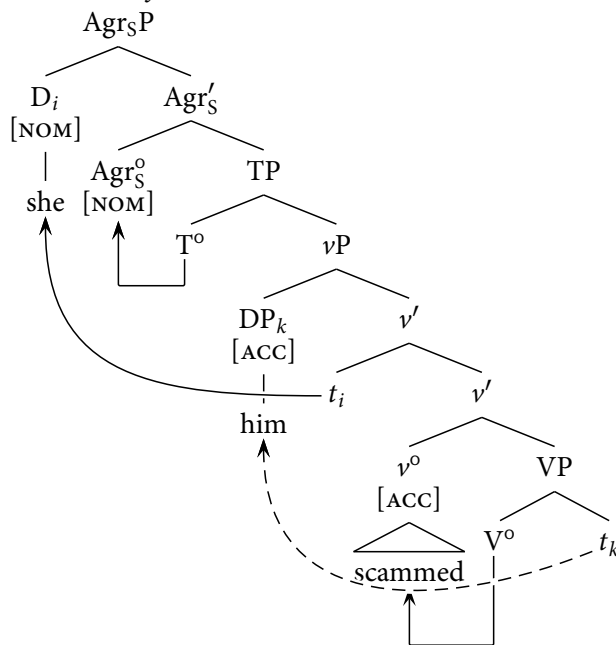
1 A conflict

- Once we adopt the internal subject hypothesis, movement for Case will require the trace of subject movement to intervene between the object and its trace.
- This causes problems for the concept of minimality, which mediates how far away moved elements can be from their traces.
- We'll consider this problem from the modern perspective of ν P shells as well as with Agr_{OP} .
- We will see it is much easier to formulate a solution with ν P's and that the Agr_{OP} solution cannot handle indirect objects.

1.1 Movement in ν P

- At the end of our discussion last time on Case configurations, I noted that it is possible to check accusative Case in a spec-head relation without $\text{Agr}_{\text{O}}^{\circ}$ if we assume movement of the object to $\text{Spec}\nu\text{P}$.
 - The subject first merges in the specifier of ν P.
 - The object moves to an outer specifier of ν P to check accusative Case.
 - The subject moves to $\text{SpecAgr}_{\text{S}}\text{P}$ to check nominative.

(1) ν P-based LF for She scammed him.:



This tree is a slightly embellished version of the one from the end of the Case Configurations handout from last time. Dashed arrows represent covert (LF) movement.

1.2 Minimality violations in ν P

- Regardless of whether one adopts the ν P or Agr_OP analysis, the same issue arises. The subject and object movement chains appear to interleave.
- This violates certain assumptions about MINIMALITY in GB, specifically that one element should not be able to move across another element of the same type.
- This is a direct result of our conclusions about θ -role assignment (the internal subject hypothesis) and Case checking (spec-head configurations for checking).
 - If the subject originates in the specifier of ν P, but the object must check its case feature in Spec ν P, then it follows that the object must cross over the subject at some point in the derivation.

That is, the trace of subject movement intervenes between the object and its trace at LF.

In this case, two DP arguments.

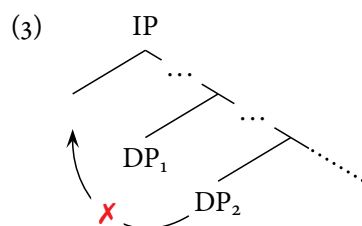
2 Relativized Minimality

- (2) *Relativized Minimality*:
 X α -governs Y only if there is no Z such that:
 - Z is a typical potential α -governor for Y and
 - Z c -commands Y and does not c -command X .
- This definition provides some notion of “closeness” between elements in a tree.
- The idea is that movements should be as short as possible.
- As applied to movement, Relativized Minimality prevents moving an element X over a filled position P that could have been occupied by X if P were empty.
- For instance, in the following tree, if DP_1 occupies a higher argument position than DP_2 , then DP_2 cannot move to SpecIP because it would be crossing another argument position:

See Rizzi (1990).

Here, α is a variable over {antecedent, head}.

Which, you'll remember, is the sort of condition we as Minimalists want derivational economy to capture!



2.1 Some evidence for minimality

- There is considerable reason to believe that some principle of minimality exists.
- The subject of the most embedded clause may move to check Case if there is no expletive intervening:
 - (4) a. It_{*i*} seems [*t_i* to be likely [that John will win]].
 - b. John_{*k*} seems [to *t'_k* be likely [*t_k* to win]].
 - c. *John_{*k*} seems [that it is likely [*t_k* to win]].

- How can check the [WH]-feature on the matrix C° if it doesn't cross another wh-element on its way:

- (5) a. Who_k [t_k wondered [how_i to fix your car t_i]].
 b. How_i did you say [t'_i [John fixed the car t_i]]?
 c. *How_i do you wonder [who_k [t_k fixed the car t_i]]

- Only the highest head can undergo movement in head movement:

- (6) a. Could_i [they t_i [have left]]?
 b. Have_k [they t'_k [t_k left]]?
 c. *Have_k [they could [t_k left]]?

The Head Movement Constraint of Travis 1984 is thus an apparent instance of minimality.

3 The problem

- For the sake of clearer discussion, let us assume that all movement for Case happens overtly and follows the Extension Condition.

This possibility was suggested in the pseudogapping part of the last lecture.

- (7) *Extension Condition:*

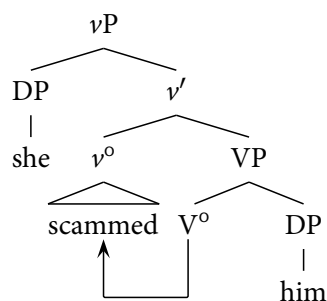
Overt applications of the operations Merge and Move can only target root syntactic objects.

We last covered the Extension Condition in our discussion of D-structure on 5 July.

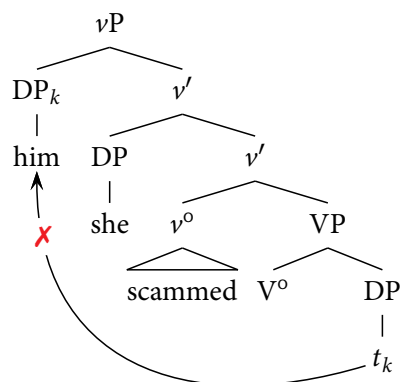
- If we make these assumptions we can see that over the course of the derivation the object crosses the subject (9), which is presumably in an A-position.

- Moreover, the subject then crosses the object (10)!

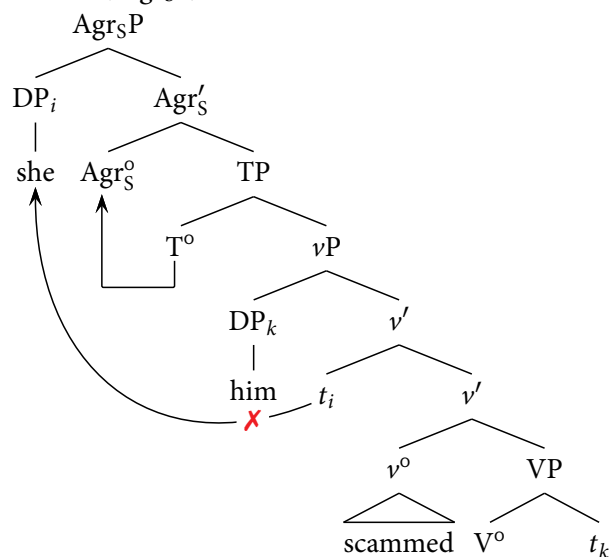
- (8) *Build vP:*



- (9) *Check accusative Case:*



- (10) *Build TP, AgrSP; check nominative Case:*



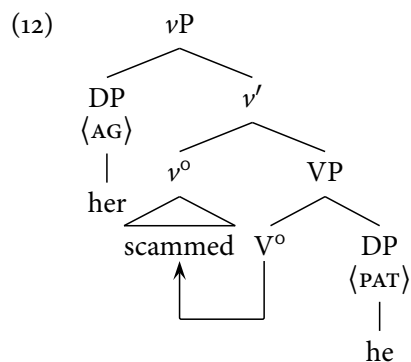
- Perhaps, though, Relativized Minimality doesn't hold within a single clause.
 - This could explain why the subject and object can cross above, but why a subject cannot skip a potential subject position in a higher clause:

- (11) a. It_{expl} seems [CP that John_i is likely [_{t_i} to win]].
 b. *John_i seems [CP that it_{expl} is likely [_{t_i} to win]].
-

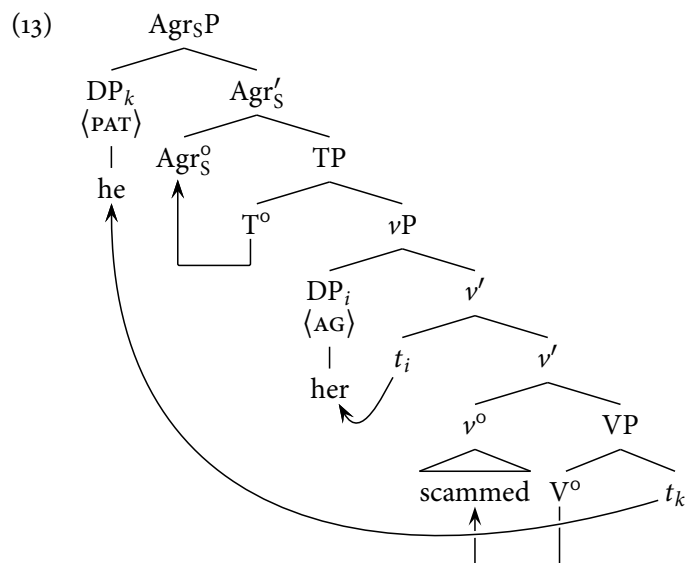
Both *likely* and *seem* can appear with expletive subjects, so Minimality explains why the subject must move to the first SpecAgr_SP position.

3.1 Case checking woes

- Case checking makes such as simple fix unworkable.
- Notice that nothing we have said so far prevents us from assembling ν P like this:



- In fact, we need to be able to do stuff like this in principle:
 - The external argument must be merged with an accusative Case feature for ECM and *for-to* constructions.
 - The internal argument must be merged with a nominative Case feature for passives and unaccusatives.
- If this in principle possible, then we need to stop the derivation below:



It's not obvious to me that *her* would need to move, but the book has it so why not?

- We need to stop this because (as the θ -roles show) the resulting sentence should mean the same thing as what *She scammed him* actually means.
- Relativized Minimality would give us a way of understanding this – it would make it impossible to move the internal argument past the external argument.
- But we need to make it so that it allows normal transitives but blocks (13).

4 Minimal domains

- We need to revise our notion of minimality so that certain relevant positions will no longer count as closer than others.
- To do this, we must establish the idea of a MINIMAL DOMAIN in which certain relations hold.

The goal will be to find a definition of distance so that elements in a certain domain will count as equally close to elements outside of that domain.

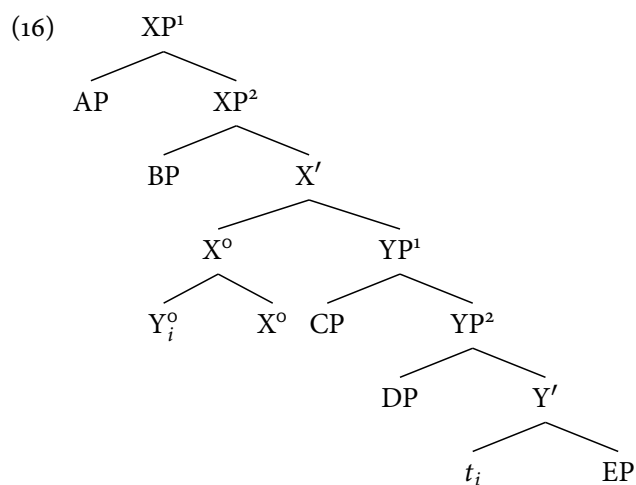
4.1 Some definitions

- (14) *Containment*:
A category α contains β iff some segment of α dominates β .
- (15) *Domination*:
A category α Dominates β iff every segment of α dominates β .
- This distinction is important when dealing with adjunction structures, where a phrasal category could be divided up into several segments.
 - In (30), The category XP consists of two segments: $XP = [XP^1, XP^2]$
 - XP Contains AP because only XP^1 dominates AP. XP does not Dominate AP because XP^2 does not dominate AP.
 - XP does Dominate BP, however, because both XP^1 and XP^2 dominate BP.

[UPDATE] I've capitalized the new, technical version of *Dominate* in this handout.

See Chomsky 1986.

The definition of Domination is super confusing because it includes the word *dominate*. It helps to consider what the segments are doing as a group: If all of the segments dominate a node (in the traditional sense), then the whole category Dominates that node.



- We should also define IMMEDIATE CONTAINMENT and IMMEDIATE DOMINATION:

(17) *Immediate Containment:*

A category α *immediately Contains* β iff α is the first category that Contains β .

(18) *Immediate Domination:*

A category α *immediately Dominates* β iff α is the first category that Dominates β .

- Y^0 is immediately Contained by $[X^0, X^0]$ (the first category Containing Y^0).
- Y^0 is immediately Dominated by X' (the first category Dominating Y^0).

Although Y^0 is Dominated by both X' and XP , the first node going up the tree from Y^0 that Dominates Y^0 is X' , so X' immediately Dominates Y^0 .

- Keeping these relations in mind, we can now define a Minimal Domain.

(19) *Minimal Domain:*

The Minimal Domain of α , or $\text{MinD}(\alpha)$, is the set of categories immediately Contained or immediately Dominated by projections of the head α , excluding projections of α .

- Thus, given (30), $\text{MinD}([X^0, X^0])$ includes $[YP^1, YP^2], Y^0, AP, BP,$ and CP .

CP is included, since X' immediately Dominates CP .

4.2 Equidistance

- The key thing that all of this is meant to buy us is that any *positions* within a single Minimal Domain count as **EQUIDISTANT**.

(20) *Equidistance* (Minimalist version):

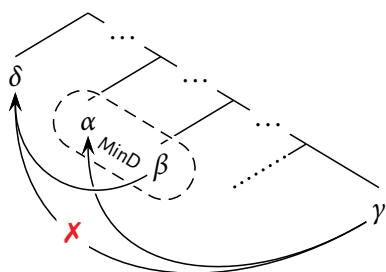
If two positions α and β are in the same MinD , they are equidistant from any other position.

This version is based on Chomsky (1995, Ch. 4)

- Assuming the positions α and β are in the same MinD in (28), they are both equidistant from γ , and they are equidistant from δ .

Following the original definition of of Relativized Minimality, they are not; see (2b).

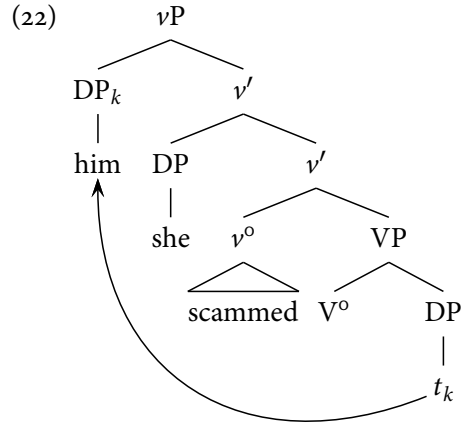
(21)



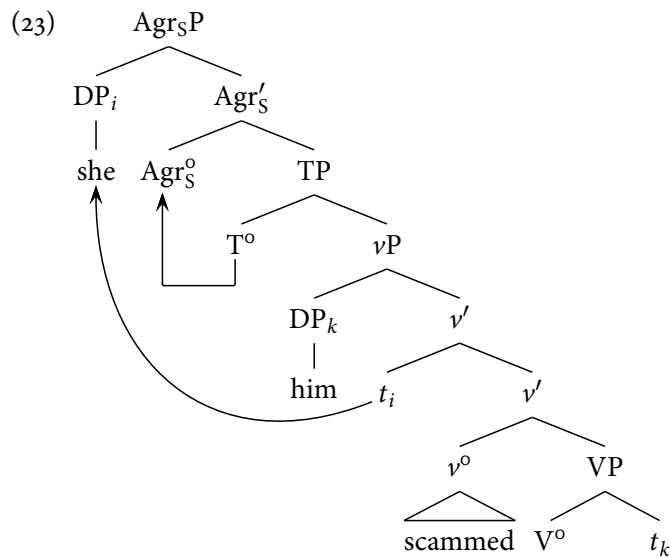
- Movement from γ to α is not longer than movement from γ to β .
- Movement from β to δ is not longer than movement from α to δ .
- However, direct movement from γ to δ is not possible because α and β are both closer to δ .

4.3 Transitives

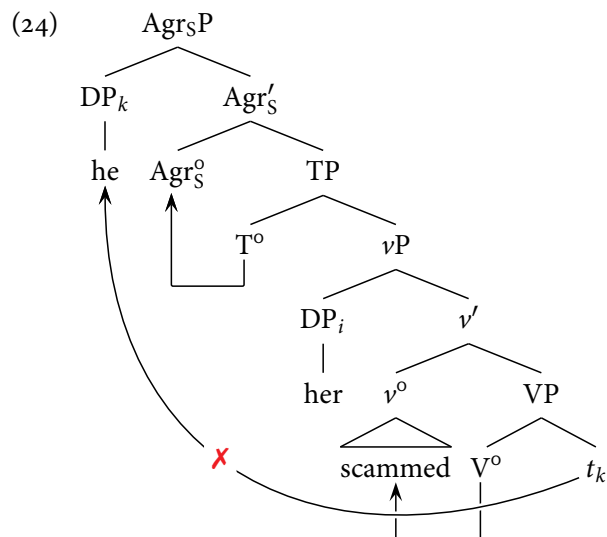
- This addresses the problem we saw with transitive clauses in (33). Consider (9), repeated here as (22).



- Here, both specifiers of vP are equidistant from the trace of the object, since they are both part of $\text{MinD}(v^o)$.
- The same goes for movement to $\text{SpecAgr}_S P$ – it is equidistant from both specifiers of vP :



- Critically, this still rules out the problematic case where *He scammed her* could mean ‘She scammed him’ by merging pronouns with the ‘wrong’ Case features.
- Here, $\text{SpecAgr}_S P$ is not equidistant from $\text{Spec}vP$ and $\text{Comp}V^o$. $\text{Spec}vP$ is closer so movement of *he* past *her* should fail.

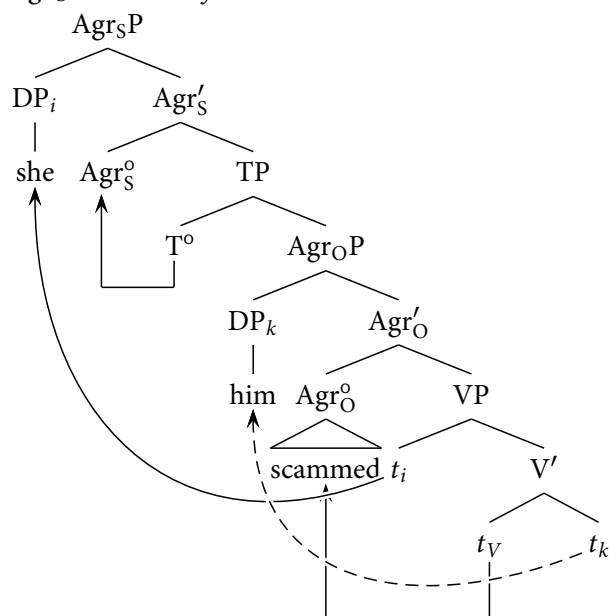


- This exactly the bad configuration sketched in (21) above; movement of material past potential target positions in the MinD should be impossible.

5 Minimality violations with Agr_OP

- One of the reasons this works so well with ν P is that both the subject and the object wind up being in the MinD of a single head as part of Case checking.
- Under the Agr_OP analysis, things are much more complicated: Although the subject and object originate in the MinD of V^o, subsequent movement of the object to check Case places the arguments in separate MinDs.
- This requires a number of complications, including the ability to extend MinDs through head movement.
- As with the ν P analysis, the subject and object must cross if we assume that the object moves to SpecAgr_OP:

(25) *Agr_OP-based LF for She scammed him.:*



Compare this with the tree (1) in the previous handout.

- Here, it is fairly obvious that the movement chains interleave.
 - Movement of the object to SpecAgr_OP should induce a minimality violation because it crosses over SpecVP, the subject’s base position.
 - Movement of the subject to SpecAgr_SP should induce a minimality violation because it crosses over SpecAgr_OP, the Case-checking position of the Object.
- We turn now to the GB solution to this problem and how it differs from the (simpler) Minimalist one.

The assumption here is that CompV^o, SpecVP, SpecAgr_OP, and SpecAgr_SP are all A-positions.

6 Minimal Domains in GB

- We will keep the definition of Minimal Domain we saw last time, but we will begin with an older definition of Equidistance.

(26) *Minimal Domain:*

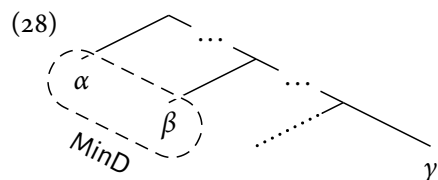
The Minimal Domain of α , or MinD(α), is the set of categories immediately Contained or immediately Dominated by projections of the head α , excluding projections of α .

(27) *Equidistance:* (GB version)

Say that α is the target of movement for γ . Then for any β that is in the same MinD as α , α and β are equidistant from γ .

- This definition essentially states that *target positions* for movement are equidistant for movement from some position as long as those target positions are in the same MinD.

This is notably different from the vP version, where every position was equidistant from the positions in the MinD.



Following (27), α and β are equidistant from γ ; γ may target either α or β because they are in the same MinD.

6.1 The extended MinDs

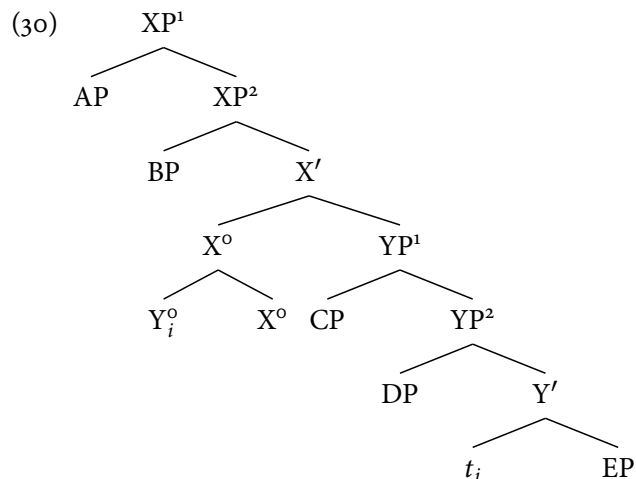
- Looking back at the tree in (25), we see that the two definitions in (26) and (27) alone predict a minimality violation in transitive clauses.
 - The target position of object movement, SpecAgr_OP, is not in the same MinD as the trace of the subject in SpecVP.
 - Since SpecAgr_OP intervenes between SpecVP and SpecAgr_SP, SpecAgr_OP is closer.
- The solution to this problem is to adopt a further assumption, which is that head movement can *extend* a minimal domain.

SpecVP is in the minimal domain of V^o.

(29) *Extended Minimal Domain:*

The MinD of a chain formed by adjoining the head Y^0 to the head X^0 is the union of $\text{MinD}(Y^0)$ and $\text{MinD}(X^0)$, excluding projections of Y^0 .

- Given this, $\text{MinD}([Y^0, t_i])$ in (30) includes AP, BP, CP, DP, and EP.

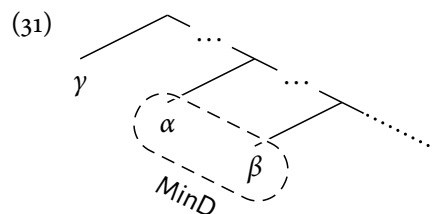


6.2 Extending domains

- So far, this change definitely gets us object movement. As long as we assume V^0 -to- Agr_O^0 movement in (25), there will be no minimality violation.
- V^0 -movement will ensure that $\text{SpecAgr}_O\text{P}$ and SpecVP are in the same MinD.
 - Looking back at (25), $\text{MinD}([V^0, t_V])$ will include SpecVP and $\text{SpecAgr}_O\text{P}$.
 - Following the definition in (27), this means SpecVP and $\text{SpecAgr}_O\text{P}$, as potential targets of movement, are equidistant from the complement of V^0 .
 - Therefore no minimality violation occurs!
- To get subject movement past $\text{SpecAgr}_O\text{P}$, however, we will have to extend the domain further.
 - $\text{MinD}(\text{Agr}_S^0)$ does not include $\text{SpecAgr}_O\text{P}$.
 - This should cause a Minimality violation if we try to move an argument from SpecVP past $\text{SpecAgr}_O\text{P}$ to $\text{SpecAgr}_S\text{P}$ – $\text{SpecAgr}_O\text{P}$ is closer!
- Although potential targets of movement are equidistant if they are in the same MinD, according to (27) elements in the same MinD are not equidistant from a potential target!

$\text{SpecAgr}_O\text{P}$ is included in $\text{MinD}(\text{Agr}_O)$ and $\text{MinD}([V^0, t_V])$.

Again, this is a significant difference from the $v\text{P}$ definition of equidistance we saw last time.

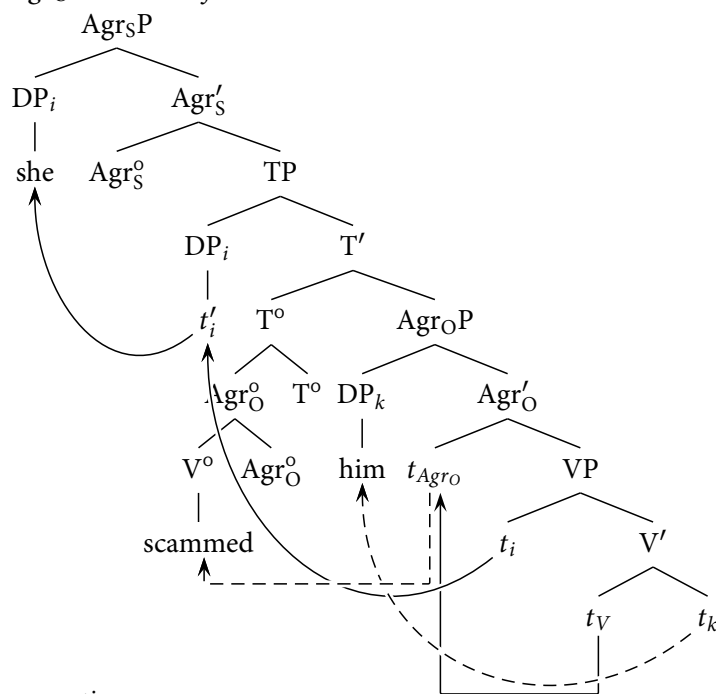


Under the definition in (27), although α and β are in the same MinD in (31), they are not equidistant from γ – cf. 28.

- Thus, although both SpecVP and SpecAgr_OP are in MinD($[V^{\circ}, t_V]$), they are not equidistant from SpecAgr_SP according to (27).
- The solution for (25) is more head movement!
 - If Agr_O^o moves to T^o, this extends the minimal domain of Agr_O^o to include both SpecAgr_OP and SpecTP.
 - Since SpecTP and SpecAgr_OP are now in the same MinD, they are equidistant according to (27), so moving the subject to SpecTP does not count as a minimality violation.
 - From there, the subject may move to SpecAgr_SP, since there is no intervening A-position.

Presumably, this verb movement must happen covertly in English, since on the surface verbs don't appear to move past Agr_OP.

(32) Agr_OP-based LF for She scammed him with extended MinDs:

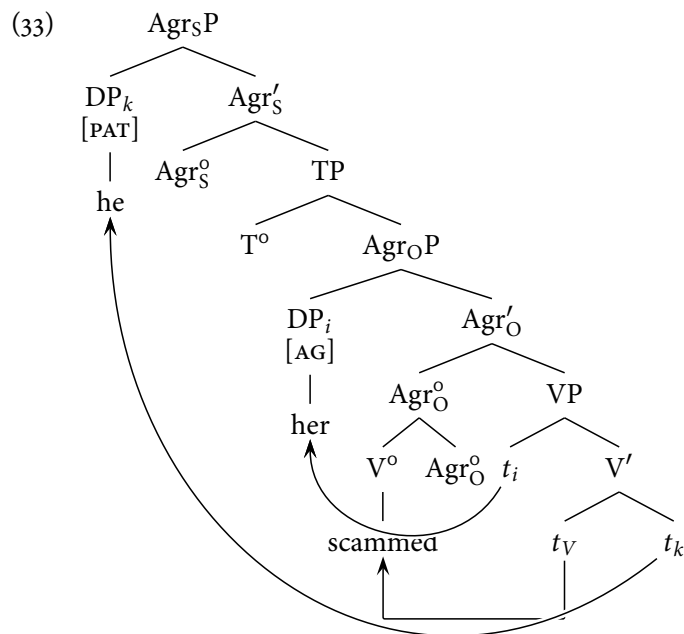


Crucially, moving V^o to T^o does not further extend the minimal domain of the verb. This appears to be due to a technicality of how head chains work. V^o-to-Agr_O^o creates one chain, and then Agr_O^o-to-T^o movement creates a second, distinct chain. Since MinD is defined over head chains and not the positions of the heads, subsequent head movement does not extend domains.

6.3 Overgeneration

- This system can handle the problematic cases where an internal argument merges with nominative Case and an external argument with accusative.
- In this instance, the external argument will move to SpecAgr_OP to check accusative Case.

Unlike above, V^o-to-Agr_O^o movement need not happen, but for the sake of discussion, let's assume it does.



- If we try to move the internal argument to SpecTP (or SpecAgrSP, for that matter), we must incur a minimality violation.
 - For this to be possible, all of SpecTP, SpecAgrOP, and SpecVP would have to be in the same MinD.
 - But this is not possible!
 1. SpecVP and SpecAgrOP are in MinD([V°, t_V]), but not SpecTP.
 2. We could try moving Agr^o_O to T°, as we did above. MinD([Agr^o_O, t_{Agr^o_O]) would include SpecAgrOP and SpecTP, but not SpecVP.)}
- There is simply no way to extend the minimal domain to include all three A-positions, so the derivation in (33) is successfully blocked!
- So far, so good. For transitive clauses, this works just as well as the vP analysis we discussed last time!

Remember, under the vP analysis, this is all accomplished without extending domains. The presence of the external argument in SpecvP and the inability to check nominative Case in that position derives the same fact.

7 Indirect objects

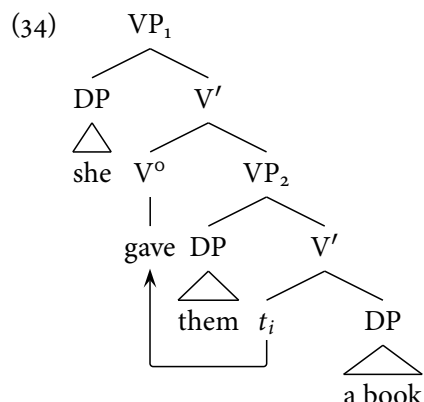
- The problem is that it is too restrictive to explain anything more complicated than transitive clauses.
- The same issue that blocks the derivation in (33) arises when we look at a clause with more than two DP arguments.

7.1 The problem with Agr^o

- There is simply no way to reasonably define a minimal domain that can include A-positions for a subject, direct object, and indirect object.
- Lets assume that Case checking for indirect object DPs must occur in a spec-head relation, the same as subjects and objects.

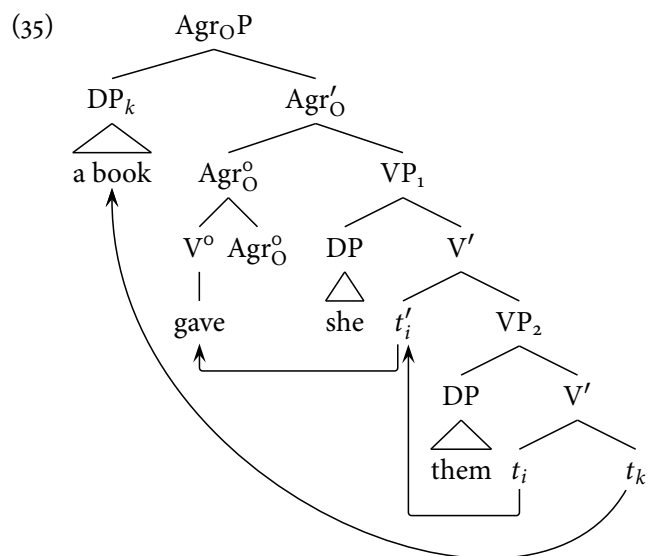
This means we'll need a Agr^o_O.

- Let's also assume a Larsonian VP shell analysis for double object constructions.



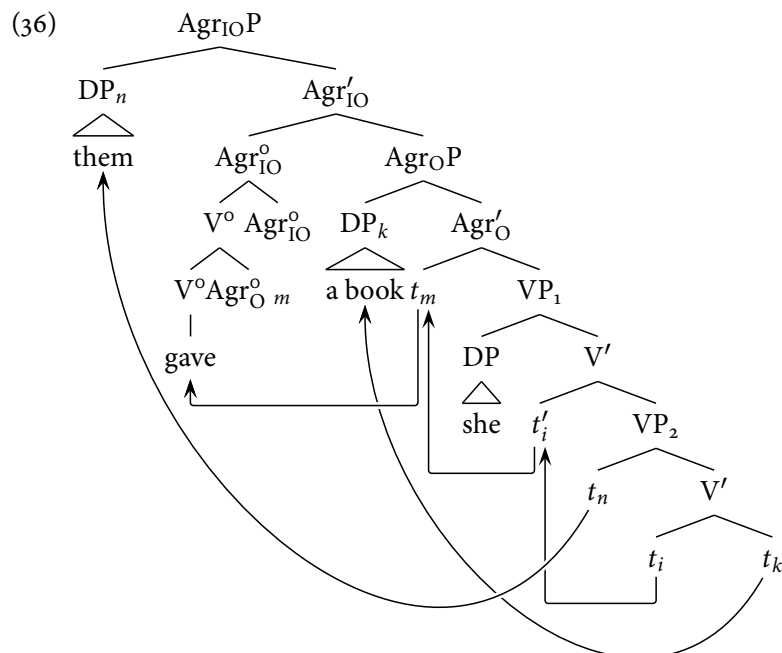
The discussion in the book seems to assume that subsequent movement of the verb from the higher VP shell extends the domain, presumably because under Larson's original analysis, the higher head position is just empty.

- Things are OK for object movement to SpecAgr_OP as long as we assume verb movement.
 - Movement of the verb to Agr_O^o means that MinD([V^o, t'_i, t_i]) includes SpecAgr_OP, SpecVP₁, and SpecVP₂.



- Now we know that SpecAgr_SP is the highest projection in the clause, so SpecAgr_{IO}P must be the next projection.
- But if it is, the the indirect object will have to cross the subject in SpecVP₁ and the direct object in SpecAgr_OP.

But it does matter what order you put the TP and AgrP projections in; you'll get the same result.



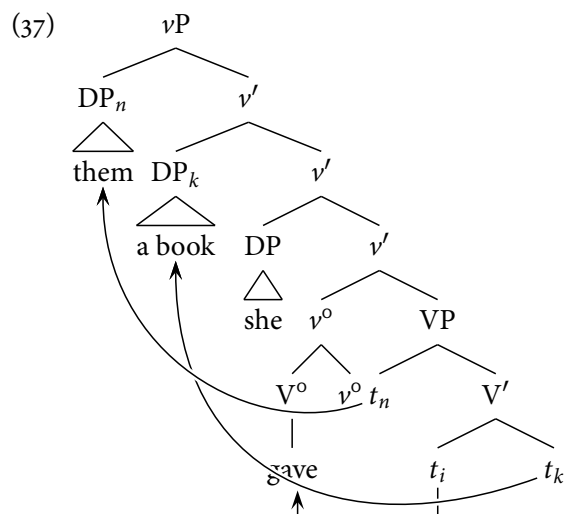
- Because V^o has moved to Agr^o_{IO} , the subject and the object are in the same MinD and, therefore, equidistant from the indirect object.
- But moving the indirect object past these incurs a minimality violation, since these positions are closer than $SpecAgr^o_{IO}$.
- We can move Agr^o_O to Agr^o_{IO} . The specifiers of both Agr projections would be in the same minimal domain – $MinD([Agr^o_O, t_m])$ – but this MinD excludes SpecVP, so the trace of the subject should induce a minimality violation.

Don't even try to move the subject.

7.2 The vP analysis

- The way to account for this in an Agr-less system is to assume that v^o bears the case features for both the indirect object and the direct object.

This may seem a bit like a cheat, but really there is no reason why a head couldn't bear more than one Case feature. We could imagine doing this for Agr^o_O , though. Would that fix the above problem?



- Movement of V^o to v^o means that $CompV^o$, $SpecVP$, and $SpecvP$ are all in the MinD of the verb.

- If we adopt the newer, ν P based definition of Equidistance, where all elements in a single MinD are equidistant from any element outside the MinD, then the subject will be able to move too.

8 Outlook

- Using the ν P analysis is much more straightforward than using the Agr_OP analysis.
 - We can easily understand minimality effects if both direct and indirect objects pass through Spec ν P in a way we do not with Agr_OP.
 - We don't need to include the notion of extending minimal domains through head movement.
 - It also allows us to simplify the definition of equidistance so that we don't have to distinguish between sources of movement and targets.
- But is also a weird head to have a head like Agr_O^o anyway.
 - It's existence is justified in part by the fact that some languages exhibit object agreement.
 - But this function could be satisfied by ν^o or even higher inflectional heads.
 - Agr_O^o, furthermore, lacks any LF interpretation (*i.e.*, it has not meaning).
- So, conceptually, it makes sense to get rid of it, since it does not even have a semantic function.

We don't even need head movement for any of this now.

As Hornstein et al. (2005: 163–165) note, this is a more natural definition.

ν^o does, though, given that it assigns θ -roles to arguments and determines facts about argument structure.

8.1 Eliminating Agr_S^o

- A natural question at this point is to question the need for Agr_S^o.
- Like Agr_O^o, Agr_S^o lacks any semantic interpretation and only exists to check a Case feature on the subject and express agreement.
 - But these functions can be carried out by T^o just as easily.
- Indeed, it has become pretty much standard since Chomsky 1995 to assume that there are no Agr^o heads in the syntax.
- Still, as I mentioned in the lecture on Case configurations, cases like the Icelandic transitive expletive construction make hard to completely abandon the idea.

(38) [_{AgrP} Það luku [_{TP} sennilega [_{TP} einhverjir stúdentar [_{VP}
 there finished probably some students
 alveg [_{VP} verkefninu]]]]].
 completely the.assignment

'Some students probably completely finished the assignment.'

Icelandic (Bobaljik and Jonas 1996: 209, (21a))

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