

Quantifier Movement and Derivation by Phase

Now You See It, Now You Don't

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1 NEG-shift

All the Scandinavian languages have what I call NEG-shift – the overt movement of indefinite quantified negative objects to a pre-verbal position (Christensen 2003, 2004).¹ The target of this movement is generally assumed to be spec-NegP and it is obligatory in order to license sentential negation (Koch Christensen 1986, 1987, Haegeman 1995, Haegeman & Zanuttini 1991, Jónsson 1996, Kayne 1998, Platzack 1998, Rögnvaldsson 1987, Sells 2000, Svenonius 2002). The negative polarity is evident from the acceptability of the negative tag:²

¹ In modern spoken Norwegian NEG-shift is only possible in the string-vacuous version where the main verb is V2 position; it never applies across the main verb (Svenonius 2002). It is, however, still possible in written Norwegian. The same tendency appears to be present in Danish as well, though nowhere near as drastic as in Norwegian. It seems as if this last remnant of OV word order is on its way out (Christensen, in press).

² Throughout this paper, the Danish examples are representative for Swedish and Faroese as well, and to some extent also for Norwegian.

- (1) Da. a. *Jeg har faktisk [_{NegP} [_{VP} set ingenting₁]]...
 b. Jeg har faktisk [_{NegP} ingenting₁ [_{VP} set t₁]]...
I have actually nothing seen
 ...og det har du heller ikke
 ...and that have you neither not
 “I haven’t actually seen anything and neither have you.”

Note that the target position follows sentential adverbials, which are adjoined to NegP.³ NEG-shift is not subject to *Holmberg’s Generalization* (HG, Holmberg 1986, 1999):⁴

- (2) Object extraction cannot move across the surface position of its case assigner and is therefore dependent on verb movement.

2 Object shift

Other types of object movement, such as Topicalization, *wh*-movement, and raising-to-subject in passivization, may also violate Holmberg Generalization. Object shift, on the other hand, is the movement on which HG is based (I leave out irrelevant traces):

- (3) Da. a. Den film₁ har jeg faktisk ikke [_{VP} set t₁] (topicalization)
That movie have I actually not seen
 b. Hvad₁ har du ikke [_{VP} set t₁] (wh-question)
What have you not seen
 c. Filmen₁ blev ikke [_{VP} set t₁] af mange (passivization)
The movie became not seen of many
 “The movie wasn’t seen by many.”
- (4) Da. a. *Jeg har den₁ faktisk ikke [_{VP} set t₁] (object shift)
I have it actually not seen
 b. Jeg så_v den₁ faktisk ikke [_{VP} t_v t₁]
I saw it actually not
 c. Så_v du den₁ også [_{VP} t_v t₁]?
Saw you it also?

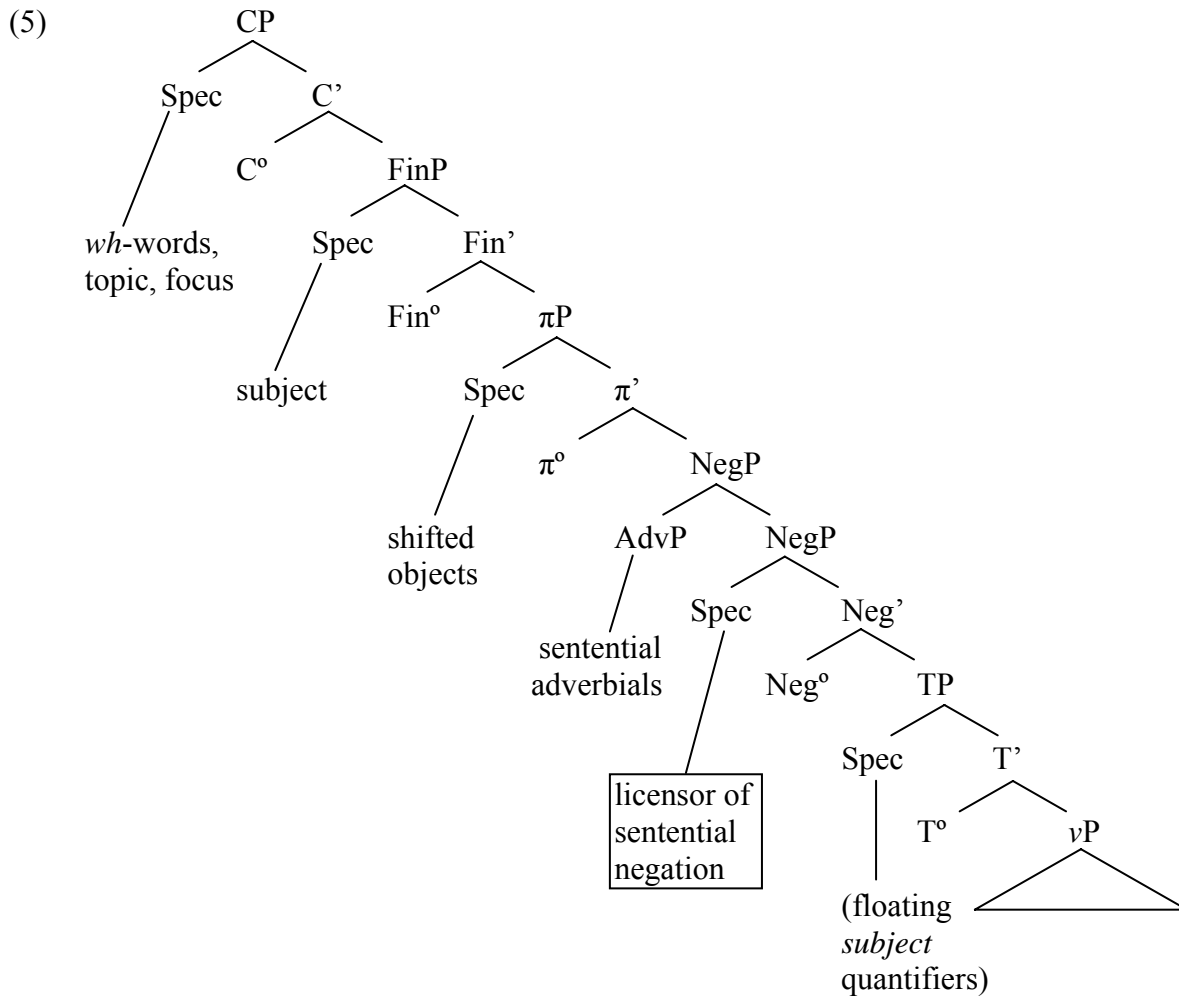
Note that the target of object shift is a position above sentential adverbs, i.e. above NegP but below the subject position, spec-FinP. Platzack (1998: 137), Müller (2001: 289) and others have argued that the target of pronominal object shift (and scrambling of pronouns) is the specifier of a separate functional projection.^{5, 6}

³ Alternatively, one could assume that an array of functional projections housing sentential adverbials of different semantic types and scope dominates NegP (cf. Cinque 1999). The important thing is that negation follows all sentential adverbials.

⁴ In spoken Norwegian, NEG-shift is subject to HG (see footnote 1). Arguably, the same is the case in English.

⁵ As I argue below, in a probe-goal account, XP movement is only licensed in the presence of an EPP feature. Hence, XP movement always targets a specifier position and is never movement to adjunction.

It is clear that NEG-shift doesn't fall under any of the movements in (3) and (4). Apart from syntactic distribution, note also that unlike pronominal object shift, NEG-shift is independent of prosody (stress), and unlike Icelandic full-DP object shift, NEG-shift is not dependent on definiteness as negative quantifiers are inherently indefinite.⁷



⁶ This projection, $\pi P/\mu P$, is positioned higher than the projection sometimes posited for object agreement, AgrOP, which is normally projected between TP and vP/VP (see also footnote 11).

⁷ Rizzi (1997) argues that FinP is part of an articulated CP domain, whereas I take it to be the topmost projection in the IP domain. The difference is not crucial here. What is important is that there is a projection to house the subject between C° (the V2 position) and NegP and the sentential adverbials adjoined to it. As finiteness typically licenses nominative subjects, and as agreement projections (AgrSP and AgrOP) are otherwise unnecessary and therefore, by economy, non-existent (Chomsky 1995), I find it natural to assume this projection to be FinP.

3 Quantifier movement

In Icelandic, but not in any of the other Scandinavian languages, other quantified objects may optionally also move across the verb. I follow Svenonius (2000*b*) and take this movement to be overt Quantifier Raising (QR). Depending on the specific quantifier, QR is acceptable with varying degrees of acceptability (see Rögnvaldsson 1987, Svenonius 2000*b*):

- (6) Da. a. Jeg har [v_P fæet mange]]
 b. *Jeg har [mange₁ [v_P fæet t₁]]
I have many received

- (7) Ic. a. Jón hefur [v_P þurft að þola ýmislegt]]
 b. Jón hefur [ýmislegt₁ [v_P þurft að þola t₁]]
John has various had to tolerate

(Rögnvaldsson 1987, (25))

- (8) Ic. a. Hún hefur ekki [v_P lesið margar af bókunum]
 b. ?Hún hefur ekki [margar₁ [v_P lesið t₁ af bókunum]]
She has not many read of books-the
 “She hasn’t read many books.”

(Hrafnbjargarson, p.c.)

Note that this is not object shift, because the moved object follows negation, and it cannot be NEG-shift, because negation is already licensed by *ekki* in spec-NegP and the quantifier is not (necessarily) negative. Rögnvaldsson (1987) and Svenonius (2000*b*) assume this position to be adjoined to the highest VP, that is, to the empty projection of the moved finite auxiliary or main verb.

Interestingly, the movement pattern for negative and quantified objects (i.e. overt QR) is not a feature specific to the Germanic languages. In French, “strong” quantifiers move across the verb. For example, quantifiers such as *rien* ‘nothing’, *tout* ‘all’, and *beaucoup* ‘much/many’ (cf. Confais 1978: 137, §231; 235, §417*b*; Pedersen et al. 1996: 93), but not *aucun* ‘no’ and *personne* ‘no one’, move to a position preceding the vP domain – *rien* obligatorily, the others optionally.⁸

- (9) Fr. a. Je n’en ai [v_P trouvé aucun]]
 b. *Je n’en ai [aucun₁ [v_P trouvé t₁]]
I NEG-of.them have none found
 “I haven’t found any.”

(cf. Confais 1978: 135)

- (10) Fr. a. Je n’ai [v_P vu personne]]
 b. *Je n’ai [personne₁ [v_P vu t₁]]
I NEG-have nobody seen
 “I haven’t seen anybody.”

(cf. Confais 1978: 135)

- (11) Fr. a. *Pierre n’a [v_P mangé rien]]
 b. Pierre n’a [rien₁ [v_P mangé t₁]]
Pierre NEG-has nothing eaten
 “Pierre didn’t eat anything.”

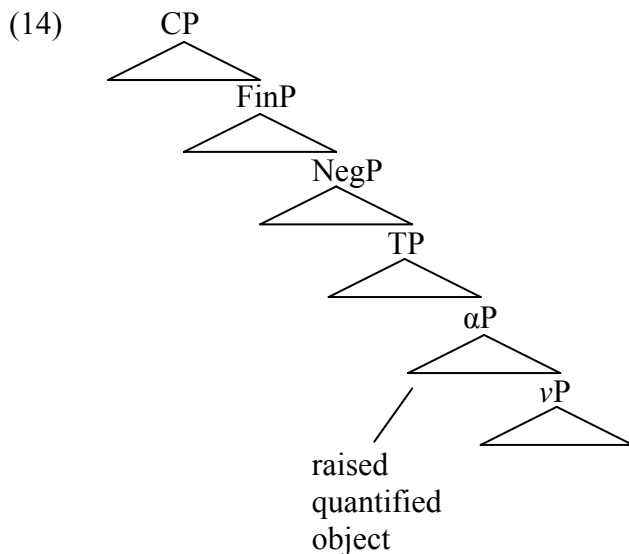
(cf. Nølke 1997: 234)

⁸ According to Haegeman (1995: 231) Genevan French, unlike standard French, also allows *personne* to move across the verb.

- (12) Fr. a. J'ai [v_P vu tout]
 b. J'ai [tout₁ [v_P vu t₁]]
I-have all seen
 "I have seen everything" (Haegeman 1995: 231, (87))

- (13) Fr. a. Il a [v_P consulté beaucoup de livres]
 b. Il a [beaucoup₁ [v_P consulté t₁ de livres]]
He has many consulted of books
 "He consulted many books." (Rizzi 1990: 12, (27))

This shows that some quantifiers undergo overt QR to some pre-verbal position, say, α P, in French as well as in Icelandic. (I leave out the target projection for object shift throughout.)



(Below I argue that this α P is in fact neither a separate projection nor an adjoined position; rather, the target of QR is the topmost specifier of v P.)

4 Zero quantification

As mentioned above, NEG-shift in Scandinavian is obligatory in order to license sentential negation. French *rien*, on the other hand, is ambiguous in the shifted position (QR of *rien* is obligatory) between sentential negation (wide scope), *rien*_{neg}, and zero-quantification (narrow scope, 'trifling' negation (Svenonius 2002)), *rien*_{zero} (Eric Mathieu, p.c.). (If *rien*_{zero} is the complement of a preposition, movement is blocked.)

Imaging a contest of some sort, for example the Eurovision song contest, where contesters are evaluated and rewarded with an amount of points from zero to, say, ten.

- (15) Fr. Je n'ai rien₁ [v_P reçu t₁]
I NEG-have nothing received
 i. Zero-quantification: "I scored zero points"
 ii. Sentential negation: "I hasn't got any points yet/I hasn't been judged yet"

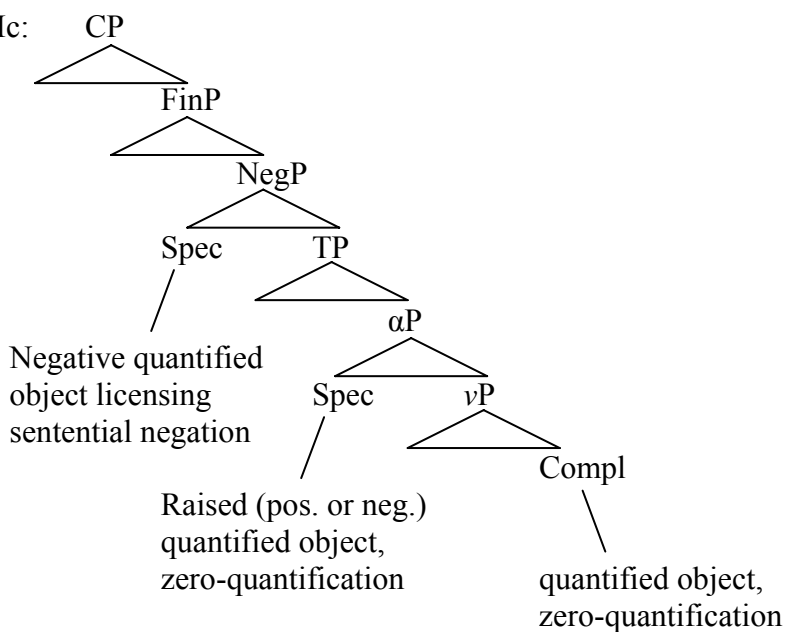
This difference in interpretation suggests that there are two different positions (the difference between which, however, is string-vacuous)⁹, which also fits the distinction between NEG-shift and QR mentioned above: movement to spec-NegP in the former case, and movement to spec- α P in the latter.

- (16) Fr. a. [rien₁ [_{vP} Verb t₁]] (Zero-quantification)
 b. [_{NegP} rien₁ Neg° [t₁ [_{vP} Verb t₁]]] (Sentential negation)

Icelandic *enginn*, may optionally undergo QR:

- (17) Ic. a. Ég hef [_{vP} fengið engin stig]
 I have received no points
 i. Zero-quantification: “I scored zero points”
 ii. *Sentential negation: “I haven’t got any points yet/I haven’t been judged yet”
- b. Ég hef [_{NegP} [engin stig]₁ [_{vP} fengið t₁]]
 i. Zero-quantification: “I scored zero points”
 ii. Sentential negation: “I haven’t got any points yet/I haven’t been judged yet”

(18) Fr & Ic:



In Danish, as well as in the other Scandinavian languages, only the sentential negation reading is possible with a shifted *ingen* object:

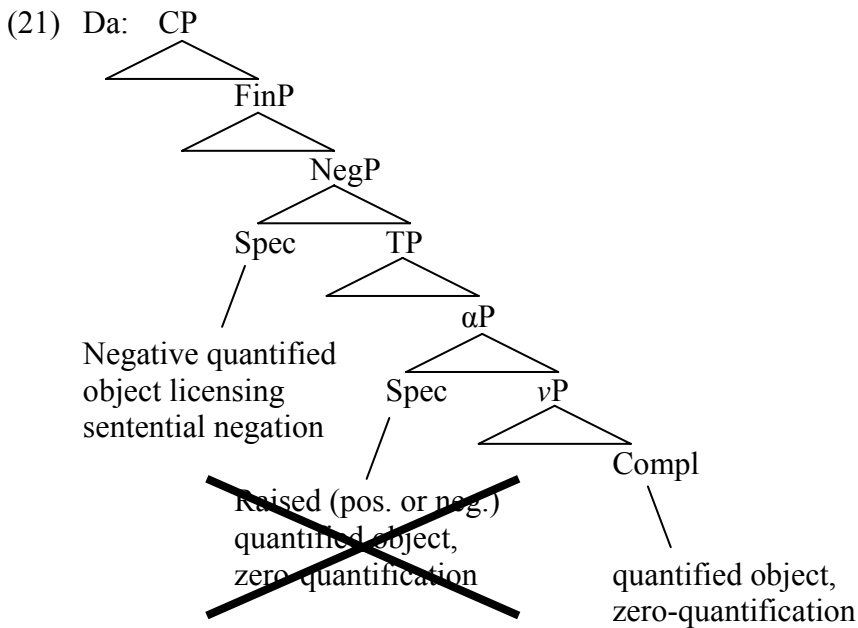
- (19) Da. a. Jeg har [_{vP} fået ingen point]
 I have received no points
 i. Zero-quantification: “I scored zero points”
 ii. *Sentential negation: “I haven’t got any points yet/I haven’t been judged yet”

⁹ Retaining the idea that different scope interpretations derive from different structural positions.

- b. Jeg har [_{NegP} [ingen point]₁ [_{vP} fået t₁]]
- i. *Zero-quantification: “I scored zero points”
 - ii. Sentential negation: “I haven’t got any points yet/I haven’t been judged yet”

- (20) Da. a. [_{NegP} *ingen*₁ Neg° [t₁ [_{vP} Verb t₁]]]
 b. * [*ingen*₁ [_{vP} Verb t₁]]

In other words, as QR is not an option, *ingen* only moves if NEG-shift applies.¹⁰

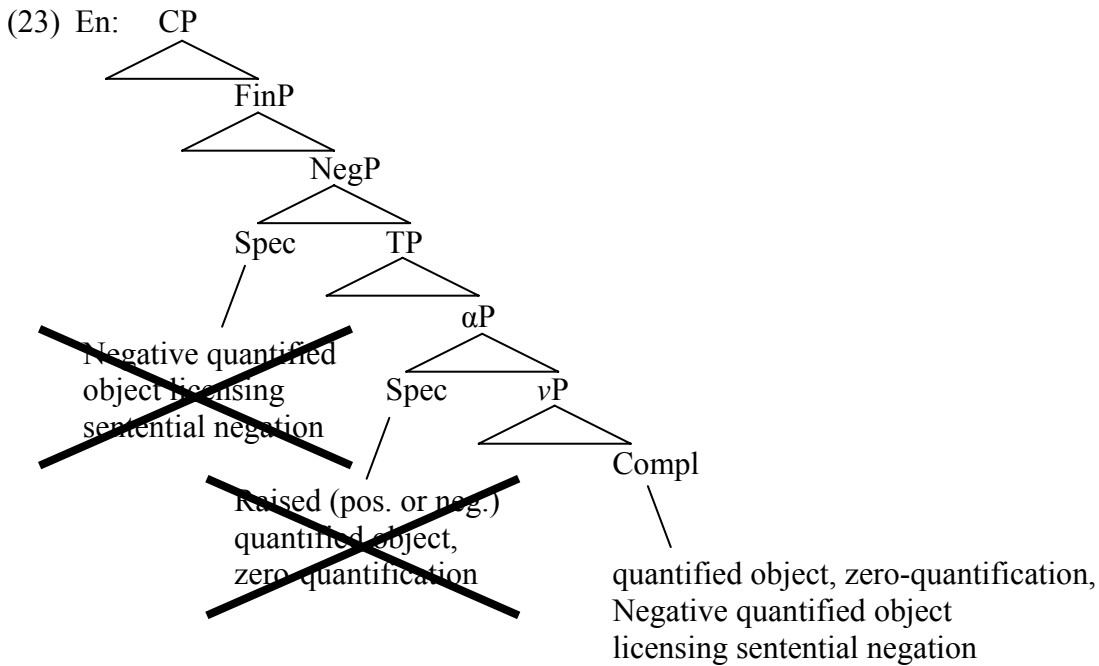


English *no* (*-thing/one/-body/-where*), like French *aucun* ‘nothing’, doesn’t move and is ambiguous in situ (neither NEG-shift nor QR applies).

- (22) En. She has received no points
- i. Zero-quantification: “She scored zero points”
 - ii. Sentential negation: “She hasn’t got any points yet/She hasn’t been judged yet”

The same applies to Finland Swedish, at least in clauses with an auxiliary (cf. Bergroth 1917). In Finland Swedish, unlike standard Swedish as well as Danish, Faroese, Icelandic, and Norwegian, *ingen* follows the non-finite main verb.

¹⁰ Some Danish speakers get the same ambiguity reading as the Icelandic one in (17)b.

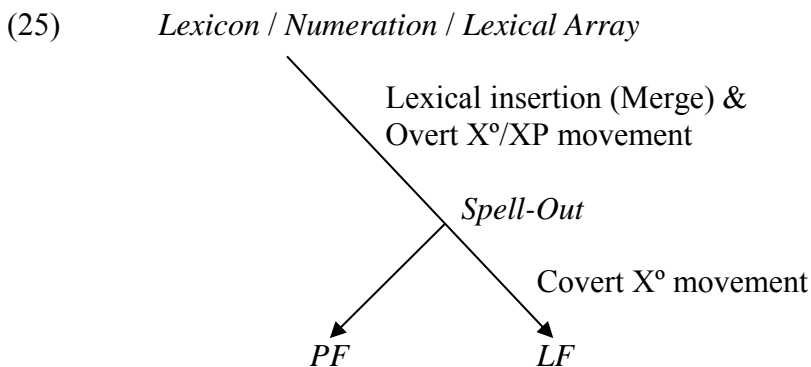


In German, *kein* is also potentially ambiguous but the positions are hard to pinpoint because of German OV word order and scrambling:

- (24) Ge. Sie hat keinen Punkt gekriegt
 She has no point received
- i. Zero-quantification: “She scored zero points”
 - ii. Sentential negation: “She hasn’t got any points yet/She hasn’t been judged yet”

5 Derivation by Phase

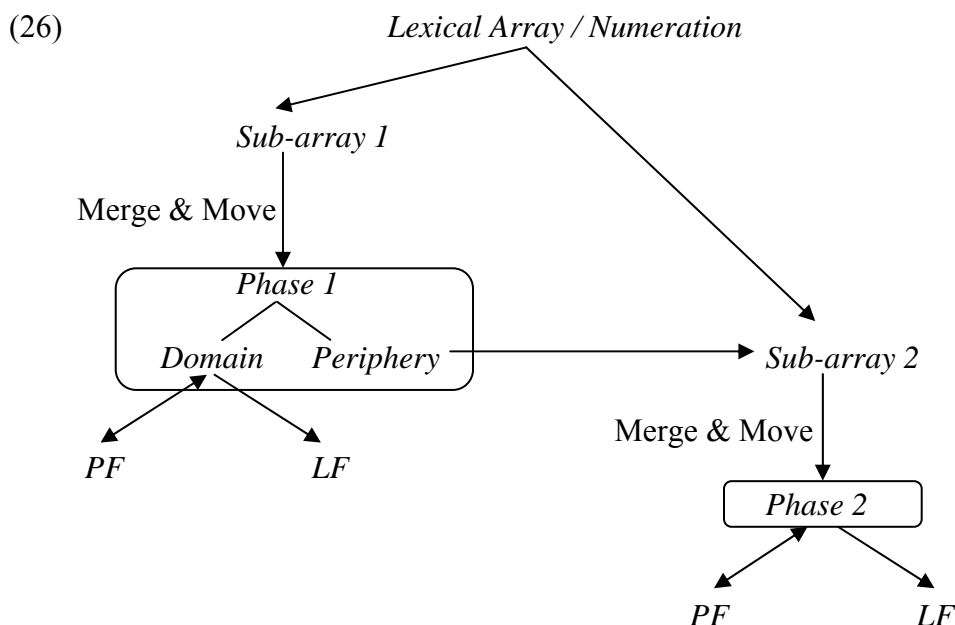
According to Chomsky’s (1995) *Minimalist Program*, QR is movement of a [quant] feature to “an appropriate host”, either T^0 or v^0 . Furthermore, covert (LF) movement (e.g. Chinese and Japanese *wh*-movement and QR in general, assumed to be adjunction to T) is restricted to X^0 movement of formal features.



In this framework elements move to have some uninterpretable feature checked, that is, the moved element gets a feature checked, not the target.

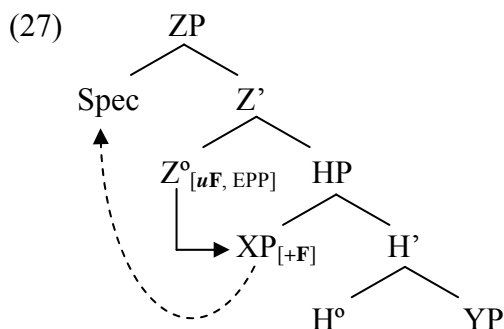
In *Derivation by Phase* (Chomsky 2001; see also the excellent account in Radford 2004, chapter 10), on the other hand, Chomsky dispenses with covert LF movement altogether and replaces it with long-distance probe-goal agreement. Below I adopt this approach and introduce a slight modification.¹¹

The derivation or structure building process proceeds in phases. The input for the derivation, the numeration or lexical array, is divided into sub-arrays which in turn are inputs for sub-derivations. CP, the discourse level (illocutionary force), and *v*P, the level of predication (argument structure, the “who did what to whom”), are strong phases. Once a phase is completed, the (c-command) *domain* is sent to PF encoding and is therefore not accessible for further syntactic computation. (In this model there are multiple Spell-Outs.) The *periphery* (specifier and phase X⁰) is available as part of another sub-array providing input to the derivation of another phase. The process continues until the (super-) array is emptied. The following illustration shows the derivation of a two-phase structure (the significance of the two-way arrows will become apparent):



¹¹ In fact, the analysis argued for below could also be argued for assuming an AgrOP projection headed by AgrO⁰_[uQuant] immediately above *v*P; that would avoid multiple specifiers at the cost of postulating agreement projections, cf. e.g. van der Wurff (1999). Chomsky (1995: 352) explicitly (and convincingly) abandons AgrOP in favour of a *v*P with multiple specs.

As opposed to the framework outlined in Chomsky (1995), derivation by phase is driven by uninterpretable features on the target, the *probe*, not the moving element, *the goal*. Furthermore, XP movement is only possible if there is a specifier to act as target, i.e. the probing head must have an EPP feature which licenses a spec-position (downward right-angled arrows indicate probing, upward curved dotted arrows indicate movement):



Z° has an unvalued feature [uF] which makes it a *probe*. It searches down its (c-command) domain for a matching feature [+/-F] for valuation (and deletion), i.e. a *goal*, and finds XP with [+F]. Z°'s [uF] is valued and deleted, and as Z° also has a spec-licensing EPP feature, it *attracts* XP which is then moved to Spec-ZP. Without the EPP feature, Z° and XP would enter into *long-distance agreement* without movement.

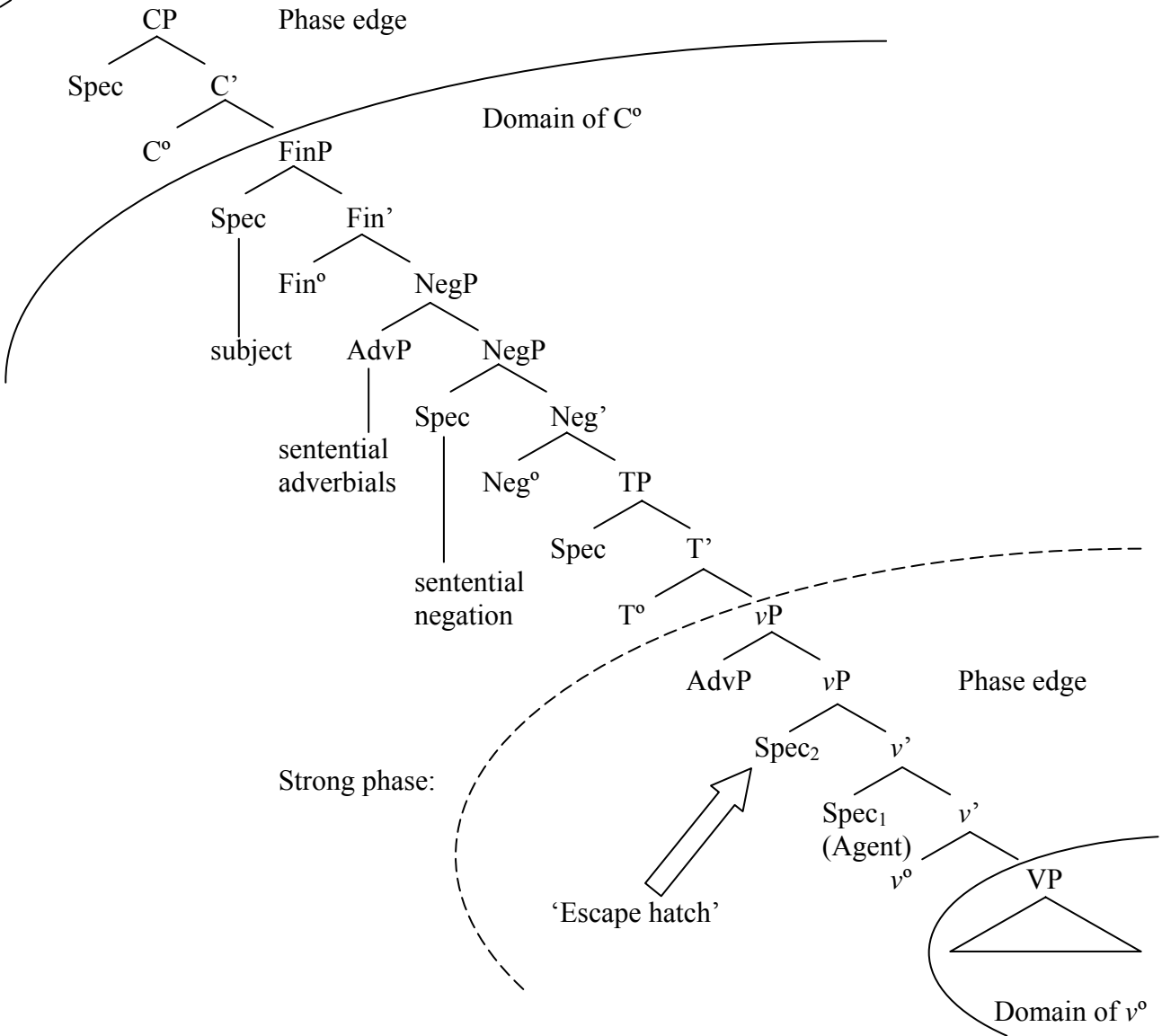
The *Phase Impenetrability Condition* (Chomsky 2001: 14, (11); see also Radford 2004: 382, (1)) states that only elements at the *periphery* of vP (specs and v°) are available for operations (Attract/Move or Agree) outside the vP phase (the same, of course, holds for the CP phase):

(28) **The Phase Impenetrability Condition (PIC)**

- a. $[_{ZP} Z \dots [_{HP} \alpha [_H YP]]]$
- b. The domain of H is not accessible to operations at ZP; only H and its edge are accessible to such operations.
- c. Elements at the edge of H are specifiers and H° itself. The domain of H is the c-command domain YP.
- d. CP and v*P (transitive vP) are strong phases.

(29)

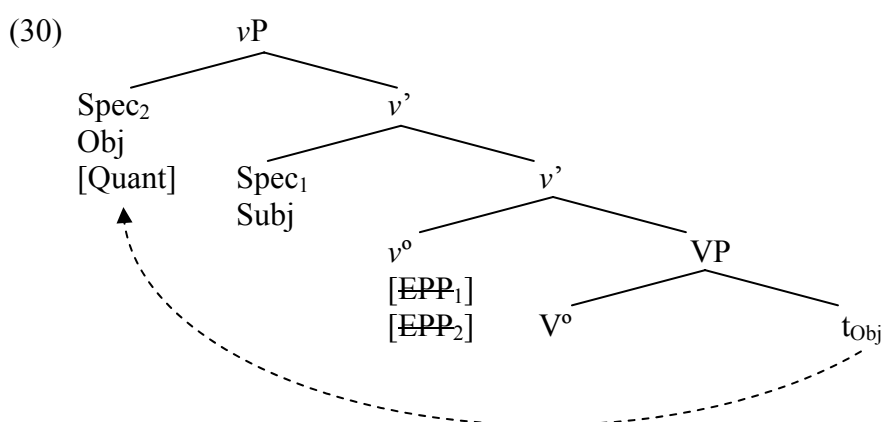
Strong phase:



6 Covert movement and feature checking

If unvalued (uninterpretable) features are not checked before reaching the interface levels of PF and LF (where they would have no interpretation), the derivation crashes or fails to converge. If a probe doesn't find a matching goal, (e.g. because it is inside the domain of a strong phase or because it is not part of the lexical array at all) the derivation crashes. Thus, to make elements within the domain of v° accessible to probes outside vP , such elements must move to the edge of vP .

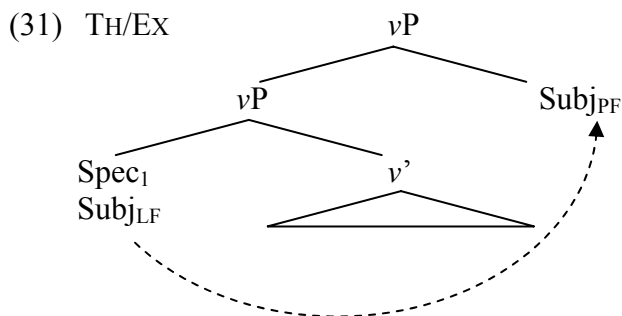
An EPP feature is inserted on v° as Last Resort to secure convergence. Hence, quantifiers must move to vP before T° is merged. Allowing for multiple specifiers, NEG-shifting quantifiers, e.g. French *rien*, Danish *ingen*, and (presumably) German *kein*, and quantifiers undergoing overt (optional or obligatory) QR, e.g. French *rien* 'no', *tout* 'all', *beaucoup* 'many', and Icelandic *margar* 'many' *ýmislegt* 'various' move to what must be a specifier above the one hosting the subject, i.e. the outer specifier of vP :



That this position is a specifier and not an adjoined position also follows from the fact that attraction / movement is only induced if the probe has an EPP feature licensing a spec position. Adjunction is therefore limited to Merge ("base-generation"). (This has serious consequences for the analysis of negative adverbials. I return to this below.)

What about the fact that quantifiers that don't move are ambiguous between wide and narrow scope, as e.g. some French and Icelandic quantifiers and all the English ones? I propose both a *revival* and a *revision* of covert movement such that overt QR is pied-piping of the phonological features and covert QR is stranding the phonological features.

It is a *revival* (I get back to the *revision* part) because it is contrary to Chomsky (2001) who explicitly states that it is the highest element of a chain that is spelled out. However, covert movement is not entirely abandoned because his rule for 'heavy-NP shift', TH/EX (*Thematization/Extraction*, Chomsky 2001: 20), is exactly such a rule that strips the PF features and leaves the covert formal feature bundle available for narrow syntax. For example, a heavy extraposed ("right dislocated") subject leaves a phonetically 'empty' subject (Subj_{LF}) that checks EPP on T° covertly. The dislocated subject consists only of phonological features (Subj_{PF}) and is not available for further operations in the narrow syntax.



- (32) En: a. Then a man came through the door
 b. *Then _____ came through the door a man
 b. Then _____ came through the door a man of immense proportions

The heavy part of a quantified object may also be subject to TH/EX (cf. also that in Old English, positive quantified objects could be extraposed while positive non-quantified and negative objects could not, cf. Pintzuk 2004; I return to Old English below). This accounts for the different degrees of acceptability in the following Danish examples showing a correlation between decreasing acceptability and increasing ‘heaviness’ (the same principle holds for Swedish, Elisabet Engdahl, p.c.):

- (33) Da. Jeg har [_{NegP} _____₁ [_{VP} fået t₁]]
 I have received
- a. ingen
 none
- b. ingen bøger
 no books
- c. ??ingen tykke bøger
 no thick books
- d. *ingen tykke bøger om generativ lingvistik
 no thick books about generative linguistics
- e. *ingen tykke bøger der handler om lingvistik
 no thick books which deal with linguistics

In Danish, TH/EX may apply to the ‘heavy’ PP part of the object (like French *beaucoup*, cf. (13) above) and (marginally) to the embedded CP, but not to the NP complement, while the negative quantifier *ingen* undergoes obligatory NEG (pied-piping its NP complement):

- (34) Da. a. *Jeg har [_{NegP} [ingen t_{NP}]₁ [[_{VP} fået t₁]]
 I have no received
 [_{NP} bøger om generativ lingvistik]]
 books about generative linguistics
- b. Jeg har [_{NegP} [ingen bøger t_{PP}]₁ [[_{VP} fået t₁]]
 I have no books received
 [_{PP} om generativ lingvistik]]
 about generative linguistics
- c. ?Jeg har [_{NegP} [ingen bøger t_{CP}]₁ [[_{VP} fået t₁]]
 I have no books received
 [_{CP} der handler om lingvistik]]
 which deals with linguistics

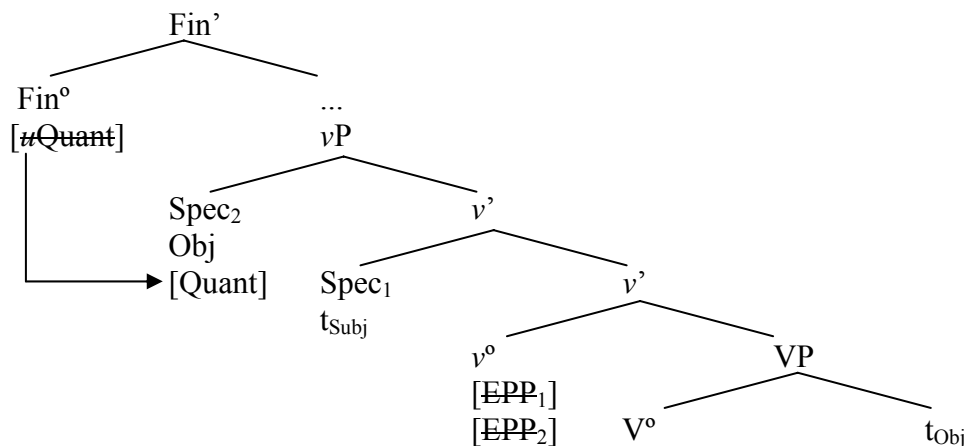
The same is true for Icelandic QR (Rögnvaldsson 1987, Svenonius 2000*b*, (14a-e)). Acceptability decreases as the objects gets longer/heavier. As (36) below and (8)b above show, PPs and CPs may be subject to TH/EX (judgments due to Hrafnbjargarson, p.c.):

- (35) Ic. Jón hefur [_{VP} _____₁ [_{v'} þurft að þola t₁]]
John has had to tolerate
- a. ýmislegt
various
 - b. ýmsa erfiðleika
various difficulties
 - c. ?ýmsa óhjákvæmilega erfiðleika
various unavoidable difficulties
 - d. *ýmsa erfiðleika sem voru óhjákvæmilegir
various difficulties that were unavoidable

- (36) Ic. ??Jón hefur [_{VP} [ýmsa erfiðleika t_{CP}]₁ [_{v'} þurft að þola t₁]]
John has various difficulties had to tolerate
 [_{CP} sem voru óhjákvæmilegir]
that were unavoidable

I assume QR (overt or covert) to be driven by an uninterpretable / unvalued (wide scope) quantifier feature [*uQuant*] on Fin^o (in accordance with the standard GB analysis of QR as adjunction to IP; however, [*uQuant*] may also be inserted on C^o if scope relations require so) and EPP on v^o inserted as Last Resort enabling the object to escape vP. In this way, QR reduces to long-distance agreement (for reasons of space I leave out NegP and TP; t_{Subj} is the trace of the subject which has moved to spec-TP):

(37) Overt QR:



Movement to spec-vP is just the ‘escape hatch’, which is also required in e.g. *wh*-questions and topicalization of non-quantified elements such as adverbials and PPs. For the same reason, I do not adopt Svenonius’ (2000*a*: 5, footnote 5) term *Case Shift* (adverbials and PPs do not have case) nor Chomsky’s (2001) *Object Shift*, which (as argued in section 2 above) is normally reserved for the object movement to a position above negation (which corresponds to Chomsky’s (2001: 30 and footnote 63) object shift + DISL (*Dislocation*), as also noted by Svenonius 2002).

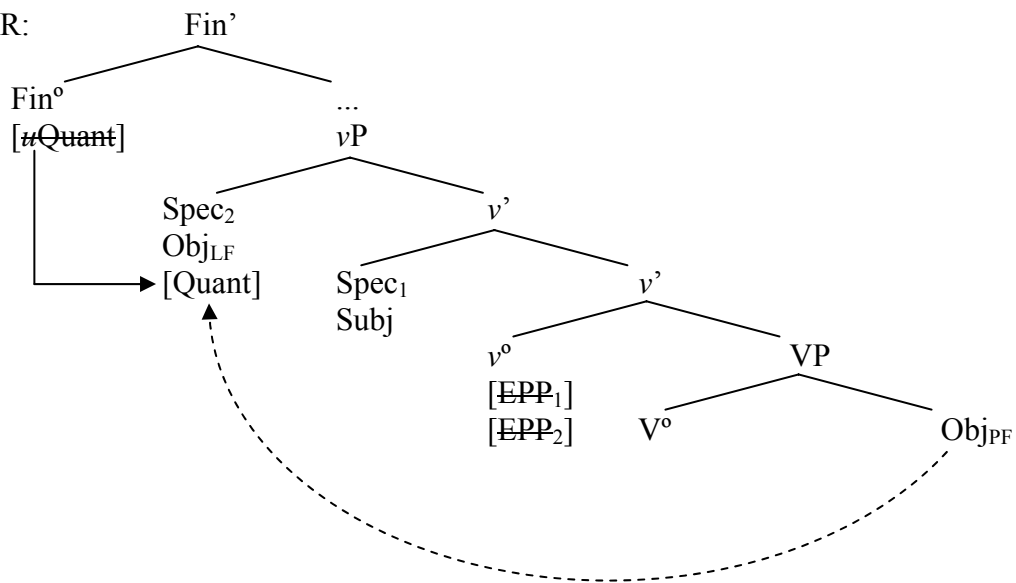
Placing [*uQuant*] on Fin^o also captures the fact that QR is strictly clause bound. The quantified object is not attracted to spec-CP and therefore it is not accessible to operations outside

an embedded CP. However, as illustrated in the following example (see e.g. the discussion in Haegeman 1995: 230), French *personne* is an exception as it can be associated with the negative head *ne* in the matrix clause and hence have matrix scope:

- (38) Fr. *Je ne demande [CP que la police arrête personne]*
 I not ask that the police arrest no one
 "I don't ask that the police arrest anyone."

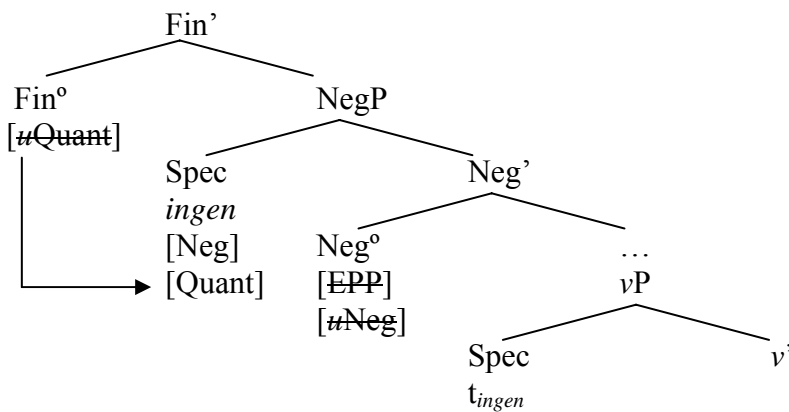
The *revision* of covert movement is that it only applies to operators (quantifiers, negation, and *wh*-elements) and that it is stranding rather than movement. Covert QR, as described above, moves the formal and semantic/LF features of the object (Obj_{LF}) to the edge of *v*P, stranding its PF features (Obj_{PF}) in the base-position, which then becomes the spell-out position. In the outer spec of *v*P the covert object is accessible to the probing T° (note that this is not the same as TH/EX):

- (39) Covert QR:

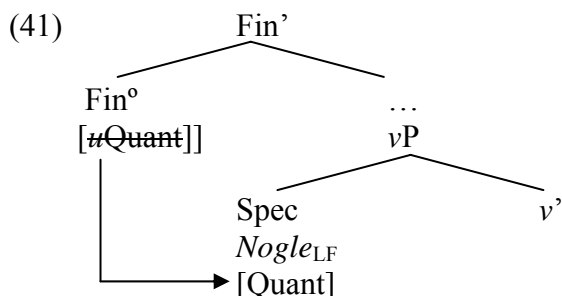


Danish *ingen* 'no(-thing/body)/none' licenses sentential negation and must be (or have a trace in case of subjects or topics) in spec-NegP, i.e. NEG-shift is obligatory. That means that it has checked EPP on Neg°. In this position it is also available as a goal for the [*u*Quant] probe on Fin°.

- (40)



Danish *nogle* ‘some’ is a PPI and therefore it is not attracted to a NegP which is not projected in positive clauses. Probe-goal agreement between [*uQuant*] on Fin° and *nogle* doesn’t induce movement, as the object covertly moved to spec-*vP* (stranding its PF features) is available for long-distance agreement.



French *tout* ‘all’, *rien*_{zero}, and *beaucoup* ‘many’ (and Danish *ingen*_{zero}, see above), moves overtly to spec-*vP* and stays there. For *tout* and *beaucoup*, this operation is optional as they may also remain in situ.

7 Old English

Pintzuk & Taylor’s (2004) quantitative analysis of Old English shows that in the history of English, *negative objects*, *quantified objects* and *positive objects* do not have the same distribution: OV word order changes to predominant VO with positive (non-quantified, non-negative) objects before quantified objects, which in turn changes to OV before negative objects do. In other words, NEG-shift applies longer in English than QR does, and OV (and scrambling) with positive objects disappears first. “Van der Wurff (1999) made the important observation that the change from OV to VO did not affect all objects at the same time: negative and quantified objects continued to appear in pre-verbal position in Early Modern English, after non-negative non-quantified (henceforth ‘positive’) objects were all post-verbal” Pintzuk & Taylor (2004: 138). (The generalization in (42) doesn’t apply to movement to CP.)

(42) **Base-generation / scrambling** > **QR** > **NEG-shift** > **Strict VO**
 [+/-Quant, +/-Neg] [+Quant, (+/-)Neg] [+Quant, +Neg]

Old English > *Middle English* > *Modern English*

This is captured in my analysis. NEG-shift targets a position higher than QR and is driven a feature different from the one driving QR (the order in (42) is the reverse of the c-command relations between the target positions of the three movement types, namely, VP, *vP*, and NegP, respectively, cf. (29) above). It seems that VO order (head-compl) becomes fixed in a step-wise manner from the bottom up.

This also show that NEG-shift cannot be a subcase of QR which is otherwise argued by Svenonius (2000): both are scope-driven. In fact, Rögnvaldsson (1987: 37) also states that in Icelandic, “the more negative quantifiers have a stronger tendency to precede the VP than the more

positive ones [...]. This is of course also to be expected, since only the negative ones can be preposed in the other Scandinavian languages. But perhaps we can say that we have here two different tendencies; on one hand a tendency to prepose negatives [i.e. NEG-shift], and on the other hand a tendency to prepose quantifiers [i.e. QR].”¹²

“Under his analysis, the change in the beginning of the 15th century [in Old English] was [...] simply the loss of whatever mechanism derived pre-verbal positive objects” (Pintzuk & Taylor 2004: 139).

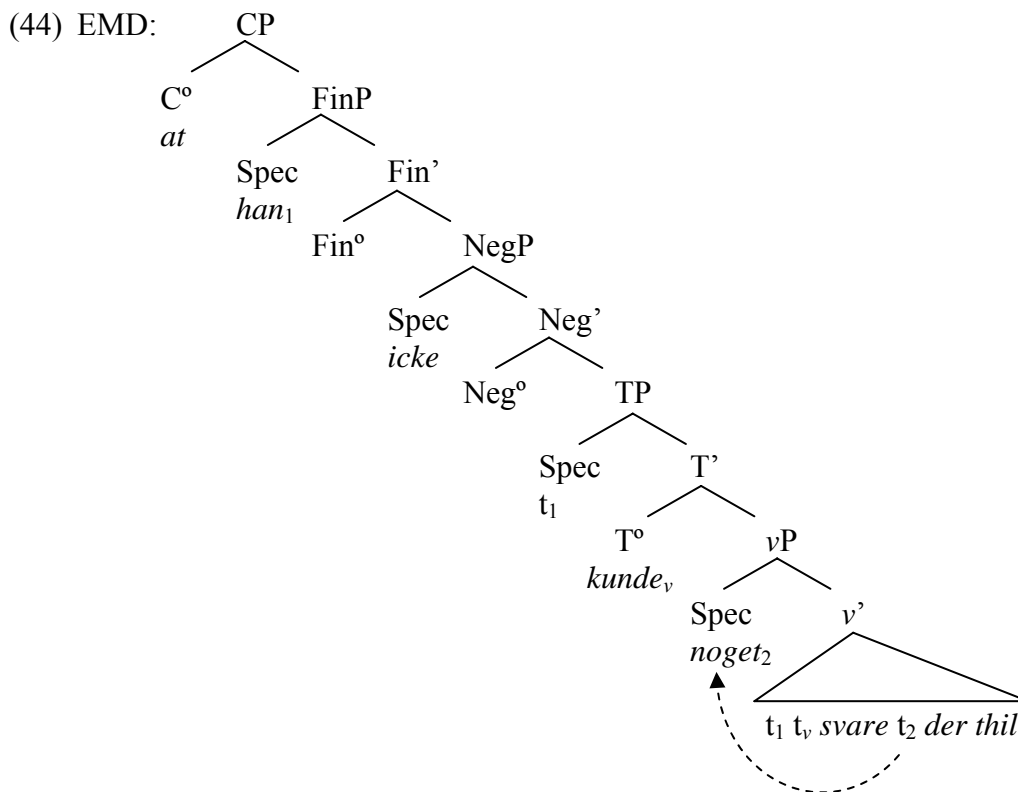
In the Old English period, “the shorter the object, the more likely it is to appear pre-verbally” (Pintzuk & Taylor 2004:142). In other words, the weight principle is also at work here forcing movement to be covert. (The text doesn't say whether stranding of complements, or rather application of TH/EX, was possible.) Furthermore, in Old English and Old Norse (Rögnvaldsson 1987), QR and NEG-shift were optional in their overt versions (as far as it is possible to tell; there are no speakers to get scope judgements from). It could be taken to show that ‘weight’ and hence TH/EX could apply to the whole quantified object, and not just the complement of the quantifier (or the NP selected by the quantifier), cf. that Pintzuk & Taylor (2004) argues that Old English allowed rightward movement of negative and quantified objects.

Another interesting example comes from Early Modern Danish in (43) below. Note that the quantifier *noget* (the neuter form of *nogen*) precedes the main verb which shows that the object has undergone QR:

- (43) EMD. at han icke kunde noget svare der thil
 that he not could anything answer there to
 (1552-1572, Abs. Ped., Falk & Torp 1900: 127)

The finite auxiliary has moved to T° above vP as it precedes the QR'ed object:

¹² What remains to be explained is why quantified objects that are also NPI more frequently undergo QR than positive ones. One possible solution would be to adopt a version of the NEG-criterion (negative operators must be in spec-head with Neg°, Haegeman & Zanuttini 1991) such that Neg° has EPP for two specifiers, one for negation and one for the NPI quantifier. The NPI is attracted by Neg° to the inner spec of NegP because of identity in [*u*Neg]. When negation is merged as the outer spec of NegP, it values and deletes [*u*Neg] on both Neg° and the NPI. In this way, the NPI (though phonetically empty as the PF features are stranded in spec-vP or even inside VP), is still c-commanded by and thus in the scope of negation which gives the proper licensing and interpretation. However, solution has several serious problems: (a) NPI movement is rather spurious, as attraction is otherwise dependent on valuation and EPP, not identity in unvalued features; (b) the base-position of the negative adverbial is also problematic, see section 10 below; (c) multiple specifiers are only licensed at the edge of strong phases and NegP is not a strong phase.



There are two interesting movements here: 1) an intermediate step between V°-to-I° (V°-to-Fin°) movement, which is found in Middle Danish and Icelandic, and verb in situ as in Modern Danish; and 2) the object has undergone overt QR, which is not possible in modern Danish. Old Norse also generally allowed OV word order (or had a double base), which is lost in Early Modern Danish which still allows QR. Now NEG-shift appears to be on the retreat (see footnote 1 above), which leads to generalized VO.

8 Outline of a Typology of Quantifiers

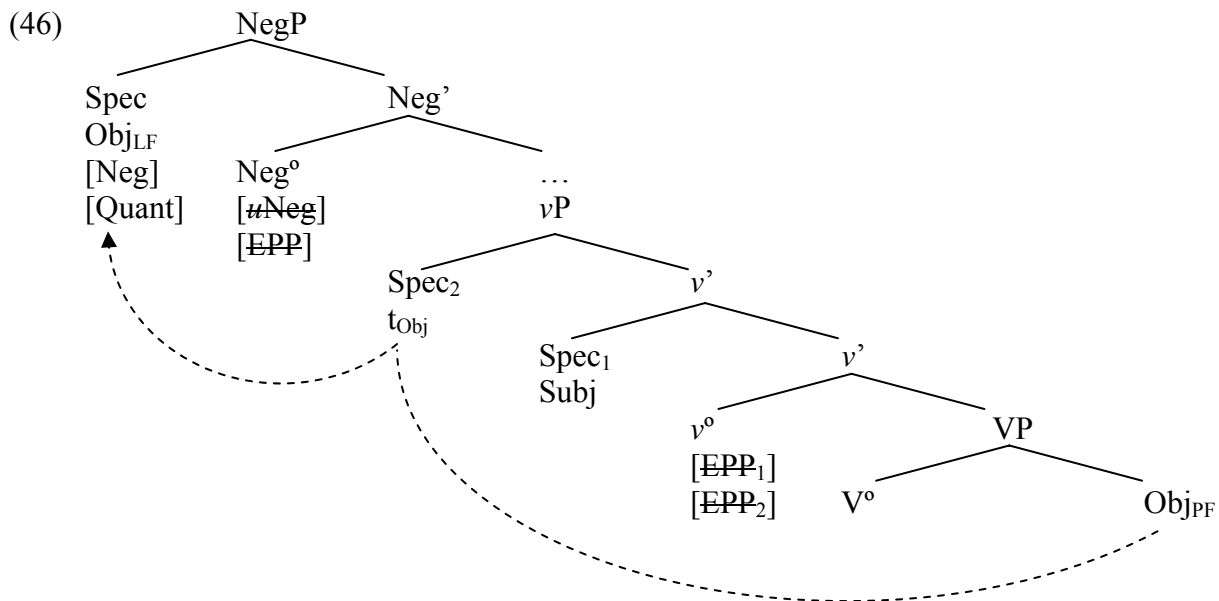
The analysis presented above leads to the following (incomplete) ‘typology’ of quantifier movement:

(45)

	NEG-shift (to spec-NegP)	Obligatory QR (to spec-vP)	Optional QR (to spec-vP)
Overt	Da. <i>ingen</i> Fr. <i>rien</i> Ge. <i>kein</i> Ic. <i>enginn</i>	Fr. <i>rien</i> _{zero}	Fr. <i>tout, beaucoup</i> Ge. <i>kein</i> _{zero} Ic. <i>fáir, enginn</i> _{zero} , <i>margin, neinn, ýmislegt</i>
Covert	En. <i>no</i> _{neg} FS. <i>ingen</i> _{neg} Fr. <i>aucun, personne</i>		Da. <i>nogen, nogle</i> En. <i>any, some</i> FS. <i>ingen</i> _{zero}

Covert movement only applies to elements that have wide scope but cannot move (e.g. English) or to elements that that can be ambiguous in situ and optionally move.

English *no* and Finland Swedish *ingen* are special cases, typologically speaking, as the negative quantifiers don't move overtly to spec-NegP. They are always spelled out in a post-main-verb position (in Finland Swedish, *ingen* may indeed move overtly, though string-vacuously, to spec-NegP when the main verb is in V2 position, though there are no empirical evidence to show either way). If the uninterpretable / unvalued [*uNeg*] on Neg° is not valued, sentential negation is not licensed and the derivation crashes. Therefore, the set of formal / LF features of the negative object moves to spec-*vP* where it is an accessible goal for [*uNeg*] probe. The EPP feature on Neg° induces (covert) movement of Obj_{LF} to spec-NegP where it is the goal of the Fin°_[*uQuant*] probe once it is merged above NegP, cf. (40) above:



Note that French *rien_{zero}* is also a special case. It's the only zero-quantifier (not sentential negation) that undergoes obligatory movement to spec-*vP* in the languages in question (Icelandic *engin* may optionally move). The other zero-quantifiers stay in situ (LF as well as and PF features), as they don't have sentential scope. If it is assumed that narrow scope is determined by a [*uQuant*] feature on *v*°, the quantifiers can enter into probe-goal agreement in situ as there is no intervening phase boundary. The question remains for future research why French *rien_{zero}* moves to spec-*vP*.

The [*uQuant*] feature can be inserted on Fin° (wide scope) or on *v*° (narrow scope), or in case a quantified object has to scope over a quantified subject, on C°. Likewise, a [*uWh*] feature may be inserted together with an EPP on C° in 'normal' *wh*-questions, or without the EPP on *v*° in echo-questions. In 'normal' *wh*-questions in Danish, French, and English, the *wh*-element obligatorily moves overtly to spec-*vP* and from there to spec-CP. In French main clauses (but not in embedded clauses), *wh*-elements may sometimes optionally move covertly to spec-CP via spec-*vP*.

- (47) Fr. a. [_{CP} Tu as [_{VP} vu qui]]?
 b. [_{CP} Qui₁ tu as [_{VP} t₁ vu t₁]]?
 who you have seen? (Haegeman 1995: 101, (70a, b))

In Chinese and Japanese, it moves covertly to spec-*vP* and to spec-CP. (Note that Japanese is an OV language.)

(48) Ch. [_{CP} C°_[+WH] [Zhāngsān kàn shéi]]?
Zhangsan see who
 “Who did Zhangsan see?” (Comrie 1989: 64)

(49) Ja. [_{CP} [John-wa [_{VP} nani-o kaimashita]] ka]?
John-TOPIC what-NOM bought Q
 “What did John buy?” (Poole 2002: 170, (3))

C° may then have two EPP features, which is not possible in V2 languages but found in many non-V2 languages, such as Bulgarian, Chinese, Czech, Hungarian, Japanese, Polish, Romanian, Russian, Serbo-Croatian, etc. (see Haegeman 1995: 102 and references cited there). Note that the licensing of multiple specifiers may be a property of strong phase heads only: other positions are available for long-distance agreement *within* a strong phase.

This leads to a similar typology of operator movement to spec-CP:

(50)

	Obligatory <i>wh</i>-movement (to spec-CP)	Optional <i>wh</i>-movement (to spec-CP)
Overt	Da. <i>Hvem</i> En. <i>who</i> Fr. <i>qui</i> Ge. <i>Wer</i>	Fr. <i>qui</i>
Covert	Ch. <i>shéi</i> Ja. <i>Nani</i>	

9 Summary

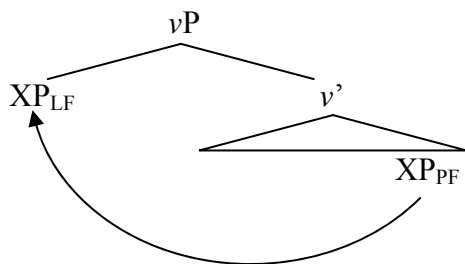
It is important to note that covert movement, i.e. stranding of PF features, is **only possible with operators**. Heads move *if and only if* the probe is ‘strong’ (that is, affixal or incorporating), nominals, NPs and DPs, move *if and only if* the probe has an EPP feature (and if there is no expletive available in the numeration; note that this also means that there is no movement of the associate to replace the expletive or to adjoin to it at LF). Operator movement has **significant influences on interpretation**, which is not the case for head movement. When operator movement is blocked, operators are (sometimes) ambiguous in situ, indicating covert movement. This exception to the collapse of covert and overt movement, an apparent ‘imperfection’ of the computational system, is thus **empirically motivated and constrained to operators**.

QR and NEG-shift are driven by semantic interpretation (and feature valuation and EPP checking) and is obligatory and universal (cf. the *Uniformity Principle*). It must take place, overtly or covertly, to ensure convergence. The choice between overt movement (pied piping of PF features) and covert movement is a question of parameter setting (cf. also the difference between scrambling and object shift where only the latter is subject to prosodic constraints). Thus, **overt** operator movement itself is not driven by syntactic or semantic requirements; it is motivated by what might be prosodic constraints, that is, requirements for PF convergence. Strictly speaking, this is a departure from what is standardly associated with PF, namely, morphology. However, the proposal does not entail movement in the PF component. Furthermore, it does seem to be a paradox that phonetic requirements depend on syntactic notions such as c-command, but in fact it isn’t. All

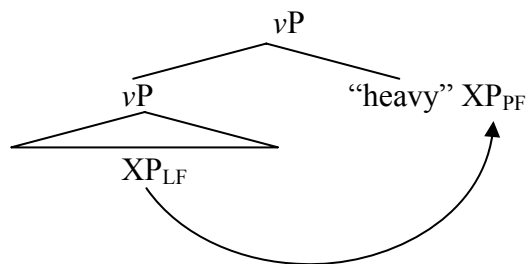
movement is subject to syntactic constraints (e.g. x-bar structure, the *Extension Condition*: movement and structure building are always upwards, *Economy of Derivation*: movement is always last resort, etc.). There is only movement in the narrow syntax ($N \rightarrow \lambda$); there is no “PF movement”. However, movement may be triggered for phonological and/or prosodic reasons. Pied-piping of PF features is motivated by prosodic constraints which are applied in parallel with syntactic constraints (as indeed proposed by Ralf Vogel (2003) for pronominal object shift and scrambling). Post-Spell-Out operations in the PF component are strictly morphological and phonological. It is important to stress that both overt and covert movement are **syntactic**, not phonological, processes, i.e. instances of the process of Move (as opposed to Merge), which is a central process of narrow syntax.

There are two different motivations for covert movement: (i) **PF-stranding** which is involved in covert movement of quantifiers, *wh*-elements, negative objects,¹³ and (ii) **TH/EX** which extracts and right-adjoins phonologically heavy elements, e.g. “heavy NP shift” of subjects, and extraction of heavy complements of quantifiers, leaving the formal feature bundle for further syntactic processing.

(51) (i) PF-Stranding



(ii) TH/EX



10 The Base-position of Negation

The theory of valuation as outlined in section 5 above is based on c-command: The unvalued feature probes within its c-command domain for a matching goal to value it. However, this leads to a problem with the negation marker and the valuation of $[uNeg]$ on Neg^0 . Merging the negation marker, e.g. *ikke* ‘not’, as spec-NegP will place it outside the domain of Neg^0 and it will not be available as a valuating goal for $[uNeg]$.¹⁴

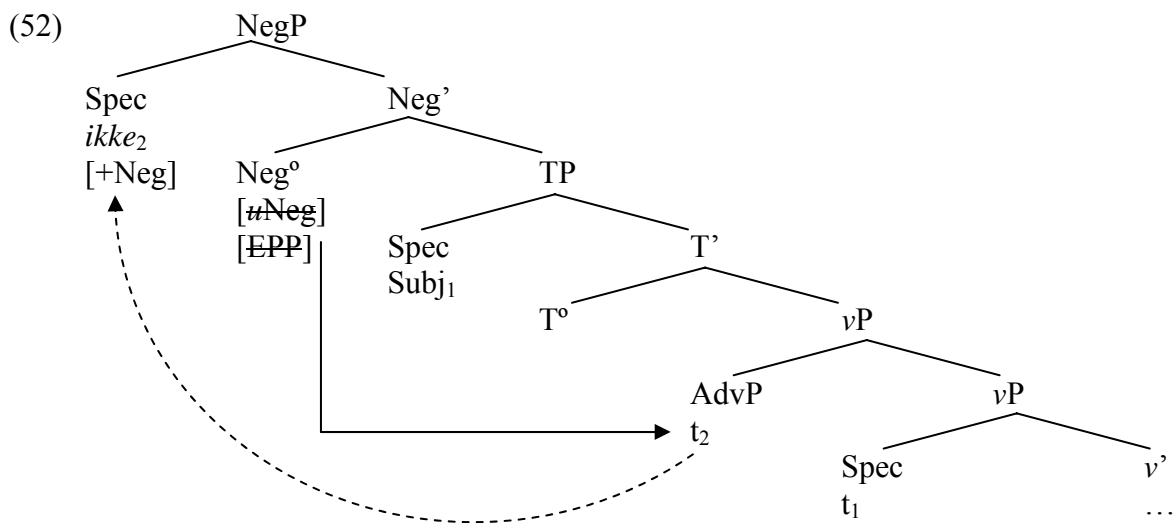
The problem could be solved by having two version of Neg^0 . The convergence requirement ensures that Neg^0 in numerations with *not* (and its equivalents in the other languages), has a valued, and therefore non-probing, $[+Neg]$ feature. The unvalued $[uNeg]$ feature is inserted on *not*. This is the mirror image of what happens with negative objects and is clearly *ad hoc*.

What I propose instead is that the negative adverb *ikke* is merged as an adjunct of vP (or some other projection below NegP, or possibly as the specifier of some functional projection), where it is

¹³ The same may also be the case for German scrambling and Icelandic object shift of definite full DPs. The availability of PF-stranding depends on how Holmberg’s Generalization is parameterized.

¹⁴ The only spec-head checking that is possible is one that doesn’t require valuation, namely, EPP checking. The EPP merely requires the specifier to be filled by a nominal XP.

inside the domain of Neg^o. [*u*Neg] on Neg^o probes for a valuating match and finds *ikke*, and the EPP on Neg^o attracts it to spec-NegP.



This accounts for the parallel between *aldrig* ‘never’ and other adverbials related to time or frequency (or manner or place), which are adjoined lower and can (and sometimes must) be sentence-final (possibly right-adjoined to vP); also, the conditional *under ingen omstændigheder* ‘under no circumstances’ would be generated low on a par with *under visse omstændigheder* ‘under certain circumstances’ and subsequently attracted to spec-NegP.

(53) Da. a. Jeg har aldrig været i Norge (*aldrig)
 I have never been in Norway

b. Jeg har (?i en uge) været i Norge i en uge
 I have in a week been in Norway in a week
 “I’ve been in Norway for a week.”

(54) Da. a. Jeg kan under ingen omstændigheder løbe hurtigere end dig
 I can under no circumstances run faster than you

b. *Jeg kan løbe hurtigere end dig under ingen omstændigheder

c. Jeg kan under visse omstændigheder løbe hurtigere end dig
 I can under certain circumstances run faster than you

d. Jeg kan løbe hurtigere end dig under visse omstændigheder

Adverbs are merged in the positions corresponding to their scope, i.e. adjoined to vP (“VP-adverbials”) or NegP/TP (sentential adverbials). Negative adverbials, however, must be merged low in the domain of Neg^o in order to be able to value Neg^o and check the EPP. Merging a negative adverbial directly as spec-NegP would delete the EPP feature but leave Neg^o unvalued and the derivation would crash.

This analysis can also account for the scope differences associated with the different orders of subject and negation in Norwegian and Swedish. Eide (2002) shows that these two languages allow adverbials to either precede or follow the subject. When negation follows the subject, the scope of negation is ambiguous:

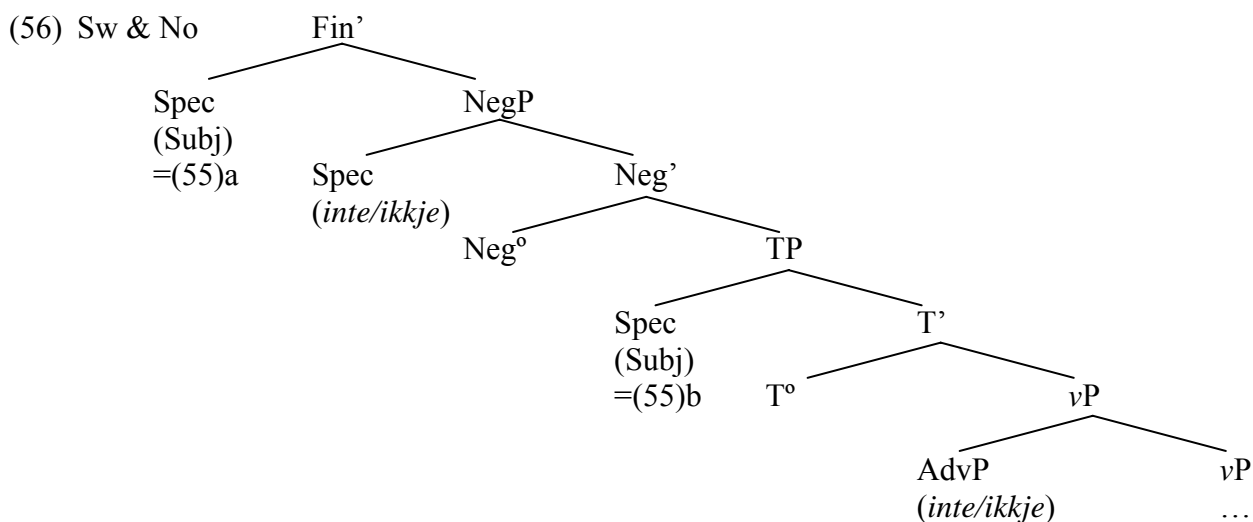
(55) No. a. *Dermed kan medisinen ikke virke.*
Thus can medicine-DEF not work
 “Thus, the medicine can not work” (ambiguous: possible-not /not-possible)

b. *Dermed kan ikke medisinen virke.*
Thus can not medicine-DEF work
 “Thus, the medicine cannot work” (unambiguous: not-possible)

(Eide 2002: 225, (1a, b))

Instead of allowing multiple adjunction sites for negation (and other adverbials), what I propose is that the subject can occupy two positions, namely, spec-TP and spec-FinP. Spec-TP is a potential floating site for subject quantifiers, which shows that the subject moves through it on the way to spec-FinP, the canonical subject position.

When the subject is in spec-FinP, it precedes negation as in (55)a. The difference between having negation in spec-NegP, which gives the wide-scope (sentential negation) reading and having negation adjoined to *v*P, which gives the narrow-scope reading, is string-vacuous. Hence, the string is ambiguous. If, on the other hand, the subject is in spec-TP, as in (55)b, which is between NegP and *v*P, the ambiguity dissolves. If negation precedes the subject, it must be in spec-NegP and have sentential scope.



In addition, this approach fits with that of Cormack & Smith (2002) who argue that there are three negative projections, one adjoined to VP (like other VP-adverbials), one is NegP, and the third is a meta-negation (“echo-negation”) in the CP-domain. The first (VP-adjunction) and the third (CP) are built by Merge, while the second, i.e. spec-NegP in the present case, is filled by movement in order to value Neg°, check the EPP (which by this account is always present on Neg°), and give the right scope relations, viz. sentential negation.

There are thus only two instances where adverbials are not inserted in their scope positions: (i) negatives, which need to be c-commanded by Neg° to enable valuation of [*μ*Neg], and (ii)

adverbials with scope wider than the IP-domain, which must be topicalized¹⁵ and this is possible because C° has an EPP feature licensing a specifier.

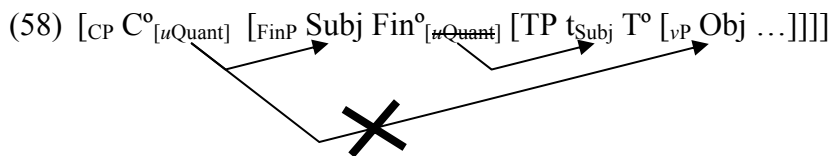
11 A remaining problem

The analysis applies to quantified subjects as well, except that they don't need to move to the edge of vP because they are merged there to begin with. Problems arise when both subject and object are quantified because if the object is to scope over the subject the *Minimal Link Condition* (Locality/Relativized Minimality) will have to be violated.

(57) Minimal Link Condition (MLC)

K attracts α on if there is no β , β closer to K than α , such that K attracts β .
(Chomsky 1995: 311, (110))

The quantified subject is in spec-TP when Fin° with [μ Quant] is merged, and thus the subject is the closest match and goal for the probe which attracts to check the EPP feature. However, the subject will also be the closest match for the probing [μ Quant] on C°. The quantified object in spec-vP is inaccessible under the MLC.



¹⁵ Generally, nothing can be inserted into CP, only movement can fill positions in CP. There are a few exceptions to this, namely, complementizers in C° (signalling embedding) and empty question operators in spec-CP in *yes/no* questions.

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