

# Quantifiers and Phases

## 1 NEG-shift and Object Shift

All the Scandinavian languages (as well as many other languages) have what I call **NEG-shift** – the overt movement of indefinite quantified negative objects to a pre-verbal position (Christensen 2003, 2004).<sup>1</sup> The target of this movement is generally assumed to be spec-NegP and it is obligatory in order to license sentential negation (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:

- (1) Da. a. \*Jeg har faktisk [<sub>NegP</sub> [<sub>VP</sub> set ingenting<sub>1</sub> ] ]...  
b. Jeg har faktisk [<sub>NegP</sub> ingenting<sub>1</sub> [<sub>VP</sub> set t<sub>1</sub> ] ]...  
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.<sup>2</sup> Unlike object shift, NEG-shift is not subject to *Holmberg’s Generalization* (HG, Holmberg 1986, 1999; Vikner 1989):<sup>3</sup>

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

- (3) Da. a. \*Jeg har den<sub>1</sub> faktisk ikke [<sub>VP</sub> set t<sub>1</sub> ]  
I have it actually not seen  
b. Jeg så<sub>v</sub> den<sub>1</sub> faktisk ikke [<sub>VP</sub> t<sub>v</sub> t<sub>1</sub> ]  
I saw it actually not  
c. Så<sub>v</sub> du den<sub>1</sub> også [<sub>VP</sub> t<sub>v</sub> t<sub>1</sub> ]?  
Saw you it also?

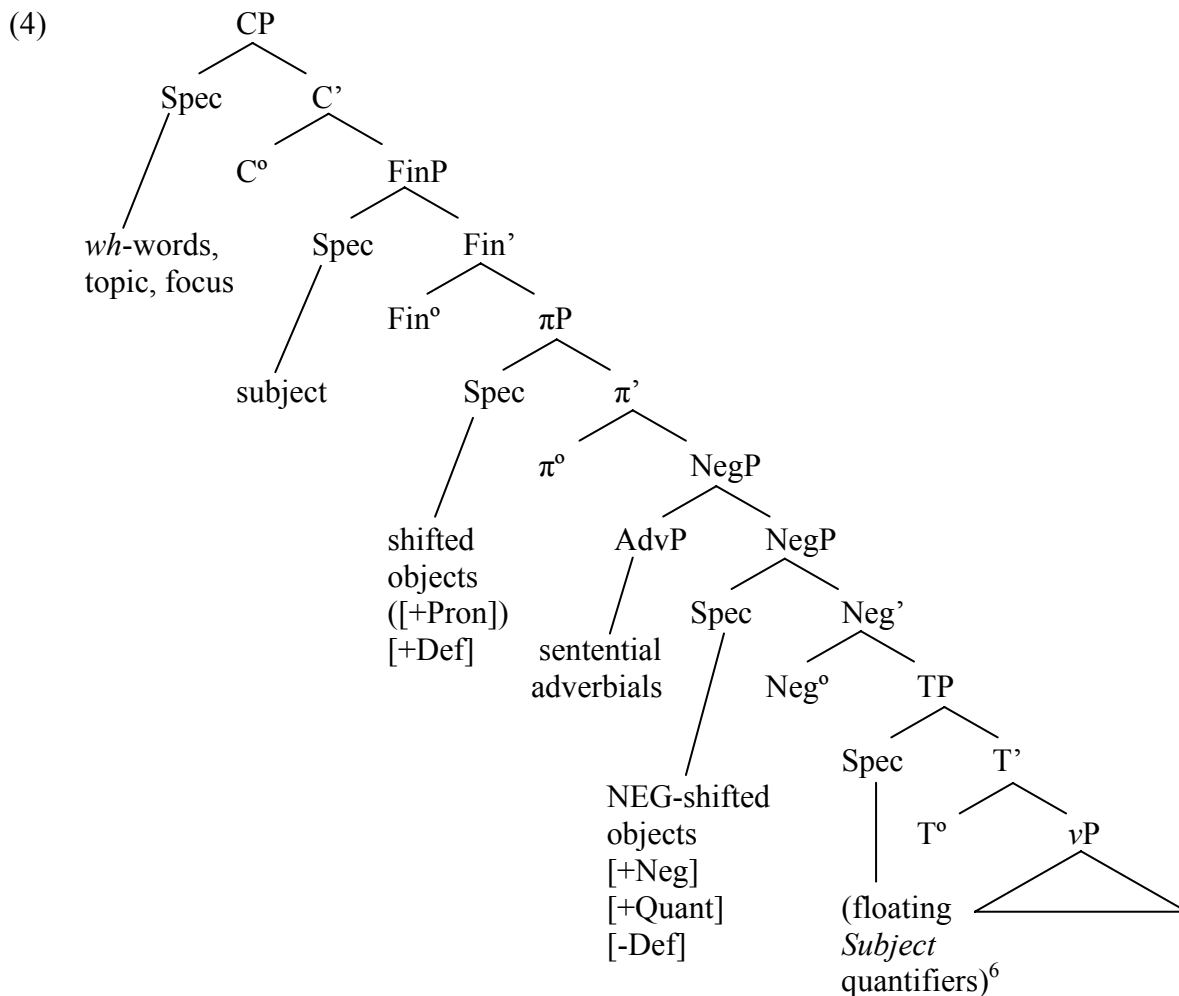
<sup>1</sup> In modern spoken Norwegian NEG-shift is only possible in the string-vacuous version where the main verb is V2 position; it never applies across the main verb (Svenonius 2002). It is, however, still possible in written Norwegian. The same tendency appears to be present in Danish as well, 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).

<sup>2</sup> 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.

<sup>3</sup> In spoken Norwegian, NEG-shift is subject to HG (see footnote 1). Arguably, the same is the case in English.

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.<sup>4</sup>

As illustrated in the following tree, there are no further available specifier positions above vP. Note also that unlike pronominal object shift, NEG-shift is independent of prosody (stress), and unlike Icelandic full-DP object shift, it's independent on definiteness as negative quantifiers are inherently indefinite:<sup>5</sup>



<sup>4</sup> 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.

<sup>5</sup> 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.

<sup>6</sup> For some reason, when the object is an indefinite quantifier, say, *ingen*, the subject cannot be a universal quantifier too, and therefore floating quantifiers (FQs) don't co-occur with NEG-shift: *\*Alle har ingenting fået* 'Everybody didn't get anything', *\*De har ingenting alle fået* 'Lit.:\*They have nothing all gotten', but *Alle har fået ingenting*

## 2 Quantifier movement

In Icelandic, unlike 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*):

- (5) Ic. a. Jón hefur [v<sub>P</sub> þurft að þola ýmislegt ]  
 b. Jón hefur [ýmislegt<sub>1</sub> [v<sub>P</sub> þurft að þola t<sub>1</sub> ]]  
*John has various had to tolerate*  
 (Rögnvaldsson 1987, (25))

- (6) Ic. a. Hún hefur ekki [v<sub>P</sub> lesið margar af bókunum ]  
 b. ?Hún hefur ekki [margar<sub>1</sub> [v<sub>P</sub> lesið t<sub>1</sub> 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 is indefinite and 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.

In French, “strong” quantifiers also 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.<sup>7</sup>

- (7) Fr. a. Je n’en ai [v<sub>P</sub> trouvé aucun ]  
 b. \*Je n’en ai [aucun<sub>1</sub> [v<sub>P</sub> trouvé t<sub>1</sub> ]]  
*I NEG-of.them have none found*  
 “I haven’t found any.” (cf. Confais 1978: 135)

- (8) Fr. a. Je n’ai [v<sub>P</sub> vu personne ]  
 b. \*Je n’ai [personne<sub>1</sub> [v<sub>P</sub> vu t<sub>1</sub> ]]  
*I NEG-have nobody seen*  
 “I haven’t seen anybody.” (cf. Confais 1978: 135)

- (9) Fr. a. \*Pierre n’a [v<sub>P</sub> mangé rien ]  
 b. Pierre n’a [rien<sub>1</sub> [v<sub>P</sub> mangé t<sub>1</sub> ]]  
*Pierre NEG-has nothing eaten*  
 “Pierre didn’t eat anything.” (cf. Nølke 1997: 234)

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‘Everybody got nothing (zero)’. FQs induce a freezing effect and NEG-shift is blocked and only narrow scope readings (zero quantification, see below) are possible: *Har de alle ingenting fæit* (\**overhovedet*)? ‘Did they all get nothing?’ (\*Did they all not get anything at all?); the FQ *alle* is in spec-TP and the NegQP in spec-vP (see section 4) and there is no (sentential) NegP and the sentence is synonymous with *Har de alle fæit ingenting* (\**overhovedet*) ‘Did they all get nothing (i.e. zero) (\*at all)’, where the NegQP is in situ. With a *wh*-subject, however, things are better: *Hvem har* (??*alle*) *ingenting fæit overhovedet*? ‘Who didn’t (all) get anything at all? Here the problem appears to be one of co-reference between the *wh*-element and the quantifier: both refer to the whole set of referents and compete for scope.

<sup>7</sup> According to Haegeman (1995: 231) Genevan French, unlike standard French, also allows *personne* to move across the verb.

- (10) Fr. a. J'ai [vP vu tout ]  
 b. J'ai [tout<sub>1</sub> [vP vu t<sub>1</sub> ]]  
*I-have all seen*  
 "I have seen everything" (Haegeman 1995: 231, (87))

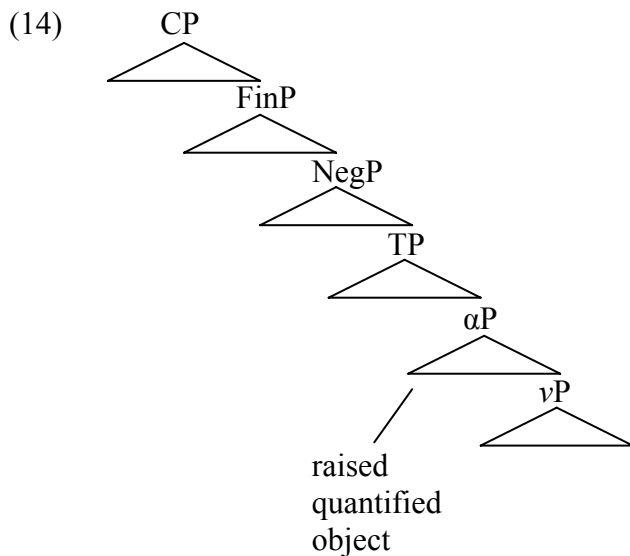
- (11) Fr. a. Il a [vP consulté beaucoup de livres]  
 b. Il a [beaucoup<sub>1</sub> [vP consulté t<sub>1</sub> de livres]]  
*He has many consulted of books*  
 "He consulted many books." (Rizzi 1990: 12, (27))

In Polish, according to Dornisch (2000), negative objects must move to a preverbal position (i.e. obligatory NEG-shift, though to some speakers it is optional, hence the % mark) and the same goes for non-negative quantifiers (i.e. QR; (12)a and (13)a are acceptable with heavy focal stress on the object):

- (12) Po: a. %Anna [NegP [Neg° nie widziała<sub>v</sub>] [vP t<sub>v</sub> nikogo ]]  
 b. Anna nikogo<sub>1</sub> [NegP [Neg° nie widziała<sub>v</sub>] [vP t<sub>v</sub> t<sub>1</sub> ]]  
*Anna nobody NEG saw*  
 "Anna didn't see anybody" (Dornisch 2000: 52, (8))

- (13) Po: a. \*Anna [TP widziała<sub>v</sub> [vP t<sub>v</sub> coś ]]  
 b. Anna coś<sub>1</sub> [TP widziała<sub>v</sub> [vP t<sub>v</sub> t<sub>1</sub> ]]  
*Anna someone saw*  
 "Anna saw someone" (Dornisch 2000: 52, (9))

This shows that some quantifiers undergo overt QR to some pre-verbal position, say,  $\alpha$ P, in French, Icelandic, and Polish (and in many other languages, such as Hungarian). (I leave out the target projection for object shift throughout.)



Below I argue that this  $\alpha$ P is in fact neither a separate projection nor an adjoined position; rather, the target of QR is the topmost specifier of vP.

### 3 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<sub>neg</sub>*, and zero-quantification (narrow scope, ‘trifling’ negation (Svenonius 2002)), *rien<sub>zero</sub>* (Eric Mathieu, p.c.). (If *rien<sub>zero</sub>* is the complement of a preposition, movement is blocked.)

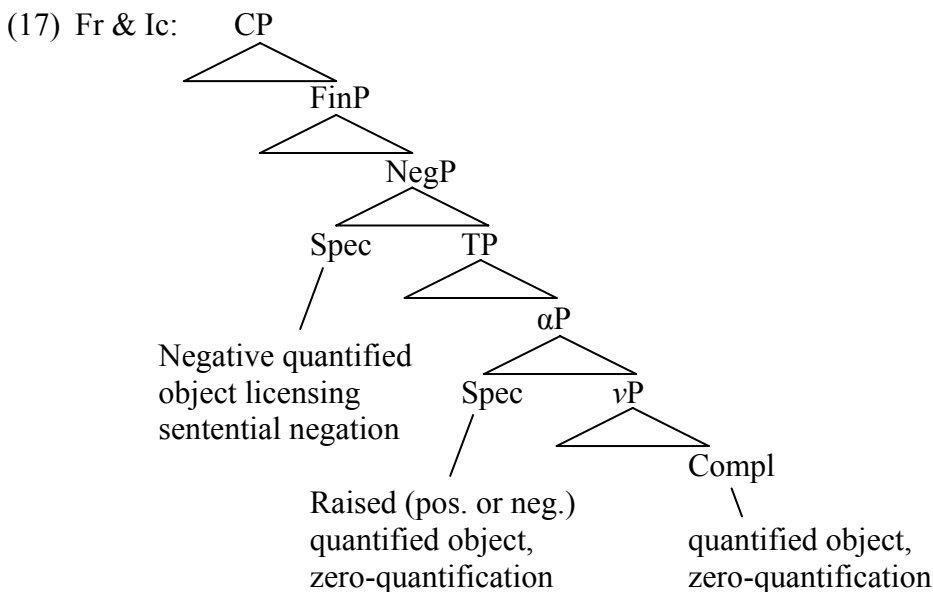
Imaging a contest of some sort, for example the Eurovision song contest, where contesters are evaluated and rewarded with an amount of points from zero to, say, ten.

- (15) Fr. Je n'ai rien<sub>1</sub> [<sub>VP</sub> reçu t<sub>1</sub> ]  
 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)<sup>8</sup>, which also fits the distinction between NEG-shift and QR mentioned above: movement to spec-NegP in the former case, and movement to spec- $\alpha$ P in the latter.

Icelandic *engin*, may optionally undergo QR:

- (16) Ic. a. Ég hef [<sub>VP</sub> 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 engin stig<sub>1</sub> [<sub>VP</sub> fengið t<sub>1</sub> ]  
 I have no points received  
 i. Zero-quantification: “I scored zero points”  
 ii. Sentential negation: “I haven’t got any points yet/I haven’t been judged yet”



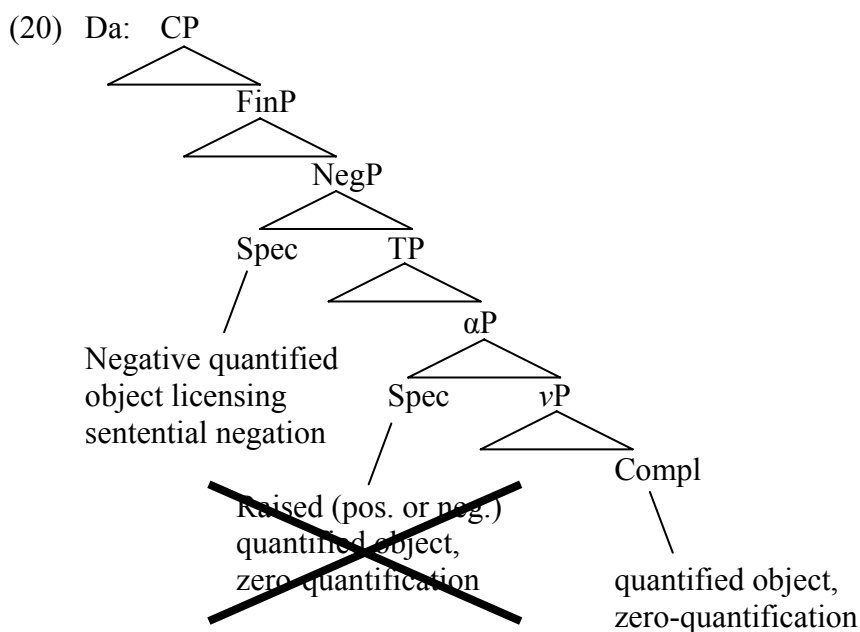
<sup>8</sup> Retaining the idea that different scope interpretations derive from different structural positions.

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

- (18) Da. a. Jeg har [<sub>vP</sub> 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”
- b. Jeg har [<sub>NegP</sub> [ingen point]<sub>1</sub> [<sub>vP</sub> fået t<sub>1</sub> ]]  
 i. \*Zero-quantification: “I scored zero points”  
 ii. Sentential negation: “I haven’t got any points yet/I haven’t been judged yet”

- (19) Da. a. [<sub>NegP</sub> *ingen*<sub>1</sub> Neg° [t<sub>1</sub> [<sub>vP</sub> Verb t<sub>1</sub> ]]]  
 b. \* [*ingen*<sub>1</sub> [<sub>vP</sub> Verb t<sub>1</sub> ]]

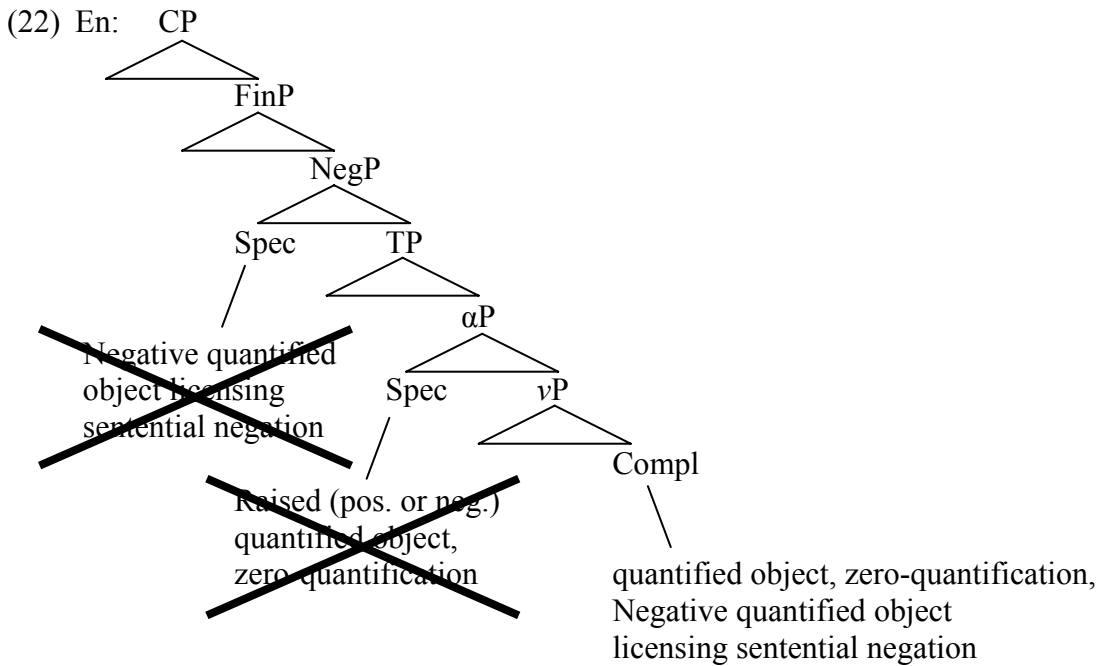
In other words, as QR is not an option, *ingen* only moves if NEG-shift applies.<sup>9</sup>



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

- (21) 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”

<sup>9</sup> Some Danish speakers get the same ambiguity reading as the Icelandic one in (16)b.

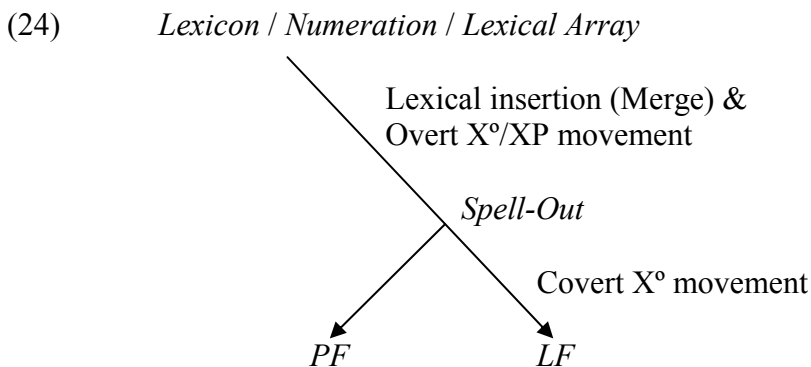


The same applies to Finland Swedish, at least in clauses with an auxiliary (cf. Bergroth 1917). In Finland Swedish, unlike standard Swedish as well as Danish, Faroese, Icelandic, and Norwegian, *ingen* follows the non-finite main verb.

- (23) FS: a. Jag har [vP haft ingenting att skaffa med den saken]  
 \*b. Jag har ingenting<sub>1</sub> [vP haft t<sub>1</sub> att skaffa med den saken]  
 I have *nothing* had to do with that case.the  
 (Bergroth 1917: 173)

## 4 Derivation by Phase

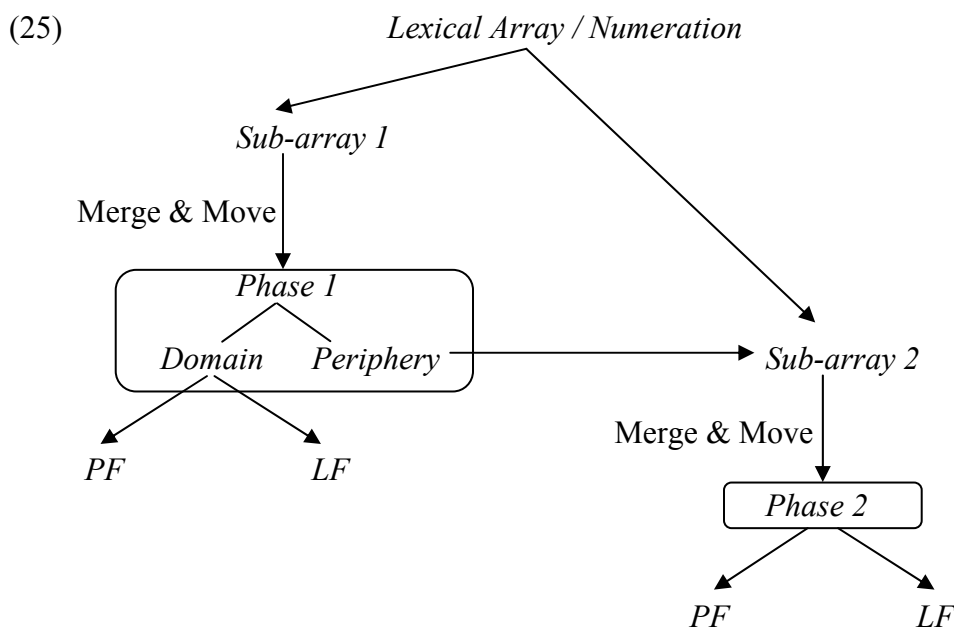
According to Chomsky's (1995: 377) *Minimalist Program*, QR is movement of a [quant] feature to "an appropriate host", either T° or v°. Furthermore, covert (LF) movement (e.g. Chinese and Japanese *wh*-movement and QR in general, assumed to be adjunction to T) is restricted to X° movement of formal features:



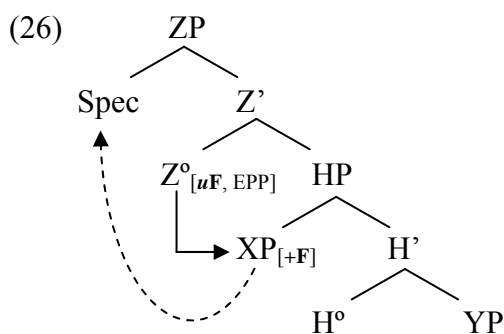
In this framework elements move to have some uninterpretable feature checked, that is, the moved element gets a feature checked, not the target.

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

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 X°) 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:



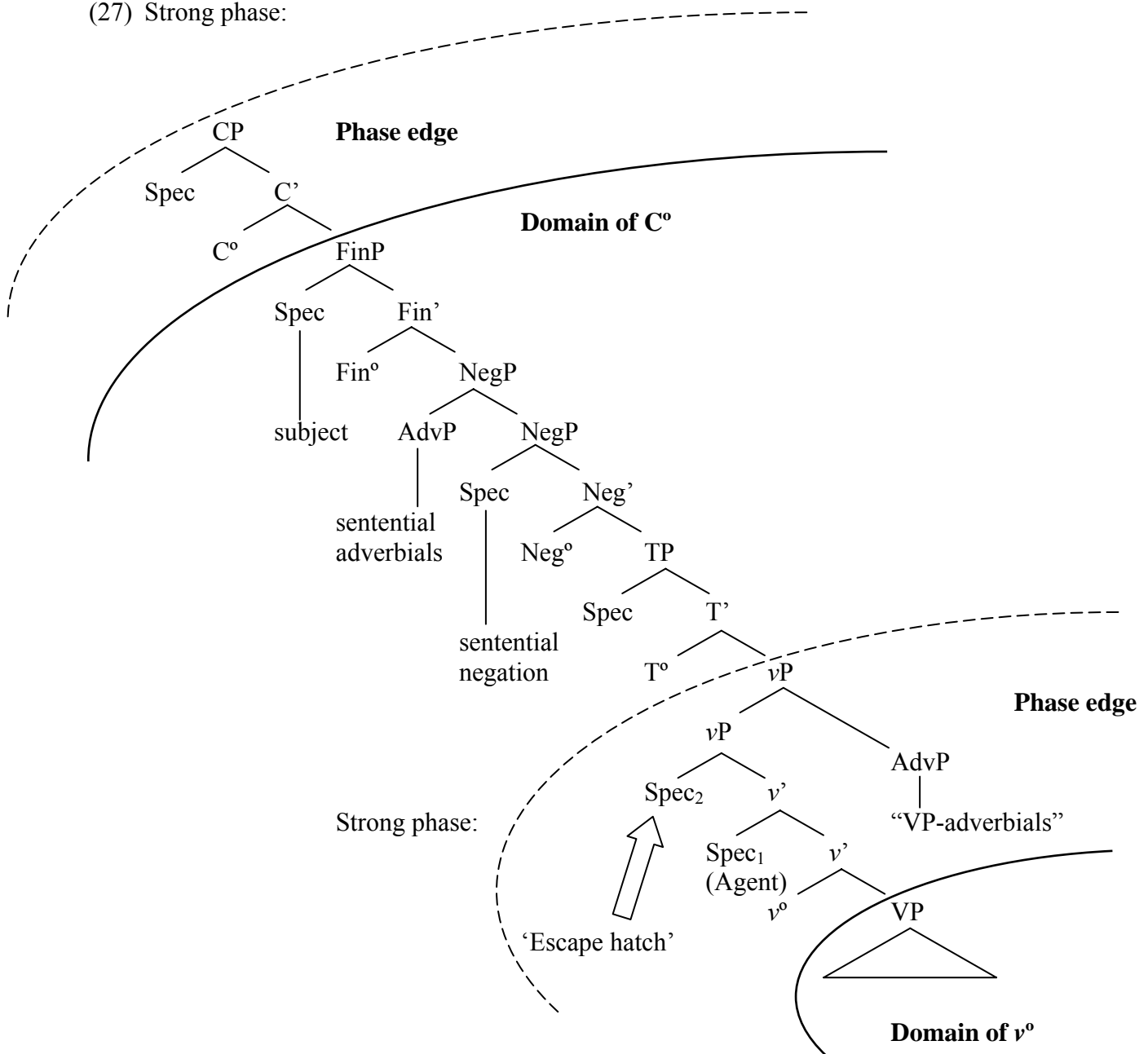
As opposed to the framework outlined in Chomsky (1995), derivation by phase is driven by uninterpretable features on the target, the *probe*, not the moving element, *the goal*. Furthermore, XP movement is only possible if there is a specifier to act as target, i.e. the probing head must have an EPP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



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

The *Phase Impenetrability Condition* (PIC; Chomsky 2001: 14, (11); Radford 2004: 382, (1)) states that only elements at the *periphery* (adjuncts, specs and the phase head) of a strong phase (CP and transitive  $vP$ ) are available for operations (Attract/Move or Agree) outside the phase. Together, the PIC and the EPP requirement on XP movement necessitate that phase heads can have multiple specifiers:

(27) Strong phase:

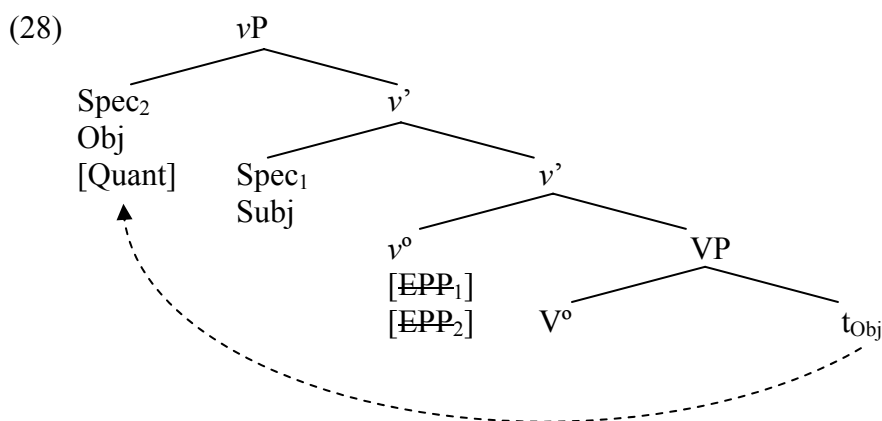


## 5 Covert movement and feature checking

### 5.1 The Target of QR

Unvalued (uninterpretable) features must be checked before PF and LF (where they would have no interpretation) or the derivation crashes. Thus, to make elements within the domain of  $v^o$  accessible to probes outside  $vP$ , such elements must move to the edge of  $vP$ .

An EPP feature is inserted on  $v^o$  as Last Resort to secure convergence. Hence, quantifiers must move to  $vP$  before  $T^o$  is merged. Assuming multiple specifiers, NEG-shifting objects and quantifiers undergoing overt (optional or obligatory) QR 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”).<sup>10</sup>

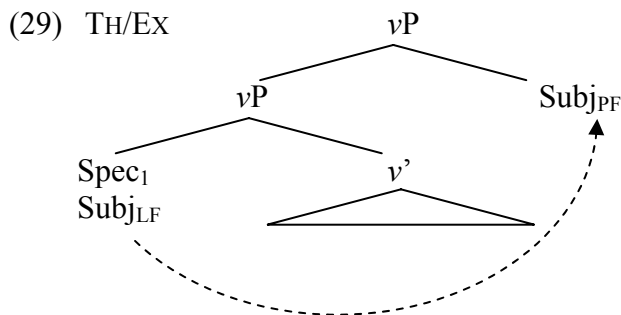
What about the fact that quantifiers that are ambiguous between wide and narrow scope in situ (e.g. some French and Icelandic quantifiers and all the English and Finland Swedish ones)?

I propose a *revival* and a *revision* of covert movement such that overt QR is pied-piping of the phonological features while covert QR is stranding.

<sup>10</sup> This has serious consequences for the analysis of negative adverbials. They must be merged as adjuncts of  $vP$  and attracted to spec-NegP. Merging the negation marker, e.g. *ikke* ‘not’, as spec-NegP will place it outside the domain of  $Neg^o$  and it will not be available as a valuating goal for  $[uNeg]$ . What I propose is that the negative adverb is merged as an adjunct of  $vP$  (same as “VP-adverbials”), where it is inside the domain of  $Neg^o$ .  $[uNeg]$  on  $Neg^o$  probes for a valuating match and finds *ikke*, and the EPP on  $Neg^o$  attracts it to spec-NegP.

## 5.2 Reviving Covert Movement

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<sub>LF</sub>) that checks EPP on T<sup>0</sup> covertly. The dislocated subject consists only of phonological features (Subj<sub>PF</sub>) and is not available for further operations in the narrow syntax.



- (30) 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

This leaves open the question of how this is licensed in the syntax. As argued in the previous section, XP movement is otherwise crucially dependent on EPP features licensing target specifiers. However, I disregard the problem here.

The heavy part of a quantified object may also be subject to TH/EX. 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., and Icelandic, Gunnar Hrafn Hrafnbjargarson, p.c.; see also Rögvaldsson 1987, Svenonius 2000b):

- (31) Da. Jeg har [<sub>NegP</sub> \_\_\_\_\_<sub>1</sub> [<sub>vP</sub> fået \_\_\_\_\_<sub>t<sub>1</sub></sub>]]  
 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. (11) above, and Icelandic *margar*, cf. (6) above) and (marginally) to the embedded CP, but not to

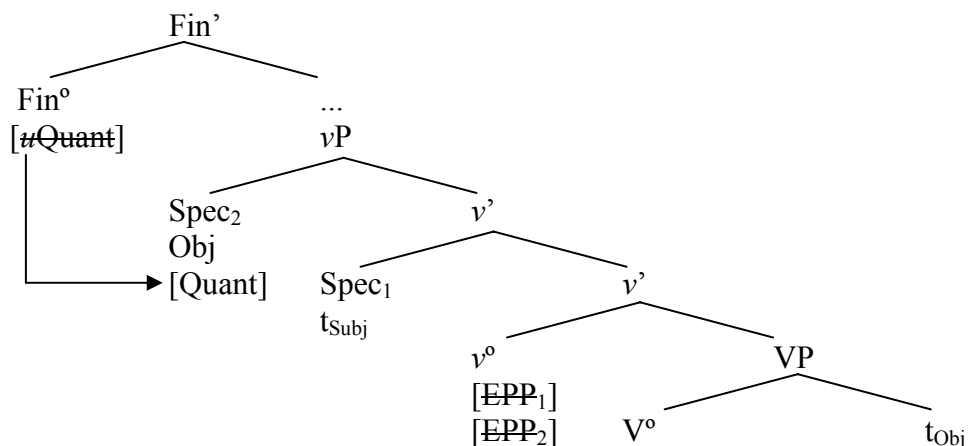
the NP complement, while the negative quantifier *ingen* undergoes obligatory NEG-shift (pied-piping its NP complement):

- (32) Da. a. \*Jeg har [<sub>NegP</sub> [ingen t<sub>NP</sub>]<sub>1</sub> [[<sub>vP</sub> fået t<sub>1</sub>] af min kone  
 I have no received from my wife  
 [<sub>NP</sub> bøger om generativ lingvistik]]]  
 books about generative linguistics
- b. Jeg har [<sub>NegP</sub> [ingen bøger t<sub>PP</sub>]<sub>1</sub> [[<sub>vP</sub> fået t<sub>1</sub>] af min kone  
 I have no books received from my wife  
 [<sub>PP</sub> om generativ lingvistik]]]  
 about generative linguistics
- c. ?Jeg har [<sub>NegP</sub> [ingen bøger t<sub>CP</sub>]<sub>1</sub> [[<sub>vP</sub> fået t<sub>1</sub>] af min kone  
 I have no books received from my wife  
 [<sub>CP</sub> der handler om lingvistik]]]  
 which deals with linguistics

(Note that the heavy part follows the otherwise sentence final *af min kone* ‘from my wife’, which shows that it is not in situ but has been right dislocated.)

I assume QR (overt or covert) to be driven by an uninterpretable / unvalued (wide scope) **quantifier feature [*uQuant*] on Fin°** (in accordance with the standard GB analysis of QR as adjunction to IP; however, [*uQuant*] may also be inserted on C° if scope relations require so) and **EPP on v°** inserted as Last Resort enabling the object to escape vP. In this way, QR reduces to long-distance agreement:

(33) Overt QR:



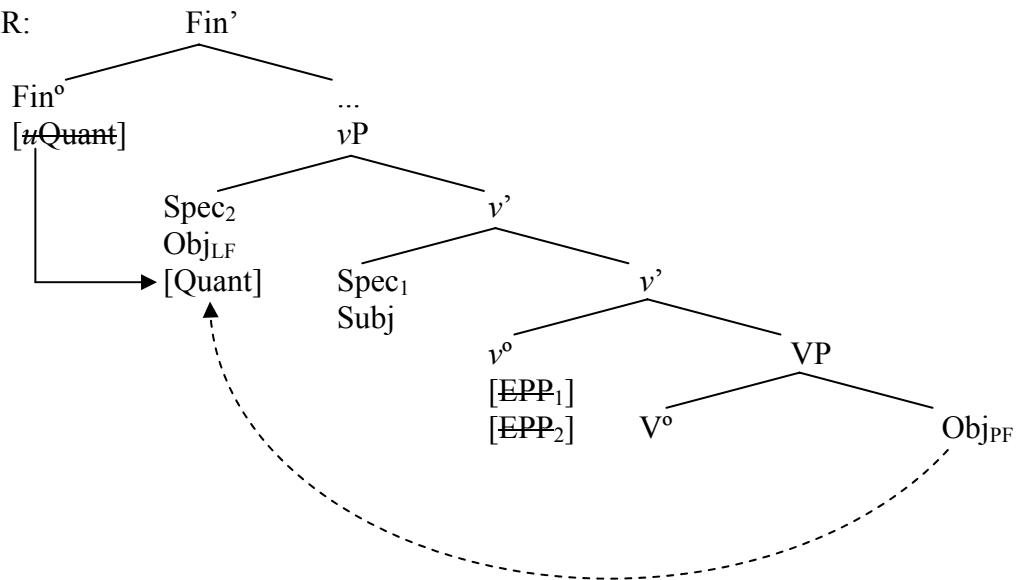
Movement to spec-vP is just the ‘escape hatch’, which is also required in e.g. *wh*-questions and topicalization of non-quantified elements such as adverbials and PPs. For the same reason, I do not adopt Svenonius’ (2000a: 5, footnote 5) term *Case Shift* (adverbials and PPs do not have case) nor Chomsky’s (2001) *Object Shift*, which 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° also captures the fact that QR is strictly clause bound (with a few exceptions ignored here).

### 5.3 Revising Covert Movement

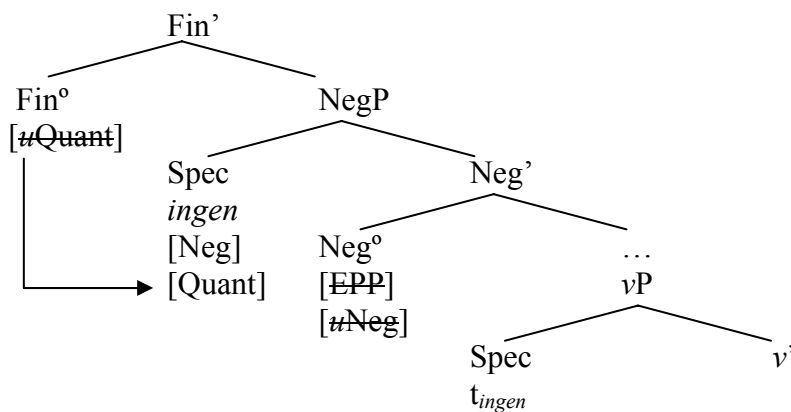
The *revision* of covert movement is that it only applies to operators (quantifiers, negation, and *wh*-elements) and that it is stranding rather than movement. Covert QR moves the formal and semantic/LF features of the object (Obj<sub>LF</sub>) to the edge of *v*P, stranding its phonological/PF features (Obj<sub>PF</sub>) 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):

(34) Covert QR:

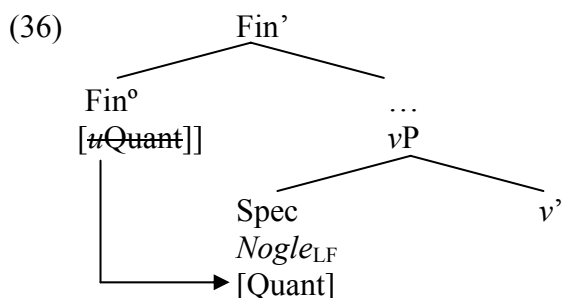


Danish *ingen* ‘no(-thing/body)/none’ licenses sentential negation and must be (or have a trace in case of subjects or topics) in spec-NegP, i.e. NEG-shift is obligatory. In this position it is also available as a goal for the [*uQuant*] probe on Fin°.

(35)



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



French *tout* ‘all’, *rien*<sub>zero</sub>, and *beaucoup* ‘many’ (and Danish *ingen*<sub>zero</sub>, 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.

## 6 Outline of a Typology of Quantifiers

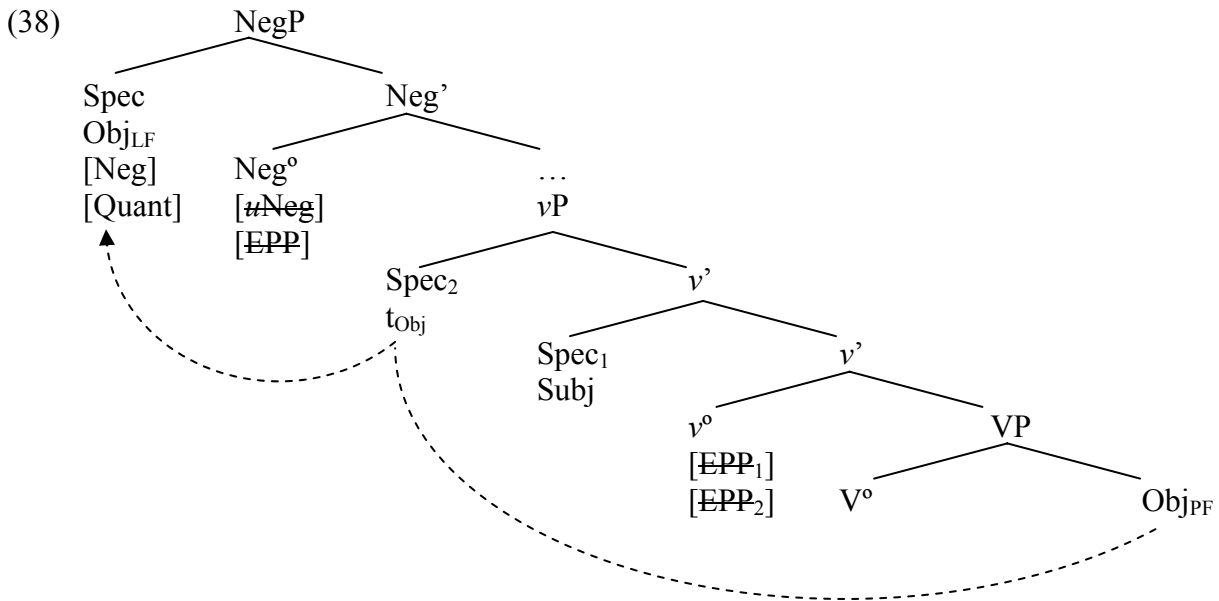
The analysis presented above leads to the following (incomplete) ‘typology’ of quantifier movement:

### (37) NEG-shift and QR

	NEG-shift (to spec-NegP)	Obligatory overt QR (to spec-vP)	Optional QR (to spec-vP)
<b>Overt</b>	Da. <i>ingen</i> Fr. <i>rien</i> Ic. <i>enginn</i> Po: <i>nikogo</i>	Fr. <i>rien</i> <sub>zero</sub> Po: <i>coś</i>	Fr. <i>tout, beaucoup</i> Ic. <i>fáir, enginn</i> <sub>zero</sub> , <i>margir, neinn,</i> <i>ýmislegt</i>
<b>Covert</b>	En. <i>no</i> <sub>neg</sub> FS. <i>ingen</i> <sub>neg</sub> Fr. <i>aucun, personne</i>		Da. <i>nogen, nogle</i> En. <i>any, some</i> FS. <i>ingen</i> <sub>zero</sub>

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 valuated, 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<sub>LF</sub> to spec-NegP where it is the goal of the Fin°<sub>[*uQuant*]</sub> probe once it is merged above NegP, cf. (35) above:



Note that French *rien<sub>zero</sub>* 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<sub>zero</sub>* 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 through spec-vP 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.

- (39) Fr. a. [<sub>CP</sub> Tu as [<sub>VP</sub> vu qui ] ]?  
 b. [<sub>CP</sub> Qui<sub>1</sub> tu as [<sub>VP</sub> t<sub>1</sub> vu t<sub>1</sub> ] ]?  
     *who you have seen?* (Haegeman 1995: 101, (70a, b))

In Polish there is also optional *wh*-movement when there are more than one *wh*-phrase. However, unlike in French for example, *wh*-elements cannot remain in situ. The first (highest) *wh*-element undergoes obligatory movement to spec-CP while the second *wh*-element undergoes obligatory overt movement to spec-vP and only **optionally** to spec-CP ((40)a is acceptable if *komu* "carries heavy, focal stress", Dornisch 2000: 47):

- (40) Po: a. \*Co by Anna poleciła komu?  
     *What would Anna recommend to-who*  
 b. Co by Anna komu poleciła?  
     *What would Anna to-who recommend*  
 c. %Co komu by Anna poleciła?  
     *What to-who would Anna recommend* (Dornisch 2000: 47, (1))

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

(41) Ch. [<sub>CP</sub> C<sup>o</sup><sub>[+WH]</sub> [Zhāngsān kàn shéi]]?  
*Zhangsan see who*  
 “Who did Zhangsan see?” (Comrie 1989: 64)

(42) Ja. [<sub>CP</sub> [John-wa [<sub>VP</sub> nani-o kaimashita]] ka]?  
*John-TOPIC what-NOM bought Q*  
 “What did John buy?” (Poole 2002: 170, (3))

C<sup>o</sup> may then have two EPP features, which is not possible in V2 languages but found in many non-V2 languages, such as Bulgarian, Czech, Hungarian, 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.

**(43) Only strong phase heads can have multiple specifiers**

The constraint on multiple specs in (43) is subject to parametric variation: whether c<sup>o</sup> has one or two specs depends on parameter setting.

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

**(44) Wh-movement**

	<b>Obligatory</b> to spec-CP	<b>Obligatory</b> to spec-vP	<b>Optional</b> to spec-CP (in situ)
<b>Overt</b>	Da. <i>hvem</i> En. <i>who</i> Fr. <i>qui</i>	Po: <i>komu</i>	Fr. <i>qui</i>
<b>Covert</b>	Ch. <i>shéi</i> Ja. <i>nani</i>		

## 7 Summary and conclusion

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 restricted to operators**.

If *wh*-elements are indeed quantifiers (e.g. Chomsky 1995: 70), the licensing of phonological stranding and covert movement is narrowed down even further:

### (45) Only quantifiers may strand their phonological features

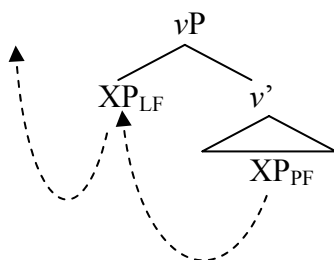
The target of QR is a position at the edge of the strong *v*P phase where QPs can enter into long-distance agreement with a probing [*u*Quant]. Assuming multiple specifiers constrained by (43), there is no *α*P: **the target of QR is the outer specifier of *v*P**.

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) and **idiosyncrasies** in the lexical entries.

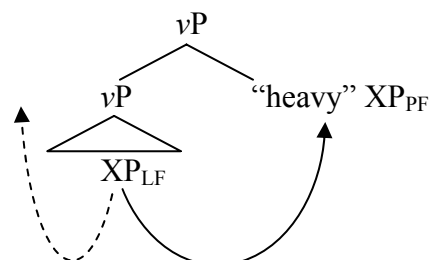
Thus, **overt** operator movement itself is not driven by syntactic or semantic requirements; it is motivated by what might be **pragmatic constraints** (“Avoid Ambiguity”) and **prosodic constraints** subject to parametric variation.

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

### (46) (i) PF-Stranding



### (ii) TH/EX



## 8 A remaining problem

The analysis applies to quantified subjects as well, except that they don't need to move to the edge of  $\nu P$  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.

### (47) Minimal Link Condition (MLC)

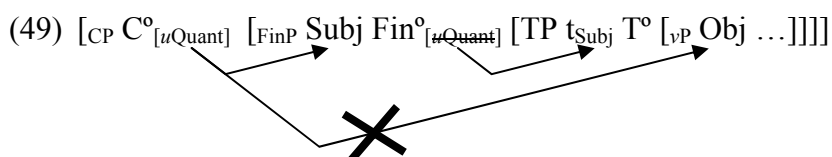
K attracts  $\alpha$  on if there is no  $\beta$ ,  $\beta$  closer to K than  $\alpha$ , such that K attracts  $\beta$ .  
(Chomsky 1995: 311, (110))

That is, only (48)a is accounted for, not (48)b:

### (48) All the guests tasted some of the chips.

- a. All the guests tasted more than more one kind of chips.
- b. There were some of the chips that all the guests tasted.

The quantified subject is in spec-TP when  $Fin^0$  with [ $uQuant$ ] 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 [ $uQuant$ ] on  $C^0$ . The quantified object in spec- $\nu P$  is inaccessible under the MLC.



(See also footnote 6 on page 2 above.)

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