

# ***Wh-phrases and NEG-phrases in clauses and nominals***<sup>\*</sup>

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**Abstract.** *Wh*-phrases and *NEG*-phrases are usually assumed to carry features – [+wh] and [+NEG], respectively –, which need to be licensed in Spec-head configuration (*wh*-Criterion, *NEG*-Criterion; cf. Rizzi 1996, Haegeman & Zanuttini 1991, Haegeman 1995). Danish, German, English and French contrast in the distribution of simple *wh*-phrases and *NEG*-phrases and DPs that contain possessive *wh*-phrases and *NEG*-phrases. These asymmetries will be accounted for by differences in licensing of [wh] and [NEG] (overt vs. covert movement) as well as by differences in the possibilities for feature percolation.

## **1 Introduction**

The distribution of *wh*-phrases and *NEG*-phrases varies cross-linguistically. For instance, while a *wh*-object must occur in SpecCP in the Germanic languages Danish, German and English, it may occur in the canonical object position in French. In contrast, a *NEG*-object occurs in SpecNegP in Danish and German whereas it occurs *in situ* in English and French. It will be shown that these cross-linguistic differences can be accounted for by differences in licensing. *Wh*-phrases and *NEG*-phrases are usually assumed to carry features ([wh] and [NEG], respectively) that need to be licensed in Spec-head configuration with a corresponding head, C° and Neg°, respectively (see *wh*-Criterion, Rizzi 1996: 64; *NEG*-Criterion, Haegeman & Zanuttini 1991: 244, Haegeman 1995: 106; locality condition on feature checking, Chomsky 1995: 297). Languages contrast as to whether licensing of [wh] and [NEG] is carried out overtly or covertly, predicting the *wh*-phrases and *NEG*-phrases to appear in SpecCP and SpecNegP or to remain *in situ*.

Moreover, not only the position of *wh*- and *NEG*-phrases within the clause but also their position within DP would seem to be crucial for licensing. DP-internal *wh*- and *NEG*-phrases are subject to the same licensing requirements as simple *wh*- and *NEG*-phrases. This means, if a simple *wh*- or *NEG*-phrase requires overt licensing in a given language, a complex DP with embedded *wh*- or *NEG*-phrase is also expected to undergo overt movement to or through the respective

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specifier position, but it may stay *in situ* if covert licensing is possible. Nevertheless, complex DPs that contain a possessive *wh*- or NEG-phrase can have a different distribution from simple *wh*- and NEG-phrases and their distribution can vary depending on whether the DP-internal *wh*- and NEG-phrase occurs in pre-nominal position or post-nominal position. It will be argued that these asymmetries are due to the fact that licensing of [wh] or [NEG] might not be carried out in certain cases. For licensing in Spec-head configuration to be possible the phrase in specifier position must carry the relevant feature itself. In case of covert licensing, the DP-internal *wh*- or NEG-phrase can be extracted and moved covertly to SpecCP or SpecNegP on its own. However, licensing of [wh] or [NEG] by overt movement of the entire DP can only be carried out if the entire DP is marked for [wh] or [NEG] by feature percolation. While feature percolation is generally possible from pre-nominal (specifier) position (see Webelhuth 1992 and Horvath 2005), there is cross-linguistic variation in feature percolation from post-nominal position. More precisely, it will be shown that English and German contrast with Danish and French in that feature percolation from post-nominal position would seem to be permitted in the former languages but not in the latter ones, giving rise to subject-object asymmetries concerning DPs with a post-nominal *wh*- and NEG-phrase in French as well as asymmetries between DPs with pre-nominal *wh*- or NEG-phrases and ones with post-nominal *wh*- or NEG-phrases in Danish.

Section 2 presents the distribution of simple *wh*- and NEG-phrases in Danish, German, English and French and shows how the cross-linguistic variation can be accounted for by the contrast between overt and covert licensing.

Section 3 focuses on complex DPs with pre- and post-nominal possessive *wh*- and NEG-phrases, their licensing and feature percolation possibilities.

Section 4 briefly speculates on the sources for the observed cross-linguistic contrasts in feature percolation from post-nominal position, taking into consideration differences in the structural positions from which feature percolation may be induced and differences in the structural position of post-nominal phrases. However, the Appendix will call the latter option into question on the basis of interpretative data regarding complex DPs with quantified possessors in pre- and post-nominal position.

Section 5 summarizes the results.

## 2 Simple *wh*-phrases and NEG-phrases

### 2.1 Wh-movement

In Danish, German and English, a *wh*-object normally undergoes overt *wh*-movement. It occurs in clause-initial position, SpecCP.

- (1) Da a. \*Du har mødt **hvem**?  
b. **Hvem** har du mødt  $t_{wh}$ ?  
*who have you met*  
'Who have you met?'
- (2) Ge a. \*Du hast **wen** getroffen?  
b. **Wen** hast du  $t_{wh}$  getroffen?  
*who have you met*  
'Who have you met?'
- (3) En a. \*You have met **who**?  
b. **Who** have you met  $t_{wh}$ ?

However, there are two contexts, in which a *wh*-phrase may stay *in situ*: echo-questions, (4), and multiple questions, (5).

- (4) En A: John ate .  
B: John ate **WHAT**?
- (5) En **What** did you give **to whom**?

According to Reis (1991, 1992), echo-questions are not interrogative clauses but are only questions from a pragmatic perspective. The *wh*-phrase does not have a *wh*-feature, and consequently, it is not subject to the conditions on [*wh*]-licensing (see section 2.3 below). In multiple *wh*-questions, absorption takes place. The *in situ wh*-phrase is absorbed into the one in SpecCP such that it need not undergo *wh*-movement itself to licence its *wh*-feature (see Higginbotham & May 1981, May 1985).

In contrast to the Germanic languages, overt *wh*-movement is optional in French. A *wh*-object may stay *in situ* or occur in clause-initial position.<sup>1</sup>

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<sup>1</sup> However, Bošković (1997) and Cheng & Rooryck (2000) claim that *wh-in situ* is restricted to main clauses in French; but see also Pollock (1998). A *wh*-phrase cannot occur *in situ* in an embedded clause; it must undergo movement to the clause-initial position, either of the embedded clause or of the main clause. (See also Chang 1997 and Mathieu 2004 on other contexts in which *wh*-movement is obligatory.)

- (6) Fr a. Tu as rencontré **qui**?  
          b. **Qui** as-tu rencontré  $t_{wh}$ ?  
                         *who have-you met*  
                         'Who have you met?'

Similar to *wh*-objects, *wh*-subjects move to SpecCP overtly in the V2-languages Danish and German.<sup>2</sup>

- (7) Da a. \*I dag er **hvem** kommet?  
           b. **Hvem** er  $t_{wh}$  kommet i dag?  
               *who      is           come      today*  
               'Who has come today?'

(8) Ge a. \*Heute ist **wer** gekommen?  
           b. **Wer** ist  $t_{wh}$  heute gekommen?  
               *who      is      today come*  
               'Who has come today?'

In English and French, *wh*-subjects also occur in clause-initial position.

- (9) En      **Who** came today?

(10) Fr      **Qui** est arrivé    aujourd'hui?  
              *who is arrived today*  
              'Who has arrived today?'



<sup>2</sup> Again, in echo-questions a *wh*-subject may occur in the canonical subject position, SpecIP.

- (i) Da a. I dag er HVEMkommet?  
Ge b. Heute ist WER gekommen?  
*today is who come*  
'Who has come today?'

But as these languages are not V2-languages, it cannot be inferred from surface order which structural position the *wh*-subject occupies, SpecCP or SpecIP. However, French displays a subject-object asymmetry as to clause-initial DPs that contain a possessive *wh*-phrase. As discussed in section 3.1, this points to the conclusion that just as a *wh*-object, a *wh*-subject must be able not to move to SpecCP overtly. It is not crucial here whether *wh*-subjects in English are taken to occur in SpecIP or SpecCP.<sup>3</sup>

## 2.2 NEG-shift

Under a sentential negation reading, a NEG-object cannot occur in its base position to the right of a non-finite verb in Danish (see the contrast between (11)a and (11)b below), but it must undergo negative shift, henceforth NEG-shift, which places the negative phrase in the specifier position of NegP, (11)c; see K. K. Christensen (1986, 1987), Rögnvaldsson (1987), Jónsson (1996), Svenonius (2000, 2002), K. R. Christensen (2005), and Engels (2009a, 2012).

- (11) Da a. Han har [NegP **ikke** [VP sagt **noget**]]  
*he has not said anything*  
'iHe hasn't said anything.'
- b. \*Han har [NegP [VP sagt **ingenting**]]  
c. Han har [NegP **ingenting** [VP sagt t<sub>NEG</sub>]]]  
*he has nothing said*  
'iHe has said nothing.'

Similar to *wh*-phrases in echo-questions, (4), negative phrases may stay *in situ* if they do not take sentential scope: *In situ* occurrence of a negative object is possible under a narrow scope reading (see Svenonius 2002).

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<sup>3</sup> The lack of *do*-support in subject *wh*-questions gave rise to the hypothesis that subject *wh*-phrases occur in SpecIP rather than in SpecCP in English (e.g. Chomsky 1986 and Grimshaw 1997; but see also Bobaljik 1995, Lasnik 1995 and Pesetsky & Torrego 2001). However, under the assumption that [*wh*] has to be licensed in Spec-head relation within CP overtly in English (section 2.3 below), subject *wh*-phrases are expected to occur in SpecCP. Empirical support for the SpecCP analysis of *wh*-subjects comes from *wh*-island effects and intensifiers like *the hell/on earth* (Pesetsky 1987; see also Rizzi 1996, 1997, Radford 2004, den Dikken 2006).

In addition, Svenonius (2002) claims that similar to multiple questions, (5), a negative object can stay *in situ* in double negation constructions in Norwegian. Thus, a NEG-object can apparently be licensed *in situ* by another VP-external NEG-phrase (giving rise to a double negation reading).



Though this is not obvious from surface order due to OV-order, NEG-shift is considered to take place overtly in German, too.

- (14) Ge Er hat [NegP nichts [VP t<sub>NEG</sub> gesagt]]  
       he has      nothing                    said  
       'He hasn't said anything.'

Haegeman (1995) presents data that support this hypothesis. Under a sentential negation reading the negative complement of an adjective must occur to the left of the adjective, (15), while it may remain inside AdjP under a narrow scope reading (constituent negation), as shown in (16).

- (15) Ge Ich hatte gerade ein sehr schwieriges Gespräch mit Peter über unseren Lösungsvorschlag. ('I just had a very difficult conversation with Peter about our new proposal for solution.')  
a. \*Das ist immer so, weil Peter zufrieden **mit nichts** ist.  
b. Das ist immer so, weil Peter **mit nichts** zufrieden ist.  
*that is always so as Peter with nothing pleased is*  
'That is always so because Peter isn't pleased with anything.'

(Haegeman 1995: 167/68)

(16) Ge Warum ist Peter stolz auf dieses miese Ergebnis?  
'Why is Peter proud of this bad result?'  
Weil Peter stolz **auf nichts** ist.  
*because Peter proud of nothing is*  
'Because Peter is proud of nothing.' (Haegeman 1995: 169)

In English and French, in contrast, a NEG-object occurs to the right of a main verb *in situ*, indicating that NEG-shift does not take place overtly (but see also Müller 2000).<sup>4</sup>

- (17) En a. He had [NegP [VP seen **nobody**]]  
       b. \*He had [NegP **nobody** [VP seen t<sub>NEG</sub>]]]

<sup>4</sup> In contrast to *personne* 'nobody', *rien* 'nothing' precedes a non-finite verb in French; compare (i) with (18).



However, Rowlett (1998: 191-193) claims that *rien* does not move to SpecNegP (which hosts the negation marker *pas* 'not') but to a lower position, as indicated by its position relative to the adverb *encore* 'yet'.



In the following, I will concentrate on the syntactic behaviour of *personne* 'nobody'.

- (18) Fr a. Il n' a [NegP] [VP vu **personne**]  
       b. \*Il n' a [VP **personne**] [VP vu t<sub>NEG</sub>]  
           *he NE has nobody seen*  
           'He hasn't seen anybody.'

While there is cross-linguistic variation as to overt movement of a NEG-object, a NEG-subject appears in the canonical subject position SpecIP in all the languages under discussion.

- (19) Da I dag er **ingen** kommet.  
           *today is nobody come*  
           'Nobody has come today.'
- (20) Ge Heute ist **keiner** gekommen.  
           *today is nobody come*  
           'Nobody has come today.'
- (21) En **Nobody** has come today.
- (22) Fr **Personne** n' est venu aujourd'hui.  
           *nobody NE is come today*  
           'Nobody has come today.'

### 2.3 Licensing of [*wh*] and [NEG]

The preceding sections have shown that there is cross-linguistic variation as to the distribution of simple *wh*-phrases and NEG-phrases. For instance, while a *wh*-object must undergo *wh*-movement to SpecCP in the Germanic languages English, German and Danish, it may stay *in situ* in French. As regards NEG-objects, in contrast, English patterns with French in that a NEG-object stays *in situ*, following a lexical verb inside VP, whereas NEG-shift to SpecNegP takes place in German and Danish. The distribution of simple *wh*-phrases and NEG-phrases is summarized in Figure 1.

**Figure 1: Distribution of *wh*- and NEG-phrases**

	SpecCP	SpecIP	SpecNegP	V-Compl
<i>wh</i>	Da	<i>wh<sub>SUB/OBJ</sub></i>	* <i>wh</i>	* <i>wh</i>
	Ge	<i>wh<sub>SUB/OBJ</sub></i>	* <i>wh</i>	* <i>wh</i>
	En	<i>wh<sub>(SUB/)OBJ</sub></i>	<i>wh<sub>SUB</sub></i>	* <i>wh</i>
	Fr	<i>wh<sub>(SUB/)OBJ</sub></i>	<i>wh<sub>SUB</sub></i>	<i>wh<sub>OBJ</sub></i>
NEG	Da		NEG <sub>SUB</sub>	NEG <sub>OBJ</sub>
	Ge		NEG <sub>SUB</sub>	NEG <sub>OBJ</sub>
	En		NEG <sub>SUB</sub>	*NEG
	Fr		NEG <sub>SUB</sub>	*NEG

*Wh*-movement and NEG-shift are usually assumed to be triggered by the need to license the features [*wh*] and [NEG] carried by the corresponding phrases in a Spec-head configuration, as required by e.g. the *wh*-Criterion and the NEG-Criterion (Rizzi 1996: 64, Haegeman & Zanuttini 1991: 244, Haegeman 1995: 106) or a locality condition on feature checking (Chomsky 1995: 297). The observed contrasts in the distribution of *wh*-phrases and NEG-phrases can be accounted for by differences in whether licensing of [*wh*] and [NEG] takes place by overt movement (pied-piping the phonological features) or by covert movement (leaving behind the phonological features due to economy considerations); see e.g. Bošković (1997). This is illustrated in Figure 2.

**Figure 2: Overt vs. covert licensing of [*wh*] and [NEG]**

	Da	Ge	En	Fr
<i>wh</i>	overt	overt	overt	overt/covert
NEG	overt	overt	covert	covert

Assuming the copy theory of movement (Chomsky 1995), the copy of a constituent which includes the phonological features is marked in bold in the following whereas non-pronounced copies are marked by angle brackets. This is shown for overt NEG-shift in (23) [= the Danish example in (11)c] and for covert NEG-shift in (24) [= the English example in (17)], respectively.

- (23)     [NEG]-licensing by overt NEG-shift

Han har [NegP **ingenting**<sub>[NEG]</sub> Neg° ... [VP sagt <ingenting<sub>[NEG]</sub>>]]



(24) [NEG]-licensing by covert NEG-shift

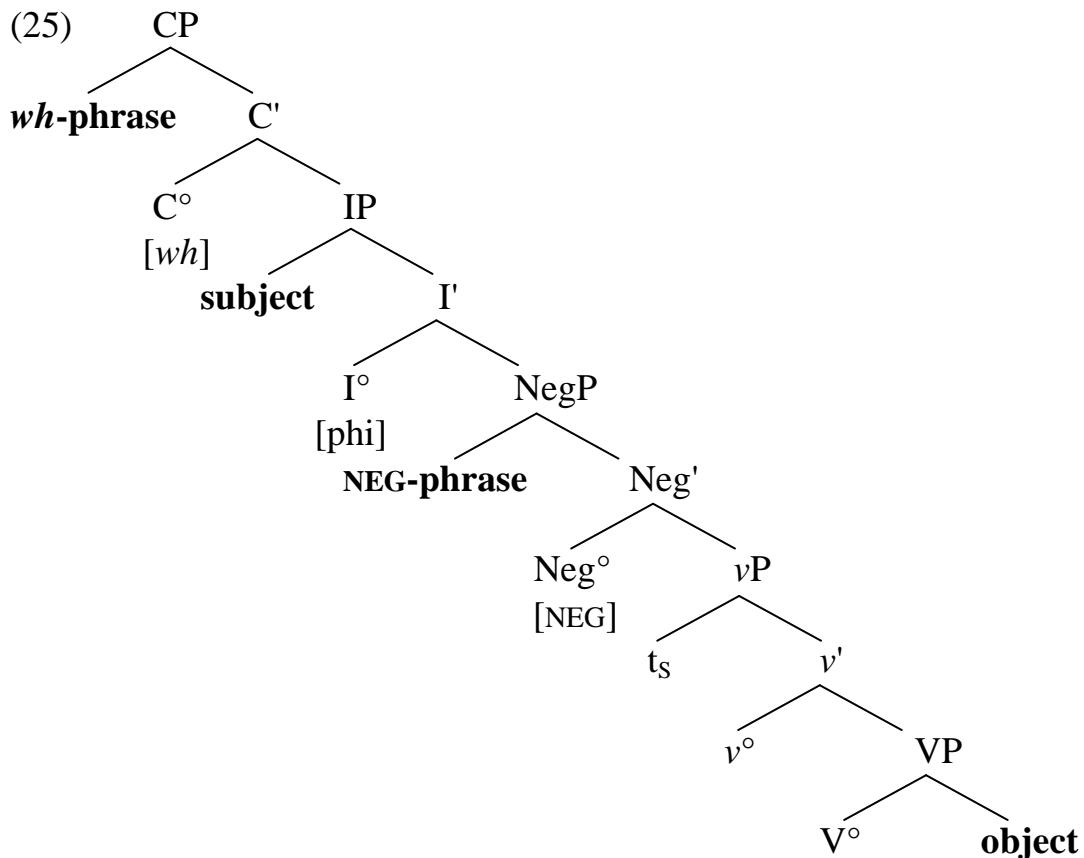
He had [NegP <nobody<sub>[NEG]</sub>> Neg° ... [vp seen nobody<sub>[NEG]</sub>]]



Note that feature licensing only takes place under a sentential reading of the *wh*- or NEG-phrase: *In situ* occurrence is possible in echo-questions and with narrow scope negation, (4) and (12). In addition, licensing apparently only needs to take place once: *In situ* occurrence of a *wh*- or NEG-phrase is possible in multiple *wh*-questions and double negation constructions, where the *in situ wh*- or NEG-phrase is licensed by the presence of the higher *wh*- or NEG-phrase; see (5) and (13) above.

Moreover, although a NEG-object does not surface in SpecNegP in English and French, (17) and (18), this does not mean that NEG-phrases cannot undergo overt movement at all: A NEG-subject appears in the canonical subject position, SpecIP; cf. (21) and (22). In this case the NEG-phrase is moved to SpecIP by subject movement. In other words, the trigger for movement of the NEG-subject is the [phi]-features not the [NEG]-feature, which is licensed in a lower position, SpecNegP. *Wh*-movement, in contrast, targets a position above the canonical subject position, namely SpecCP; see the syntactic tree in (25).

(25)



Summing up, there are cross-linguistic contrasts as to the distribution of simple *wh*- and NEG-phrases, which can be accounted for by differences in whether licensing of [wh] and [NEG] is carried out overtly or covertly. The following section on complex DPs, those that contain a possessive *wh*-phrase or NEG-phrase, shows that not only the position of *wh*- and NEG-phrases inside the clause but also their position inside DP may be crucial for licensing.

### 3 DP-internal *wh*-phrases and NEG-phrases

This section focuses on complex DPs that contain possessive *wh*- and NEG-phrases in pre-nominal and post-nominal position. These DP-internal *wh*- and NEG-phrases are subject to the same licensing requirements as simple *wh*- and NEG-phrases; i.e. like the simple *wh*- and NEG-phrases, they have to be licensed covertly (permitting occurrence of the complex DP *in situ*) or overtly (requiring the entire DP to move to the respective specifier position). However, the distribution of complex DPs with DP-internal *wh*- and NEG-phrases may differ from that of simple *wh*- and NEG-phrases. It will be argued that this is so because licensing of the DP-internal *wh*-phrase or NEG-phrase is sometimes impossible, suggesting that not only the position of a *wh*- or NEG-phrase within the clause but also its position within the nominal is crucial for licensing.

#### 3.1 French: Object/subject and *wh*-phrase/NEG-phrase asymmetries

French displays a subject-object asymmetry regarding DPs that contain a possessive NEG-phrase or *wh*-phrase in post-nominal position.<sup>5</sup> As shown by the contrast between (26) and (27), a DP with a DP-internal NEG-phrase may occur in object position but not in subject position while a simple NEG-phrase is acceptable in both positions.

- (26) Fr a. Lise n' a rencontré **personne**.  
           b. Lise n' a rencontré **le frère de personne**.  
*Lise NE have met nobody/the brother of nobody*  
           'Lise hasn't met anybody/anybody's brother.'
- (Moritz & Valois 1994: 687)

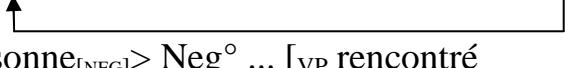
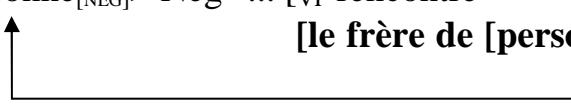
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<sup>5</sup> Possessive *wh*-phrases and NEG-phrases are restricted to post-nominal position in French.

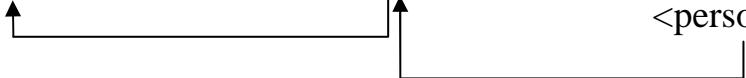
- (27) Fr a. **Personne** n' est arrivé.  
 b. \***L'assistant de personne** n' est arrivé.  
*nobody/the assistant of nobody NE is arrived*  
 'Nobody/Nobody's assistant has arrived.'
- (Moritz & Valois 1994: 674)

This contrast can be accounted for under the assumption that *personne* 'nobody' but not the entire phrase *le frère de personne/l'assistant de personne* 'the brother/the assistant of nobody' carries [NEG] and may thus take part in feature checking: Licensing under Spec-head configuration requires that the phrase in specifier position carries the relevant feature itself.

Recall that French does not require overt NEG-shift. Thus, a NEG-element in object position can be licensed by covert movement to SpecNegP, irrespective of whether it is simple, (26)a/(28)a, or DP-internal, (26)b/(28)b. (Note that covert movement in (28)b only targets the DP-internal NEG-phrase, not the entire object DP.)

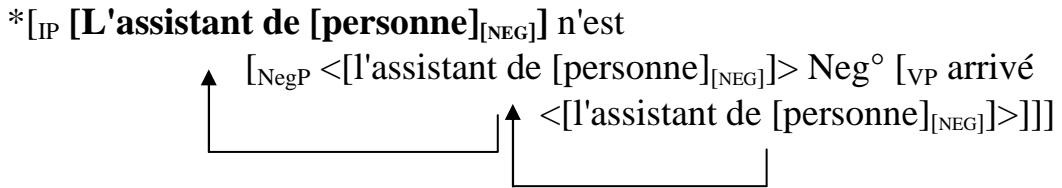
- (28) [NEG]-licensing by covert movement of *personne* to SpecNegP
- a. [IP Lise n'a [<sub>NegP</sub> <*personne*<sub>[NEG]</sub>> Neg° ... [VP rencontré [**personne**<sub>[NEG]</sub>]]]]
- 
- b. [IP Lise n'a [<sub>NegP</sub> <*personne*<sub>[NEG]</sub>> Neg° ... [VP rencontré  
[**le frère de** [*personne*<sub>[NEG]</sub>]]]]]]
- 

Moreover, a simple NEG-subject as in (27)a may move through SpecNegP on its way to SpecIP. This is illustrated in (29).

- (29) [NEG]-licensing by overt movement of *personne* through SpecNegP
- [IP **Personne**<sub>[NEG]</sub> n'est [<sub>NegP</sub> <*personne*<sub>[NEG]</sub>> Neg° [VP arrivé  
[<*personne*<sub>[NEG]</sub>>]]]]
- 

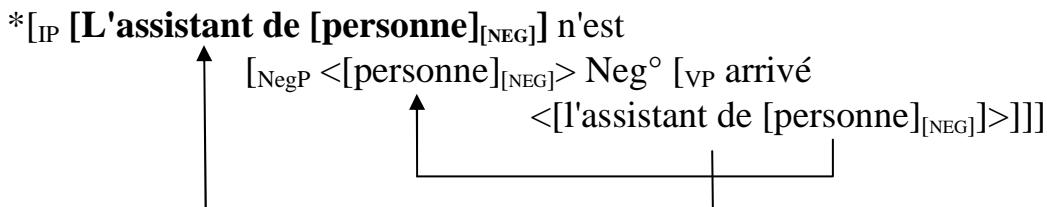
However, if the NEG-phrase is internal to the subject DP as in (27)b, licensing of [NEG] is not possible. First, movement of the entire DP *l'assistant de personne* 'the assistant of nobody' through SpecNegP on the way to SpecIP cannot license [NEG] since this phrase does not carry [NEG], only DP-internal *personne* 'nobody' does; see (30).

- (30) *No [NEG]-licensing by overt movement of the entire subject DP through SpecNegP*



Second, if the DP-internal NEG-phrase itself undergoes covert movement to SpecNegP to make licensing of [NEG] possible, overt movement of the entire subject DP to SpecIP will be blocked (Relativized Minimality, Rizzi 1990).

- (31) *Covert movement of personne to SpecNegP blocks subject movement to SpecIP*



Likewise, the distribution of DPs that contain a possessive *wh*-phrase differs from the one of simple *wh*-phrases. In contrast to a simple object *wh*-phrase, which optionally undergoes overt *wh*-movement, (6) and (32)a/(33)a, an object DP that contains a *wh*-phrase may occur *in situ*, (32)b, but cannot occur in SpecCP, (33)b.

- (32) Fr a. Tu as rencontré **qui**?  
 b. Tu as rencontré **le frère de qui**?  
*you have met who/the brother of whom*  
 'Who/Whose brother have you met?' (Moritz & Valois 1994: 701)

- (33) Fr a. **Qui** as-tu rencontré?  
 b. \***Le frère de qui** as-tu rencontré?  
*who/the brother of whom have-you met*  
 'Who/Whose brother have you met?' (Moritz & Valois 1994: 701)

These facts are expected under the above assumptions. Similar to *personne* in (26)/(28), licensing of *qui* is possible by covert movement to SpecCP if the DP occurs in object position, irrespective of whether the DP is simple or complex, (32); see the derivations in (34).

(34) [wh]-licensing by covert movement of *qui* to SpecCP

- a. [CP <qui<sub>[wh]</sub>> C° [IP tu as [VP rencontré [qui<sub>[wh]</sub>]]]]
- 
- b. [CP <qui<sub>[wh]</sub>> C° [IP tu as [VP rencontré [le frère de [qui<sub>[wh]</sub>]]]]]]
- 

Licensing of [wh] by overt movement to SpecCP, in contrast, is only possible with a simple *wh*-phrase, (33)a, but not with a DP-internal one, (33)b: Only *qui* 'who' but not the phrase *le frère de qui* 'the brother of whom' carries [wh] and thus permits checking in SpecCP; see (35) and (36).

(35) [wh]-licensing by overt movement of *qui* to SpecCP

- [CP qui<sub>[wh]</sub> as-tu [IP <tu> <as> [VP rencontré <qui<sub>[wh]</sub>>]]]
- 

## (36) No [wh]-licensing by overt movement of the entire object DP to SpecCP

- \*[CP [le frère de [qui<sub>[wh]</sub>]] as-tu [IP <tu> <as> [VP rencontré <le frère de qui<sub>[wh]</sub>>]]]
- 

In contrast to a clause-initial object, a clause-initial subject may contain a possessive *wh*-phrase, as shown in (37). Given that overt *wh*-movement is optional in French, the subject can be located in SpecIP and licensing of [wh] may thus be carried out by extracting DP-internal *qui* and moving it to SpecCP covertly; see (38).<sup>6</sup>

## (37) Fr Le frère de qui est venu?

*the brother of whom is come*

'Whose brother has come?'

<sup>6</sup> However, note that overt extraction of the *wh*-element is not possible out of a subject DP, (i), although it is possible out of an object DP, (ii).

- (i) Fr a. \*De qui est-t-il venu le frère t<sub>wh</sub>?  
 b. \*De qui le frère t<sub>wh</sub> est-t-il venu?  
*of who the brother is-he come*  
 'Whose brother has come?'

- (ii) Fr ?De qui a-t-il rencontré le frère t<sub>wh</sub>?  
*of who has-he met the brother*  
 'Whose brother has he met?'

- (38) [wh]-licensing by covert movement of *qui* to SpecCP
- 
- ```

graph TD
    CP["[CP <qui<sub>wh</sub>> C° [IP [le frère de [qui<sub>wh</sub>]] est [VP venu]]]"]
    CP --> IP
    VP --> IP
    subgraph RightSide ["<le frère de qui>]]]
        IP
        VP
    end

```

The contrast between NEG-phrases and *wh*-phrases as to subject-internal occurrence (viz. NEG-phrases cannot occur inside a subject, (27)b, whereas *wh*-phrases can, (37)) thus follows from differences in the licensing position of [wh] and [NEG] – above (in SpecCP) vs. below (in SpecNegP) the canonical subject position (SpecIP); see the syntactic tree in (25) above. More precisely, licensing of a DP-internal *wh*- or NEG-phrase is only possible in French if the entire DP occurs in a position below the licensing position for [wh] and [NEG], SpecCP and SpecNegP, respectively. In this case, covert movement of the *wh*- or NEG-phrase alone is possible. In contrast, licensing cannot be carried out by movement of the entire DP to or through SpecCP or SpecNegP as this would require the complex DP to carry the relevant feature itself.

### 3.2 Danish: Feature percolation from pre-nominal position vs. post-nominal position

In Danish, possessive phrases may appear in two different positions, either in pre-nominal specifier position as in (39)a or in post-nominal complement position as in (39)b.

- (39) Da a. **barnets** far  
*child-the's father*  
 'the child's father'  
 b. faren **til barnet**  
*father-the of child-the*  
 'the father of the child'

This section shows that post-nominal occurrence of *wh*- and NEG-phrases is much more restricted than pre-nominal occurrence. Recall from section 2 that both [wh] and [NEG] need to be licensed overtly in Danish. This is only possible if the *wh*- or NEG-phrase occurs in pre-nominal position. As illustrated below, post-nominal *wh*- and NEG-phrases are only acceptable if the DP may stay *in situ* because licensing need not be carried out overtly, either due to narrow scope (e.g. echo-questions and constituent negation, see (4) and (12) above) or due to occurrence of another *wh*- or NEG-phrase in the clause (e.g. multiple questions and double negation constructions, see (5) and (13) above).

For instance, (40) with a NEG-phrase in pre-nominal position is acceptable whereas (41) with a NEG-phrase in post-nominal position is ungrammatical.<sup>7,8</sup>

- (40) Da a. Vi giver intet ultimatum, og vi truer **intet lands sikkerhed.**  
*we give no ultimatum and we threaten no country's security*  
 'We give no ultimatum and we don't threaten any country's security.'

---

<sup>7</sup> Since *in situ* occurrence of a NEG-phrase is ungrammatical, (11) and (i), movement of the complex object/subject to or through SpecNegP must have taken place in (40).

- (i) Da \*Vi har truet **intet lands sikkerhed.**  
*we have threatened no country's security*  
 'We haven't threatened any country's security.'

However, note that movement of a complex NEG-phrase across a verb *in situ* is at least strongly marked, (ii). This might have to do with the fact that more complex NEG-phrases do not easily undergo non-string-vacuous NEG-shift as shown in (iii); see Rögnvaldsson (1987) and K. R. Christensen (2005).

- (ii) Da ?\*Vi har **intet lands sikkerhed** truet.

- |       |       |                                                                           |                        |
|-------|-------|---------------------------------------------------------------------------|------------------------|
| (iii) | Da a. | Jeg har <b>intet</b>                                                      | hørt t <sub>NEG.</sub> |
|       | b.    | Jeg har <b>intet nyt</b>                                                  | hørt t <sub>NEG.</sub> |
|       | c.    | *Jeg har <b>intet nyt i sagen</b>                                         | hørt t <sub>NEG.</sub> |
|       | d.    | *Jeg har <b>intet nyt i sagen om de stjålne malerier</b>                  | hørt t <sub>NEG.</sub> |
|       |       | <i>I have nothing new about affair-the of the stolen paintings heard</i>  |                        |
|       |       | 'We haven't heard anything new about the affair of the stolen paintings.' |                        |

(K. R. Christensen 2005: 65)

<sup>8</sup> Note that in contrast to (41) a complex DP with a non-negative phrase in post-nominal position is acceptable, (i). As no NEG-feature is involved in this case, NEG-shift does not take place and the DP occurs in the canonical object position following a main verb inside VP, (ii); compare also footnote 7.

- (i) Da Vi truer **sikkerheden i mange lande.**  
*we threaten security-the in many countries*  
 'We threaten the security in many countries.'

- (ii) Da Vi har truet **sikkerheden i mange lande.**  
*we have threatened security-the in many countries*  
 'We have threatened the security in many countries.'

- (41) Da a. \*Vi giver intet ultimatum, og vi truer **sikkerheden i intet land.**  
*we give no ultimatum and we threaten security-the in no country*  
'We give no ultimatum and we don't threaten the security in any country.'

b. \*Efter disse beretninger fra det virkelige liv forekommer  
*after these tales from the real live seems*  
**handlingen i ingen krimi** spor usandsynlig.  
*story-the in no crime novel at all implausible*  
'After these reports from the real live no crime novel's story seems implausible.'

Similar to DP-internal NEG-phrases, DP-internal *wh*-phrases are acceptable in pre-nominal position, (42), but not in post-nominal position, (43).

- (42) Da a. **Hvilke landes kulturprodukter** gider vi at engagere os i  
*which countries' cultural products* *care we to engage us in*  
om ti år?  
*in ten years*  
'Which countries' cultural products will we bother to engage in  
in ten years?' [\(http://www.cifs.dk\)](http://www.cifs.dk)

b. **Hvilket lands salgsteam** har solgt bedst?  
*which country's sales team has sold best*  
'Which country's sales team has sold best?' [\(KorpusDK\)](#)

- (43) Da a. **\*Kulturprodukter fra hvilke lande** gider vi at engagere os  
*cultural products from which countries care we to engage us*  
i om ti år?  
*in in ten years*  
'Which countries' cultural products will we bother to engage in  
in ten years?'

b. **\*Salgsteamet fra hvilket land** har solgt bedst?  
*sales team-the from which country has sold best*  
'Which country's sales team has sold best?'

The sentences in (43) might be acceptable as echo-questions, which are not proper interrogative clauses, i.e. which do not involve licensing of [wh] (see section 2.1 above). Moreover, note that a wh-phrase may occur in post-nominal position in multiple questions, where it is licensed by the higher wh-phrase; see (5) above.

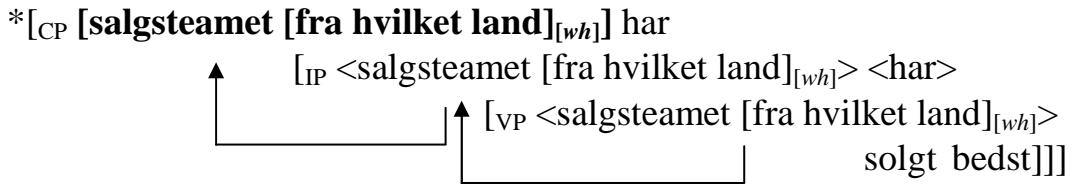
- (44) Da (Inden de [= børn i vuggestuen] er ret gamle, ved de,) ('Before they [= children in day care] are very old they know')  
**hvem** der er **forældre til hvilke børn** på stuen.  
*who who are parents of which children in room-the*  
'who are the parents of which children in the room.'  
(http://www.uddannelse.ltk.dk)

Likewise, Svenonius (2002) claims that a NEG-phrase may occur in post-nominal position in Norwegian double negation constructions; compare (45) with (13).

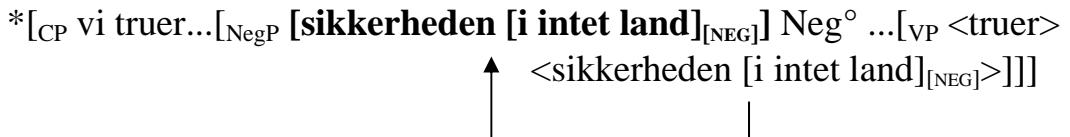
- (45) No a. \*Artistene beholdt **rettighetene til ingen av låtene sine.**  
*artists-the retained rights-the to none of songs RFX*  
'The artists didn't retain the rights to any of their songs.'  
b. **Ingen av artistene** beholdt **rettighetene til ingen av låtene sine.**  
*none of artists-the retained rights-the to none of songs RFX*  
'None of the artists retained the rights to none of their songs.'  
(= 'Every artist retained the rights to some of their songs.')  
(Svenonius 2002: 143)

The above data indicate that a post-nominal wh- or NEG-phrase is not impossible as such. Rather, the sentences in (41) and (43) are ungrammatical under sentential scope because this would require licensing of [wh] and [NEG] to take place overtly which cannot be carried out by movement of the entire DP to SpecCP, (46) [= (43)b], or SpecNegP, (47) [= (41)a], respectively: The complex DPs *salgsteamet fra hvilket land* 'the sales team from which country' and *sikkerheden i intet land* 'the security in no country' do not carry wh- and NEG-features, only the DP-internal PPs *fra hvilket land* 'from which country' and *i intet land* 'in no country' do so (see footnote 9 below).

- (46) *No [wh]-licensing by overt movement of a DP with post-nominal wh-phrase to SpecCP*



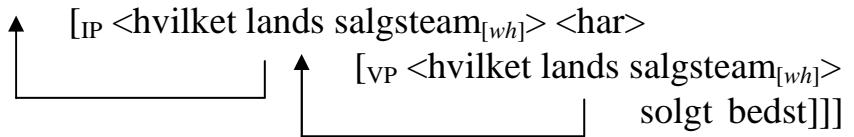
- (47) *No [NEG]-licensing by overt movement of a DP with post-nominal NEG-phrase to SpecNegP*



In contrast, occurrence of a *wh*-phrase or NEG-phrase in pre-nominal position is acceptable, as shown in (40) and (42) above. Thus, licensing of a pre-nominal *wh*- or NEG-phrase can obviously be carried out by overt movement of the entire DP to SpecCP or SpecNegP which presupposes that the entire DP is marked for [wh]/[NEG]: The phrase in Spec-head configuration must carry the respective feature itself for licensing to be possible. This is illustrated in (48) [= (42)b] and (49) [= (40)a].

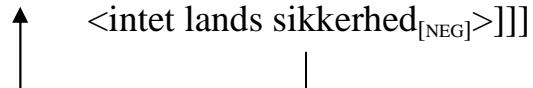
- (48) *[wh]-licensing by overt movement of a DP with pre-nominal wh-phrase to SpecCP*

[<sub>CP</sub> [**hvilket lands salgsteam**<sub>[wh]</sub>] har



- (49) *[NEG]-licensing by overt movement of a DP with pre-nominal NEG-phrase to SpecNegP*

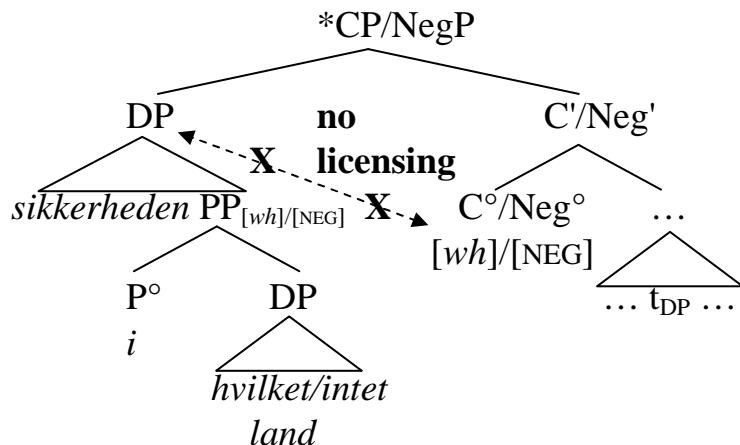
[<sub>CP</sub> vi truer ... [<sub>NegP</sub> [**intet lands sikkerhed**<sub>[NEG]</sub>] Neg° ...[<sub>VP</sub> <truer>



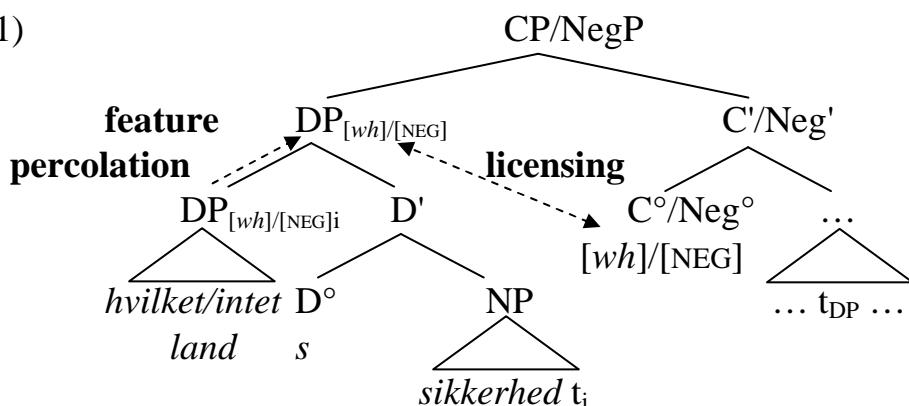
The contrast between DPs with pre-nominal *wh*- and NEG-phrases and ones with post-nominal *wh*- and NEG-phrases can be accounted for by differences in feature percolation. It is usually assumed that a phrase in post-nominal complement position as in (50) cannot induce feature percolation and pied-

piping whereas one in pre-nominal specifier position as in (51) can; see e.g. Webelhuth (1992) and Horvath (2005).<sup>9</sup>

(50)



(51)



To sum up, *wh*- and NEG-phrases must apparently occupy a left-peripheral position within DP (i.e. SpecDP) to be able to take sentential scope in Danish, just as they have to move leftwards within the clause (to SpecCP and

<sup>9</sup> There is one well-known exception to the prohibition against feature percolation and pied-piping from complement position: The complement of a preposition is able to – and in many languages must – pied-pipe PP (see Webelhuth 1992 and Horvath 2005). Preposition stranding as found in English and the Scandinavian languages is cross-linguistically rather rare. (Thus, the entire PP in (50) can be marked [wh]/[NEG], but percolation up to DP is not possible.)

- (i) Da a. **Hjem** har du snakket **med** t?  
b. ??**Med hvem** har du snakket t?  
*with whom have you spoken*  
'Who have you spoken to?'
  
- (ii) Ge a. \***Wem** hast du **mit** t gesprochen?  
b. **Mit wem** hast du t gesprochen?  
*with whom have you spoken*  
'Who have you spoken to?'

SpecNegP). Only if the *wh*- or NEG-phrase occurs in pre-nominal position is feature percolation possible, permitting licensing of [wh] and [NEG] to be carried out by overt movement of the entire DP to SpecCP and SpecNegP, respectively. Feature percolation cannot be induced from post-nominal position, giving rise to distributional contrasts between DPs with pre-nominal *wh*- or NEG-phrase and ones with post-nominal *wh*- or NEG-phrase in Danish.

However, as the following section shows, feature percolation is apparently not generally restricted to pre-nominal phrases. Feature percolation would seem to be possible from post-nominal position in German and English, where DPs with pre-nominal *wh*- and NEG-phrases and DPs with post-nominal ones do not contrast in distribution.

### 3.3 German & English: Feature percolation from post-nominal position

As in Danish, *wh*-movement and NEG-shift must take place overtly in German; see section 2. However, in contrast to Danish, (40)-(43), *wh*-phrases and NEG-phrases may occur in a post-nominal PP in German, (52) and (53). In addition, possessive *wh*-phrases and NEG-phrases may emerge as post-nominal genitives, (54) and (55).<sup>10</sup>

- (52) Ge a. **Reiseführer von welchem Anbieter** kannst du empfehlen?  
*travel-guides of which provider* can you recommend  
 'Which provider's travel guides can you recommend?'  
 b. **Reiseführer von welchem Anbieter** sind Eurer Meinung nach  
*travel-guides of which provider* are in your opinion  
 die Besten?  
*the best*  
 'Which provider's travel guides are the best in your opinion?'  
 (<http://community.ferien.de>)

- (53) Ge a. **Die Arbeit von keinem einzigen** fand ich so, dass ich ihn  
*the work of no single one* found I so that I him

---

<sup>10</sup> The hypothesis that DPs that contain a NEG-phrase undergo NEG-shift in overt syntax in German is supported by the fact that they must precede an adjective under a sentential negation reading; see also (15) above.

- (i) Ge a. ?\*Martin ist zufrieden mit dem Vater von keinem Kind/keines Kindes.  
 b. Martin ist mit dem Vater von keinem Kind/keines Kindes zufrieden.  
*Martin is with the father of no child/no child's* pleased  
 'Martin isn't pleased with any child's father.'

ohne Bedenken längerfristig nehmen wollen würde.  
*without qualms for longer periods take want would*  
'I didn't consider the work of any single person so good that I  
would want to hire him without qualms for a longer period.'

(<http://www.spin.de>)

- b. **Die Arbeit von keinem Mensch** ist 7 Millionen wert!  
*the work of no human being is 7 million worth*  
'No human being's work is worth 7 million.'  
(<http://www.webnews.de>)

- (54) Ge a. **Die Nationalmannschaft welchen Landes** nennt man auch  
*the national team which country's* calls one also  
'"Squadra Azzura"?'  
*Squadra Azzura*  
'Which country's national team is also called "Squadra Azzura"?'  
(<http://www.witze-fun.de>)
- b. **Die Hauptstadt welchen Landes** liegt auf einer Insel  
*the capital which country's* lies on an island  
im Atlantik?  
*in-the Atlantic ocean*  
'Which country's capital lies on an island in the Atlantic ocean?'  
(<http://www.reise-quiz.de>)

- (55) Ge a. Mit diesem Buch gewinnt man **das Interesse keines Kindes** ...  
*with this book gains one the interest no child's*  
'One doesn't gain any child's interest with this book ...'  
(<http://catalog.ebay.at>)
- b. und **der EU-Beitritt keines Landes** wird so kontrovers und  
*and the EU entry no country's* is so controversially and  
umfassend diskutiert wie der Beitritt der Türkei.  
*comprehensively discussed like the entry the Turkey's*  
'and no country's EU entry is discussed so controversially and  
comprehensively as the entry of Turkey.' (<http://www.gesis.org>)

Given that licensing of [wh] and [NEG] must be carried out overtly in German and that licensing under Spec-head configuration requires that the phrase in specifier position carries the relevant feature itself, feature percolation would seem to be possible from post-nominal position in this language whereas it is

not in French and Danish (see sections 3.1 and 3.2).<sup>11</sup> As illustrated in (56) [= (54)b] and (57) [= (53)a], the entire DP with post-nominal *wh*- or NEG-phrase has moved to or through SpecCP and SpecNegP, respectively, where licensing takes place.

<sup>11</sup> However, note that a post-nominal *wh*-phrase does not seem to be able to induce feature percolation and pied-piping in embedded questions. Instead, the post-nominal PP moves to SpecCP on its own. This option is also available in main questions. (On further differences between main questions and embedded questions see footnote 1 above.)

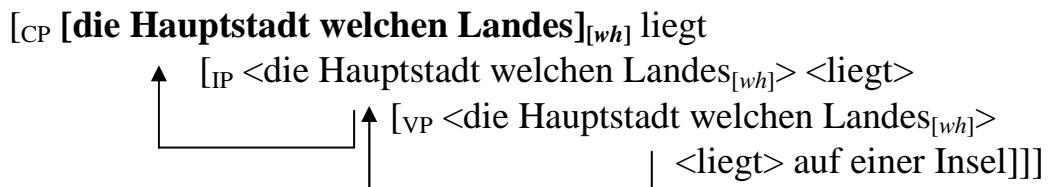


Licensing of [NEG], in contrast, is not dependent on the main clause/embedded clause distinction: A NEG-phrase may occur in post-nominal position in an embedded clause.

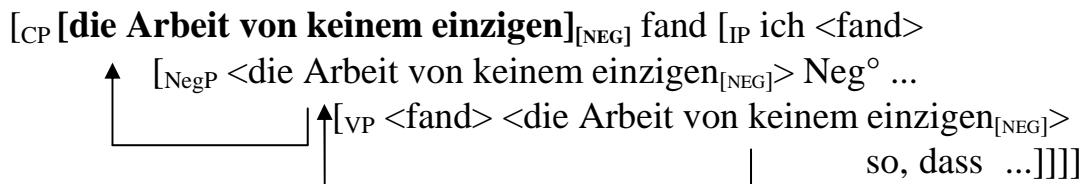
- (iii) Ge a. weil man mit diesem Buch **das Interesse keines Kindes** gewinnt.  
b. weil man mit diesem Buch **das Interesse von keinem Kind** gewinnt.  
*because one with this book the interest no child's/of no child gains*  
'because one cannot gain any child's interest with this book.'

(iv) Ge a. weil **der Vater keines Kindes** gekommen ist.  
b. weil **der Vater von keinem Kind** gekommen ist.  
*because the father no child's/of no child come is*  
'because no child's father has come.'

- (56) [wh]-licensing by overt movement of a DP with post-nominal wh-phrase to SpecCP



- (57) [NEG]-licensing by overt movement of a DP with post-nominal NEG-phrase to SpecNegP



Note that though it sounds quite archaic, possessives may also emerge as pre-nominal genitive DPs in German. Feature percolation is clearly possible from pre-nominal position, too.

- (58) Ge **des Kaisers** neue Kleider  
*the emperor's new clothes*  
 'the emperor's new clothes'

- (59) Ge a. **Wessen Ehefrau/Wessen Bruders Ehefrau** hast du getroffen?  
*whose wife/whose brother's wife* *have you met*  
 'Whose wife/whose brother's wife have you met?'  
 b. **Keines Kindes Vater** hätte das jemals getan.  
*no child's father* *had this ever done*  
 'No child's father had ever done this.'

Similar to German, feature percolation seems to be possible from both pre-nominal and post-nominal position in English. Though pre-nominal occurrence of a wh- or NEG-phrase might be preferred, (60) and (62), occurrence in post-nominal position is also acceptable, (61) and (63).

- (60) En a. **Which team's cap** would you like to wear into the Hall of Fame?  
 b. **Which team's players** will benefit the most from their schedule?  
 (COCA)

- (61) En a. **The president of which country** did Queen Elisabeth encourage to take a risk and pursue his dreams?
- b. **The president of which country** famously took to the pitch in an effort to persuade the referee to disallow a French goal during their 1982 Group match in Spain? (<http://news.bbc.co.uk>)
- (62) En a. The threats we face today as Americans respect **no nation's borders**.
- b. **No individual's life** can be sustained by role-playing, ... (COCA)
- (63) En a. Emily Benton stood in **the shadow of no man**. (COCA)
- b. Contrary to what Polk says, **the doors of none of these rooms** had been "blasted apart". (<http://www.lankanewspapers.com>)

Remember that NEG-shift need not take place overtly in English (see section 2.2). However, the fact that a subject DP may contain a NEG-phrase in post-nominal position as in (63)b suggests that feature percolation is possible from that position in English: Licensing of [NEG] must take place by moving the subject DP through SpecNegP on its way to SpecIP.

Moreover, note that DPs with a post-nominal *wh*-phrase would seem to have a flavor of quiz questions in German and English. However, negative polarity items such as *jemals* 'ever' and *einen Finger rühren* 'lift a finger' in (64) or *ever* and *bother* in (65) may appear in these questions, indicating that they take sentential scope and [*wh*]-licensing takes place.

- (64) Ge **Die Sekretärin welches Managers** hat jemals  
*the secretary which manager's*      *has*    *ever*  
 einen Finger gerührt?  
*a finger*      *lifted*  
 'Which manager's secretary has ever lifted a finger?'
- (65) En **The students of which subjects** ever bothered to do their homework?

To sum up, the distribution of complex DPs with post-nominal *wh*- or NEG-phrase does not differ from that of simple *wh*- or NEG-phrases in German and English. This suggests that English and German contrast with French and Danish in that feature percolation is possible from post-nominal position in the former languages, but not in latter ones. DP-internal *wh*- and NEG-phrases in post-nominal position can apparently be licensed by overt movement of the entire DP to or through SpecCP and SpecNegP in German and English, which

presupposes that the constituent in specifier position carries the relevant feature itself. In contrast, this is not the case in French and Danish, where DPs with post-nominal *wh*- or NEG-phrase are excluded if licensing would have to be carried out by overt movement of the entire DP.

#### 4 Feature percolation from pre- and post-nominal position

The previous sections have shown that there is cross-linguistic variation as to the ability of post-nominal *wh*-phrases and NEG-phrases to induce feature percolation and pied-piping. This seems to be possible in German and English but not in French and Danish (see Figure 3). In contrast, feature percolation and pied-piping is generally permitted with possessive *wh*-phrases and NEG-phrases in pre-nominal position. (Note that there are no post-nominal possessive *wh*-phrases and NEG-phrases in French; see footnote 5.)

**Figure 3: Variation as to feature percolation**

| feature percolation from | Da | Fr | Ge | En |
|--------------------------|----|----|----|----|
| pre-nominal position     | +  | %  | +  | +  |
| post-nominal position    | -  | -  | +  | +  |

In section 3.2, the distributional contrast between DPs with pre-nominal *wh*- or NEG-phrase and ones with post-nominal *wh*- or NEG-phrase in Danish was accounted for by the common assumption that feature percolation is possible from specifier position but not from complement position (e.g. Webelhuth 1992 and Horvath 2005; see also (50) and (51) above). The observed cross-linguistic variation as to feature percolation from post-nominal position might be accounted for in two ways. Either there are differences in the structural position from which feature percolation and pied-piping can be induced; i.e. only phrases in specifier position can induce feature percolation in French and Danish while phrases in specifier and complement position may induce feature percolation in German and English (Figure 4). Or it might be assumed that feature percolation is generally restricted to phrases in specifier position and that there are differences in the structural position of post-nominal phrases; i.e. post-nominal phrases occupy a complement position in French and Danish but a specifier position in German and English; see Figure 5.

**Figure 4: Cross-linguistic variation as to feature percolation from complement position**

| feature percolation from | Da | Fr | Ge | En |
|--------------------------|----|----|----|----|
| specifier position       | +  | %  | +  | +  |
| complement position      | -  | -  | +  | +  |

**Figure 5: Cross-linguistic variation as to the structural position of post-nominal phrases**

| structural position of | Da    | Fr    | Ge   | En   |
|------------------------|-------|-------|------|------|
| pre-nominal phrases    | spec  | %     | spec | spec |
| post-nominal phrases   | compl | compl | spec | spec |

In Engels (2009b, 2010), I pursued the latter hypothesis and assumed that DPs with post-nominal *wh*- or NEG-phrase differ in structure, adapting den Dikken's (1998) small clause analysis of possessive constructions. However, scope facts reported in the Appendix would seem to support the former hypothesis, i.e. that there is cross-linguistic variation as to the structural positions from which feature percolation can be induced. As discussed in the Appendix, complex DPs with a quantified phrase in pre-nominal position and complex DPs with a quantified phrase in post-nominal position differ in reading, but crucially these readings are identical across languages. Under the assumption that scope is encoded in syntactic structure, these data point to the conclusion that there should be no cross-linguistic variation as to the structure of the complex DPs. The observed cross-linguistic contrasts as to feature percolation from post-nominal position would thus seem to result from differences in whether or not feature percolation can be induced from complement position.

## 5 Conclusion

Danish, German, English and French differ in the distribution of simple *wh*- and NEG-phrases and DPs that contain possessive *wh*- and NEG-phrases in pre- or post-nominal position. Assuming that *wh*- and NEG-phrases carry features ([*wh*] and [NEG], respectively) that need to be licensed in Spec-head configuration, these asymmetries were accounted for by differences in the licensing requirements as well as differences in the feature percolation possibilities.

As shown in section 2, while overt *wh*-movement is obligatory in Danish, German and English, it is optional in French. Moreover, overt NEG-shift is obligatory in Danish and German but only takes place covertly in English and

French. The distribution of simple *wh*- and NEG-phrases is thus predicted to vary cross-linguistically.

Moreover, the distribution of complex DPs that contain a possessive *wh*- or NEG-phrase might differ from that of simple *wh*- and NEG-phrases. It was argued in section 3 that this results from the fact that DP-internal *wh*- and NEG-phrases are subject to the same licensing requirements as simple ones but that licensing might not be carried out in certain cases. Licensing in Spec-head configuration requires that the phrase in specifier position carries the relevant feature itself. In case of covert licensing the DP-internal *wh*- or NEG-phrase may undergo movement to the respective specifier position on its own. However, licensing of [wh] and [NEG] may only be carried out by overt movement of the entire DP to or through SpecCP or SpecNegP if feature percolation is possible. If feature percolation is excluded, licensing cannot take place and asymmetries in the distribution of simple *wh*- and NEG-phrases and complex DPs with embedded *wh*- and NEG-phrases arise.

Feature percolation is generally possible from pre-nominal position: DPs with pre-nominal *wh*- and NEG-phrases show the same distribution as simple *wh*- and NEG-phrases. In contrast, post-nominal phrases vary cross-linguistically as to the ability to induce feature percolation. They are apparently able to do so in German and English but not in Danish and French. As discussed in section 4 (and the Appendix), this cross-linguistic contrast would seem to result from differences in the structural positions from which feature percolation can be induced.

### **Appendix: Reading of complex DPs with quantified phrases in pre- and post-nominal position**

Scopal facts point to the conclusion that the structures of complex DPs with pre-nominal and post-nominal possessives do not vary cross-linguistically. In all the languages under discussion, a post-nominal quantified possessor phrase is ambiguous between a collective reading and a distributive reading, whereas a pre-nominal quantified DP only permits the distributive reading.<sup>12</sup>

- |                                     |                   |
|-------------------------------------|-------------------|
| (66) En a. fathers of many children | ambiguous         |
| b. many children's fathers          | distributive only |

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<sup>12</sup> Note that other complex DPs with a non-possessive post-nominal phrase do not display this ambiguity. For instance, (i) may only receive a collective reading ('there is a linguistics class in which every student hates chocolate'):

(i)     En     Every student in one of the linguistics classes hates chocolate.

The collective and distributive readings are illustrated in (67). Under the collective reading the DP *fathers of many children* refers to men that have three or more children (*many* takes narrow scope), whereas under a distributive reading each of the many children may possibly have a different father (*many* takes wide scope).



Examples of the collective and distributive readings of DPs with post-nominal quantifier in French, Danish, German and English are given in (68)-(72).

- (68) Fr a. (Les familles nombreuses (plus de 3 enfants) n'ont pas forcément la vie dure; ...) ('The large families (more than 3 children) don't necessarily have a hard life; ...') souvent **ces mères de beaucoup d'enfants** sont admirées.  
often     *these mothers of many of children are admired*  
'these mothers of many children are often admired.'

(http://forum.doctissimo.fr)

b. ... parmi **les parents de beaucoup de mes camarades**, la mère  
*among the parents of many of my friends*                              *the mother*  
vote Eltsine ou Ziouganov, mais le père Jirinovski.  
*votes Eltsine or Ziouganov, but the father Jirinovski.*  
'... among many of my friends parents, the mother votes Eltsine  
or Ziogonov but the father Jirinovski.'

- (69) Da a. Han var **far til mange børn**, men kun to havde han  
*he was father of many children but only two had he*  
 fået med sin kone Hera.  
*had with his wife Hera*  
 'He was the father of many children, but he only had two with his  
 wife Hera.' <http://www.aigis.dk>

- b. Hvis jeg var fotograf, ville jeg tage **billeder**  
*if I was photographer would I take pictures*  
**af mange forskellige mennesker.**  
*of many different people*  
'If I was a photographer, I would take pictures of many different people.'  
(Korpus.DK)

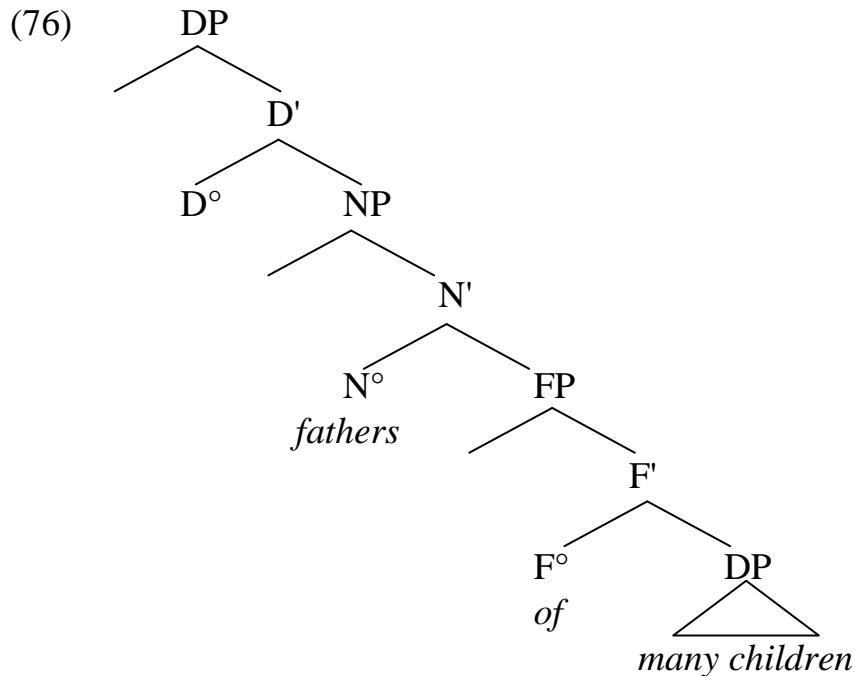
- (70) Ge a. **Väter von vielen Kindern** sind überdurchschnittlich oft  
*fathers of many children are above-average often*  
übergewichtig.  
*overweight*  
'An above average number of fathers with many children are  
overweight.' [\(http://www.wissenschaft.de\)](http://www.wissenschaft.de)
- b. **Väter von vielen Kindern** fielen, ...  
*fathers of many children were killed-in-war*  
'Fathers of many children were killed in the war, ...'  
[\(http://de.answers.yahoo.com\)](http://de.answers.yahoo.com)
- (71) Ge a. Sie waren stolze Heerführer und **Väter vieler Kinder.**  
*they were proud military leaders and fathers of many children*  
'They were proud military leaders and fathers of many children.'  
[\(http://www.digitalartforum.de\)](http://www.digitalartforum.de)
- b. **Die Väter vieler Kinder** waren gefallen ...  
*the fathers many children's were killed-in-war*  
'The fathers of many children were killed in the war ...'  
[\(http://www.ejh.de\)](http://www.ejh.de)
- (72) En a. The husband of a wife who produces many children is a real man,  
and people always speak highly of **the fathers of many children.**  
[\(books.google.com\)](http://books.google.com)
- b. On Christmas Eve of the year he was born there was a large  
explosion in one of the mines, killing the **fathers of many  
children** ... [\(http://www.guardian.co.uk\)](http://www.guardian.co.uk)

In contrast, a pre-nominal quantified DP is restricted to a distributive reading, as illustrated by the examples in (73)-(75).

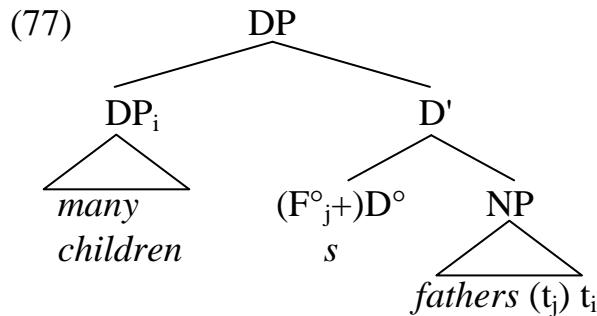
- (73) Da a. #**Mange børns fædre** er ofte overvægtige.  
*many children's fathers are often overweight*  
 'The fathers of many children are often overweight.'
- b. Han har ødelagt **mange menneskers liv** ...  
*he has ruined many people's lives*  
 'He has ruined the lives of many people.' (KorpusDK)
- (74) Ge a. #**Vieler Kinder Väter** sind häufig übergewichtig.  
*many children's fathers are often overweight*  
 'The fathers of many children are often overweight.'
- b. **Vieler Kinder Väter** sind gefallen.  
*many children's fathers are killed-in-war*  
 'The fathers of many children were killed in war.'
- (75) En a. #**Many children's fathers** are often overweight.  
 b. **So many children's mothers** absolutely have to work, because otherwise they cannot live, ... (<http://www.independent.co.uk>)

Under the assumption that semantic scope is reflected by c-command in syntactic structure, the fact that the readings of pre- and post-nominal quantified DPs are identical across languages suggests that there is no cross-linguistic contrast in the structure of complex DPs.

Because of theta-role assignment it is expected that DPs with a post-nominal possessive in complement position represent the basic structure; see (76).



As shown in (77), the pre-nominal structure can be derived from (76) by moving the quantified possessor DP to SpecDP (and possibly moving  $F^\circ$  to  $D^\circ$  where the complex head is spelled out as  $-s$ ).



As regards interpretation, the unambiguity of DPs with a pre-nominal quantified possessive shown in (73)-(75) indicates that only the higher copy but not the lower copy of the quantified phrase in (77) counts for scope: Only the distributive reading, where *many* takes wide scope, is accessible in this construction. DPs with a post-nominal quantified possessive, in contrast, are ambiguous between a collective reading and a distributive reading (see the examples in (68)-(72) above). This may be accounted for by the assumption that optional covert movement of the quantified possessor to SpecDP is possible. *Many children* in (76) would then be expected to be able to take narrow scope (*in situ* occurrence) or wide scope (after covert movement).

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