

Wh and NEG in clauses and nominals

Work in progress

Eva Engels, eva.engels@hum.au.dk

University of Aarhus

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 *wh*-phrases and NEG-phrases. These asymmetries will be accounted for by differences in the point of derivation at which licensing takes place as well as differences in which constituents can induce feature percolation and pied-piping.

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1 Simple *wh*-phrases and NEG-phrases

1.1 *wh*-movement

In Danish, German and English, a *wh*-object must undergo *wh*-movement (except for echo-questions or multiple questions¹). 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

- (2) Ge a. *Du hast **wen** getroffen?
 b. **Wen** hast du t_{wh} getroffen?
who have you met

- (3) En a. *You have met **who**?
 b. **Who** have you met t_{wh} ?

In contrast, *wh*-movement is optional in French main clauses. A *wh*-object may stay *in situ* or occur in SpecCP.²

¹ In echo-questions, (i), and multiple questions, (ii), a *wh*-phrase may occur *in situ* in the languages under discussion.

- (i) En John ate **WHAT**?
 (ii) 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 is not marked for [+*wh*], and consequently, it is not subject to the conditions on [+*wh*] licensing. 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).

² Bošković (1996, 1997) and Cheng & Rooryck (2000) claim that *wh-in situ* is restricted to matrix clauses in French; cf. Pollock (1998).

- (i) Fr a. *Pierre a demandé tu a vu **qui**?
 b. Pierre a demandé **qui** tu a vu t_{wh} ?
Pierre has asked who you have seen
- (ii) Fr a. *Jean et Pierre croient que Marie a vu **qui**?
 b. **Qui** Jean et Pierre croient-ils que Marie a vu?
who Jean and Pierre think-they that Marie has seen (Bošković 1998: 46)

See also Chang (1997) and Mathieu (2004) on other contexts in which *wh*-movement is obligatory.

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

Similar to *wh*-objects, *wh*-subjects move to SpecCP overtly in the V2-languages Danish and German.

- (5) Da a. *I dag er **hvem** kommet?
 b. **Hvem** er t_{wh} kommet i dag?
who is come today

- (6) Ge a. *Heute ist **wer** gekommen?
 b. **Wer** ist t_{wh} heute gekommen?
who is today come

In the non-V2 languages English and French, it is not obvious which structural position a clause-initial *wh*-subject occupies, SpecCP or SpecIP. However, as overt *wh*-movement is obligatory for objects in English, I assume that it also takes place with *wh*-subjects (see Rizzi 1996, 1997, Radford 2004, den Dikken 2006).³ Accordingly, I assume that *wh*-subjects may appear in SpecIP in French, where *wh*-movement is optional.

- (7) En [CP **Who** e [IP t_{wh} e [VP came today]]]?

- (8) Fr [IP/CP **Qui** est arrivé aujourd'hui]?
who is arrived today

³ Empirical support for the SpecCP analysis of *wh*-subjects comes from *wh*-island effects and intensifiers like *the hell/on earth* (Pesetsky 1987). In contrast to non-subject questions, however, subject questions do not give rise to *do*-support. On the lack of *do*-support in subject *wh*-questions see Bobaljik (1995), Lasnik (1995) and Pesetsky & Torrego (2001).

1.2 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 but must undergo leftward movement to SpecNegP, henceforth NEG-shift; see K. K. Christensen (1986, 1987), Rögnvaldsson (1987), Jónsson (1996), Svenonius (2000, 2002), K. R. Christensen (2005), and Engels (2009a,b).⁴

- (9) Da a. *Han har sagt **ingenting**.
 b. Han har **ingenting** sagt t_{NEG}.
he has nothing said

In an OV-language like German, clause-internal NEG-shift cannot be inferred from word order. The negative object could be in VP-internal position or in SpecNegP.

- (10) Ge a. Er hat [VP **nichts** gesagt]
 b. Er hat [_{NegP} **nichts** [VP t_{NEG} gesagt]]
he has nothing said

Haegeman (1995) argues that NEG-shift takes place overtly in German. Under a sentential negation reading the negative complement of an adjective must occur to the left of the adjective, (11), while it may remain inside the AdjP under a narrow scope reading, (12).

⁴ Note that *in situ* occurrence of a negative object is possible under a narrow scope reading (see also Svenonius 2002).

- (i) Da a. Jeg har [VP fået **ingen point**]
I have received no points
 'I scored zero points.'
 b. Jeg har [_{NegP} **ingen point** [VP fået t_{NEG}]]
I have no points received
 'I haven't got any points yet/I haven't been judged yet.' (K. R. Christensen 2005: 83)

In addition, Svenonius (2002) claims that a negative object *in situ* can be licensed by another VP-external NEG-phrase in Norwegian (giving rise to a double negation reading); see also footnote 1. However, my Danish and Norwegian informants do not really accept multiple negation constructions.

- (ii) No a. ***Studentene** kunne [VP svare på **ingen oppgaver**]
students-the could answer on no assignments
 b. **Ingen studenter** kunne [VP svare på **ingen oppgaver**]
no students could answer on no assignments (Svenonius 2002: 142)

- (11) Ge Ich hatte gerade ein sehr schwieriges Gespräch mit Peter über unseren Lösungsvorschlag.
(I had just 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
 (Haegeman 1995: 167/68)
- (12) 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 (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 in overt syntax.⁵

- (13) En a. He said **nothing**.
 b. *He **nothing** said t_{NEG} .
- (14) Fr a. Il n' a vu **personne**.
 b. *Il n' a **personne** vu t_{NEG} .
he NE has nobody seen

⁵ In contrast to *personne* 'nobody', *rien* 'nothing' precedes a non-finite verb in French; compare (i) with (14).

- (i) Fr a. *Il n' a dit **rien**.
 b. Il n' a **rien** dit t_{NEG} .
he NE has nothing said

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'.

- (ii) Fr a. Jean n' a encore **rien** mangé.
 b. Jean n' a **pas** encore mangé.
Jean NE has not yet nothing eaten (Rowlett 1998: 192)

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

Though there is cross-linguistic variation as to overt movement of a NEG-object, a NEG-subject can appear in the canonical subject position (SpecIP) in all the languages under discussion.

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

1.3 *wh*-Criterion and NEG-Criterion

The distribution of simple *wh*-phrases and NEG-phrases is summarized in Figure 1. (The OV property of German is disregarded here.)

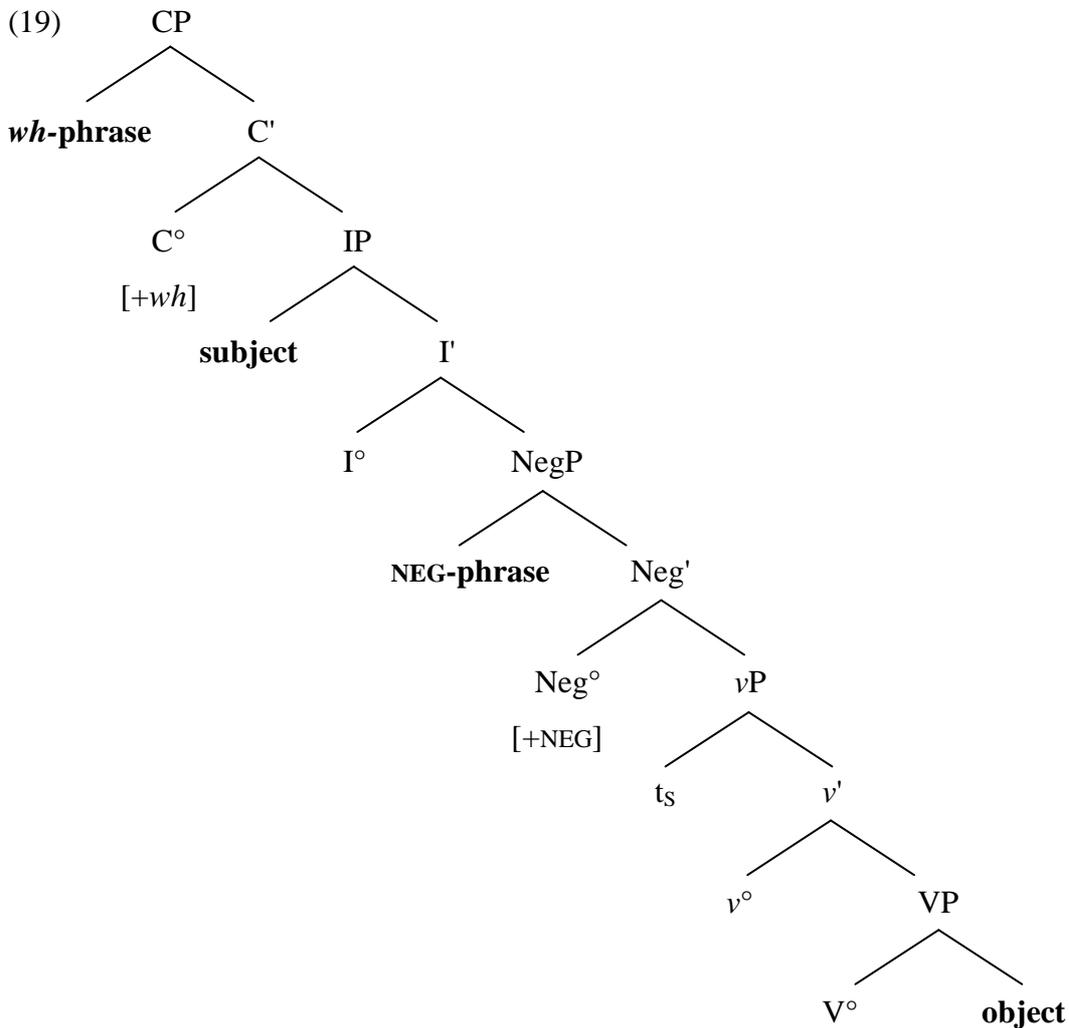
Figure 1

simple		SpecCP	C	SpecIP	SpecNegP	V	Compl
<i>wh</i>	Da	<i>wh</i>		* <i>wh</i>			* <i>wh</i>
	Ge	<i>wh</i>		* <i>wh</i>			* <i>wh</i>
	En	<i>wh</i>		* <i>wh</i>			* <i>wh</i>
	Fr	<i>wh</i>		<i>wh</i>			<i>wh</i>
NEG	Da			NEG	NEG		*NEG
	Ge			NEG	NEG		*NEG
	En			NEG	*NEG		NEG
	Fr			NEG	*NEG		NEG

The distributional patterns point to the conclusion that *wh*-movement is obligatory in Danish, German and English but optional in French, and NEG-shift is obligatory in Danish and German but forbidden in English and French. This is illustrated in Figure 2.

Figure 2

	Da	Ge	En	Fr
<i>wh</i> -movement	+	+	+	±
NEG-shift	+	+	-	-



Though a NEG-object does not surface in SpecNegP in English and French (a NEG-object follows a main verb *in situ*, (13) and (14)), this does not mean that NEG-phrases cannot undergo overt movement: A NEG-subject appears in the canonical subject position, SpecIP; cf. (17) and (18). In this case the NEG-phrase is moved to SpecIP by subject movement; in other

words, the trigger for movement of the NEG-subject seems to be EEP not [+NEG], 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 (19).

Wh-movement and NEG-shift have been assumed to be triggered by the *wh*-Criterion (Rizzi 1996) and the NEG-Criterion (Haegeman & Zanuttini 1991, Haegeman 1995), respectively.

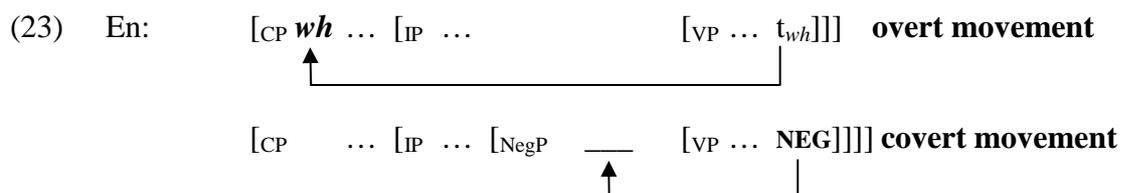
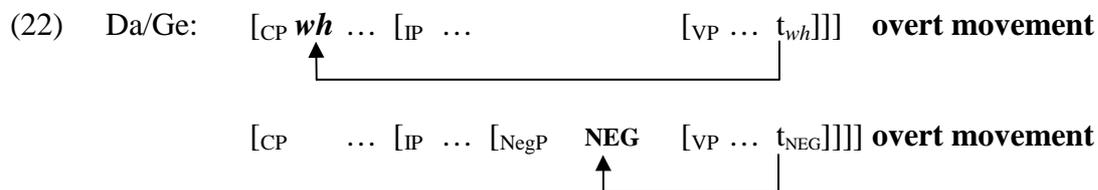
(20) *wh*-Criterion (Rizzi 1996: 64)

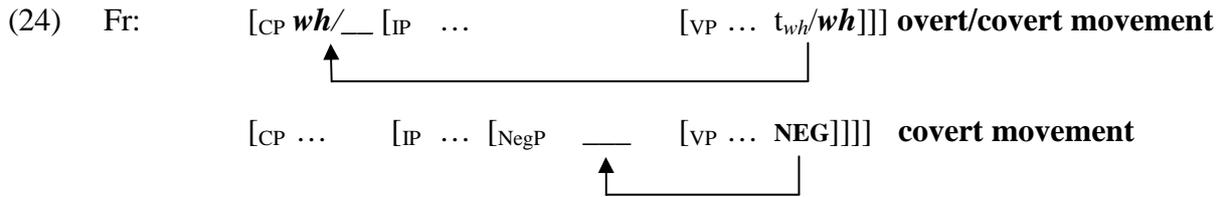
- a. A *wh*-operator must be in a Spec-head configuration with a [+*wh*] X°.
- b. A [+*wh*] X° must be in a Spec-head configuration with a *wh*-operator.

(21) NEG-Criterion (Haegeman 1995: 106)

- a. A NEG-operator must be in a Spec-head configuration with a [+NEG] X°.
- b. A [+NEG] X° must be in a Spec-head configuration with a NEG-operator.

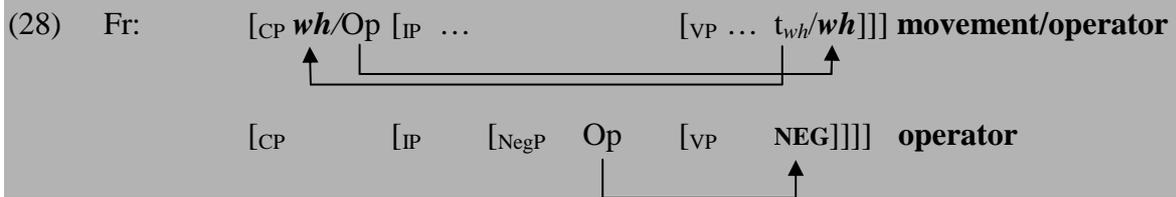
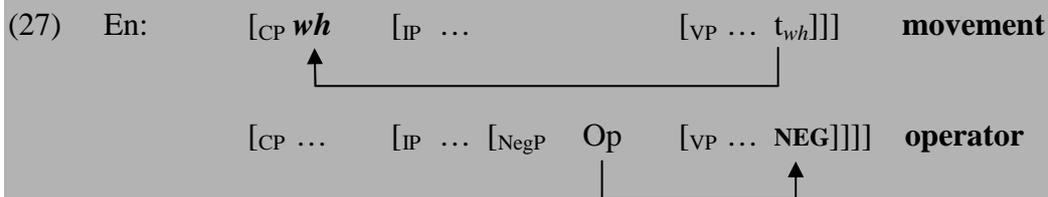
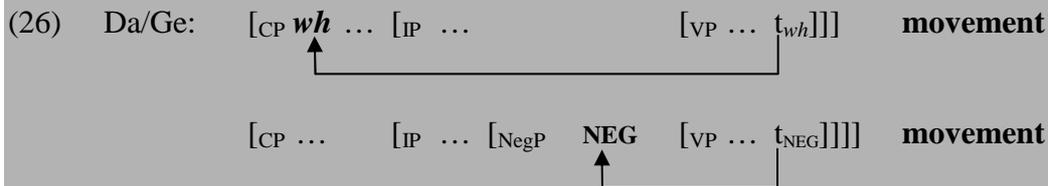
Under the assumption that the *wh*-Criterion and the NEG-Criterion are separate conditions, contrasts in the distribution of *wh*-phrases and NEG-phrases can be accounted for by differences in the point of derivation at which licensing of [+*wh*] and licensing of [+NEG] take place (before or after Spell-out; henceforth LF movement analysis, see e.g. Bošković 1997). For instance, while both *wh*-phrases and NEG-phrases must be licensed by overt movement in Danish and German, (22), *wh*-movement but not NEG-shift takes place in overt syntax in English, (23), and in French a *wh*-object may be licensed overtly whereas a NEG-object cannot, (24).





However, under the assumption that licensing of [+*wh*] and licensing of [+NEG] are subsumed under a more general requirement, the AFFECT-Criterion (Haegeman 1992, 1995) in (25), the fact that *wh*-phrases and NEG-phrases contrast in ±overt movement in English and French points to an operator analysis of *in situ* occurrence (Aoun & Li 1993, Brody 1993, Haegeman 1995): Licensing of both [+*wh*] and [+NEG] takes place in overt syntax, either by an actual *wh*-phrase/NEG-phrase or by a non-overt operator *Op* in the relevant specifier position.

- (25) AFFECT-Criterion (Haegeman 1995: 93)
- a. An AFFECTIVE operator must be in a spec-head configuration with an [AFFECTIVE] X°.
 - b. An [AFFECTIVE] X° must be in a spec-head configuration with an AFFECTIVE operator.



2 DP-internal *wh*-phrases and NEG-phrases

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

Apart from the variation as to the distribution of simple *wh*-phrases and NEG-phrases observed in section 1, there are asymmetries in the distribution of DPs with possessive *wh*-phrases and NEG-phrases. In French, for example, a DP that contains a NEG-phrase may occur in object position but not in subject position while a simple NEG-subject is acceptable in this position; compare the examples in (29) and (30).

(29) Fr a. Lise n' a rencontré **personne**.

Lise NE have met nobody

b. **Personne** n' est arrivé.

nobody NE is arrived

(30) Fr a. Lise n' a rencontré **le frère de personne**.

Lise NE have met the brother of nobody

b. ***L'assistant de personne** n' est arrivé.

the assistant of nobody NE is arrived (Moritz & Valois 1994: 674/687)

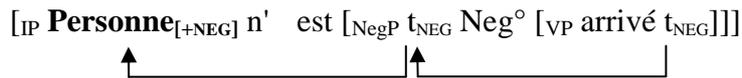
This contrast is expected if *personne* but not the whole phrase *le frère de personne/l'assistant de personne* 'the brother/the assistant of nobody' carries [+NEG] and may thus take part in feature checking: Licensing under Spec-head configuration requires that the phrase in specifier position carry the relevant feature itself (see the *wh*-Criterion and the NEG-Criterion in (20) and (21) above).

Recall that French does not require overt NEG-shift. Under the LF movement analysis, the simple NEG-object in (29)a can license [+NEG] by covert NEG-shift, (31), while the NEG-subject in (29)b overtly moves through SpecNegP on its way to SpecIP, (32); see section 1.3.

(31) *Covert movement of personne to SpecNegP*

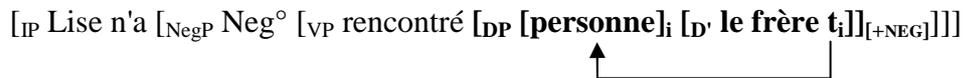
[_{IP} Lise n'a [_{NegP} **personne**_[+NEG] Neg^o [_{VP} rencontré t_{NEG}]]]

(32) *Overt movement of personne through SpecNegP on the way to SpecIP*



Moritz & Valois (1994) suggest that the object-internal NEG-phrase in (30)a undergoes movement to the edge of DP at LF, where it agrees with the head D° via specifier-head agreement. As a consequence, the feature [+NEG] may percolate up onto DP. Since the whole DP now carries the [+NEG] feature itself, it may undergo NEG-shift; cf. (33).

(33) a. *Covert movement of personne to SpecDP; feature percolation*

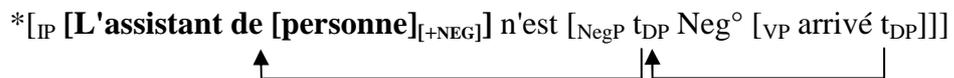


b. *Covert movement of DP to SpecNegP*



In contrast, if the NEG-phrase is embedded in a subject DP in SpecIP as in (30)b, licensing of [+NEG] is not possible, not even at LF. Movement of the entire DP *l'assistant de personne* 'the assistant of nobody' through SpecNegP on the way to SpecIP cannot license [+NEG] since it does not carry [+NEG] (only embedded *personne* 'nobody' does), (34)a, and LF lowering of the subject is not permitted; see (34)b, where *personne* has been moved to SpecDP to make feature percolation possible.

(34) a. *No [+NEG] licensing by overt movement of the whole DP through SpecNegP*



b. *No LF lowering*



In addition, the distribution of DPs with embedded *wh*-phrases follows under the above assumptions. Remember that *wh*-movement of a simple object *wh*-phrase is optional in

French; cf. (4) and (35). However, a possessive *wh*-phrase embedded in an object DP is only acceptable if the object occurs *in situ* but not if it occurs in SpecCP, (36).

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

- (36) Fr a. Tu as rencontré **le frère de qui**?
 b. ***Le frère de qui** as-tu rencontré t_{DP} ?
the friend of whom have-you met (Moritz & Valois 1994: 701)

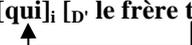
Similar to *personne* in (30)a, *qui* in (36)a can move to the edge of DP at LF, which permits percolation of [+*wh*] and pied-piping of the whole DP under *wh*-movement at LF; cf. (37).

- (37) a. *Covert movement of qui to SpecDP; feature percolation*
 $[_{IP} \text{Lise a } [_{VP} \text{rencontré } [_{DP} [\text{qui}]_i [_{D'} \text{le frère } t_i]]_{[+wh]}]]$

 b. *Covert movement of DP to SpecCP*
 $[_{CP} [_{DP} [\text{qui}]_i [_{D'} \text{le frère } t_i]]_{[+wh]} C^\circ [_{IP} \text{Lise a } [_{VP} \text{rencontré } t_{wh}]]]$


In contrast, if the *wh*-phrase is embedded in a DP-object in SpecCP, licensing of [+*wh*] cannot take place since only *qui* 'who' but not the phrase *le frère de qui* 'the brother of whom' carries [+*wh*]; cf. (38).⁶

⁶ Notice that covert movement of *qui* to the edge of a DP that is situated in SpecCP seems to be excluded, (i). Otherwise, feature percolation and licensing of [+*wh*] would be expected to be possible at LF. Thus, movement to SpecDP only seems to be possible in case it feeds further movement.

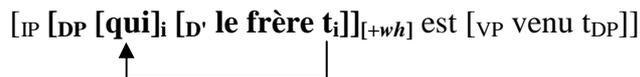
(i) *No movement of qui to SpecDP*
 $*[_{CP} [_{DP} [\text{qui}]_i [_{D'} \text{le frère } t_i]]_{[+wh]} \text{as-tu } [_{IP} t_S [_{VP} \text{rencontré } t_{DP}]]]$


- (38) *No licensing of [+wh]*
 * $[_{CP} [_{DP} \text{le frère de } [\text{qui}]_{[+wh]}] \text{ as-tu } [_{IP} t_S [_{VP} \text{rencontré } t_{DP}]]]$
-

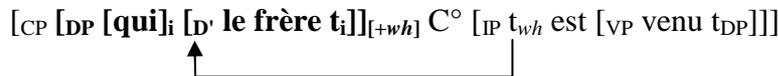
In contrast, a possessive *wh*-phrase can be embedded in a clause-initial subject DP, (39). Given that overt *wh*-movement is optional in French, licensing of [+wh] may be carried out by LF movement of *qui* to SpecDP and subsequent movement of the entire DP to SpecCP, as illustrated in (40).⁷

- (39) Fr **Le frère de qui** est venu?
 the friend of whom is come

- (40) a. *Covert movement of qui to SpecDP; feature percolation*



- b. *Covert movement of DP to SpecCP*



The contrast between *wh*-phrases and NEG-phrases as to occurrence in subject-internal positions, (39) and (30)b, follows from differences in the licensing position of [+wh] and [+NEG] – above (SpecCP) vs. below (SpecNegP) the canonical subject position (SpecIP); see the syntactic tree in (19) above.

⁷ However, note that overt extraction of a *wh*-phrase is possible out of an object DP but not out of a subject DP; compare (i) with (ii).

- (i) Fr ?**De qui** a-t-il rencontré **le frère** t_{wh} ?
 of who has-he met the brother
- (ii) Fr a. ***De qui** est-t-il venu **le frère** t_{wh} ?
 b. ***De qui le frère** t_{wh} est-t-il venu?
 of who the brother is-he come

In contrast to overt extraction, *qui* 'who' in (37) and (40) does not move out of DP but to the specifier of DP, which it then pied-pipes to SpecCP at LF.

Under the operator analysis, in contrast, the above data are not as straightforward. Rowlett (1998: 199) assumes that *personne* always needs to be licensed by an operator (as it does not carry [+NEG] itself, giving rise to a negative concord reading in combination with certain other "negative" phrases). He claims that in (29)b the subject *personne* is in the scope of a non-overt operator Op adjoined to IP (or adjoined to *personne* in SpecIP); cf. (41). As an extended specifier of IP, the operator is able to license [+NEG] *ne* in I°. (Note that the NEG-Criterion only requires a Spec-head configuration between the negative operator and the head; it does not specify that licensing must take place in NegP.)

(41) $[_{IP} \text{Op } [_{IP} \text{Personne } n'est \ [_{VP} \text{arrivé } t_{DP}]]]$

However, it remains unclear why the operator should not be able to license subject-internal *personne* in (30)b/(42) - in particular, in view of the fact that it is not the case that a non-overt operator is generally unable to license DP-internal *personne*, (30)a/(43), or subject-internal phrases, (39)/(44).

(42) $*[_{IP} \text{Op } [_{IP} \text{[L'assistant de [personne]] } n'est \ [_{VP} \text{arrivé } t_{DP}]]]$

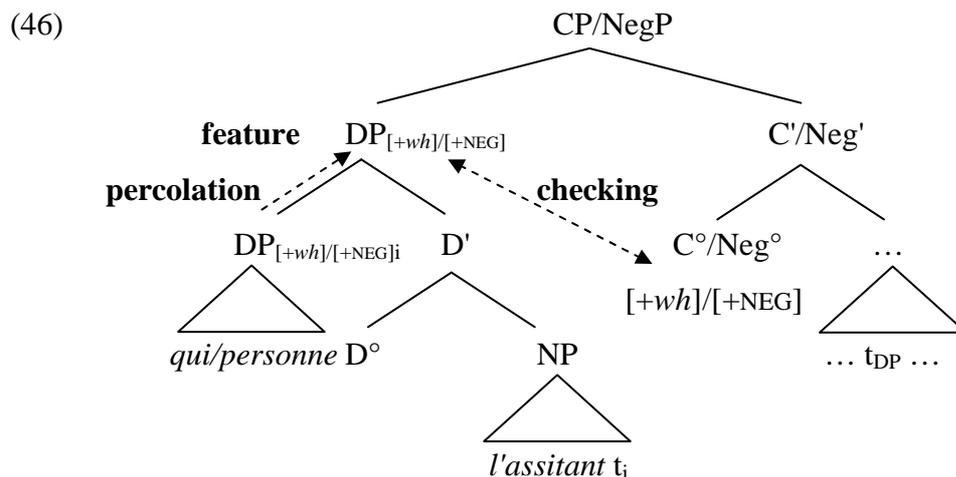
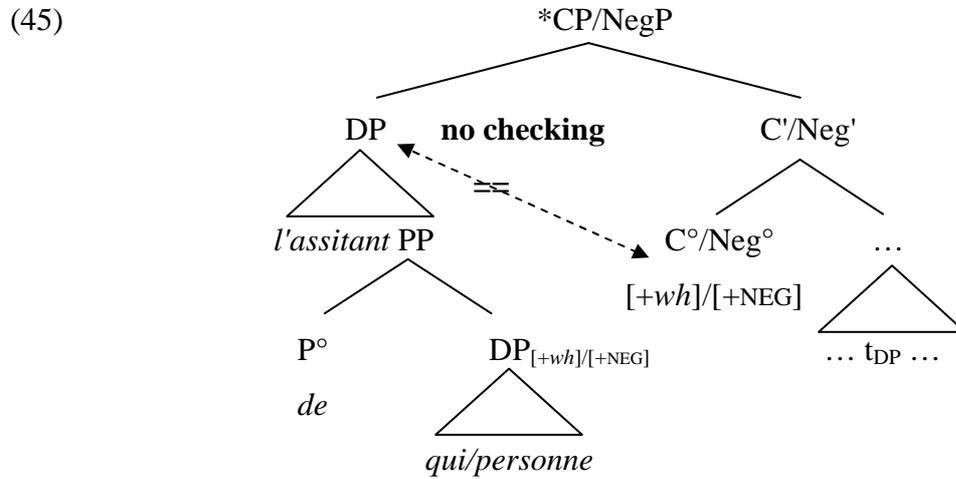
(43) $[_{IP} \text{Je } n'ai \ [_{NegP} \text{Op } \text{Neg}^\circ \ [_{VP} \text{rencontré } \text{[L'assistant de [personne]]}]]]$

(44) $[_{CP} \text{Op } \text{C}^\circ \ [_{IP} \text{[Le frère de [qui]] } est \ [_{VP} \text{venu } t_{DP}]]]$

2.2 Danish: Feature percolation from specifier position vs. complement position

The LF movement analysis laid out above hinges on the assumption that a DP with a *wh*-/NEG-phrase in post-nominal position cannot license [+*wh*]/[+NEG] in Spec-head configuration since the DP itself does not carry these features. Rather, the *wh*-/NEG-phrase must undergo LF movement to the specifier position of DP, making feature percolation up to

DP possible; see Webelhuth (1992) and Horvath (2005). The DP can then undergo movement to the relevant specifier position, where licensing takes place.⁸



Hence, *wh*-phrases and NEG-phrases must apparently undergo movement to SpecDP in order to be able to take scope, just as they need to undergo movement to SpecCP and SpecNegP, respectively.

That the position of the *wh*-phrase/NEG-phrase within DP matters for whether or not feature percolation and thus licensing of [+wh]/[+NEG] can take place is supported by Danish data. In contrast to French, where movement of the specifier of DP as in (46) does not take place overtly, the possessive phrase in (47) may occur in post-nominal complement position or pre-nominal specifier position in Danish.

⁸ For an analysis of pied-piping doing without feature percolation see Heck (2004, 2008).

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

As shown by the contrast between (48)/(50) and (49)/(51), a DP with a NEG-phrase in specifier position is acceptable whereas one with a NEG-phrase in complement position is ungrammatical.⁹ This is expected under the above assumption that feature percolation is possible from specifier position but not from complement position, thereby permitting/prohibiting licensing of [+NEG] by movement of the entire DP to or through SpecNegP. (Since NEG-shift must take place in overt syntax in Danish, no subject-object asymmetry arises, contrary to what was observed in French; see section 2.1.)

- (48) Da a. Jeg mødte **intet barns far.**
I met no child's father
 b. I går kom **intet barns far.**
yesterday came no child's father

⁹ Since *in situ* occurrence of a NEG-phrase is ungrammatical, (9) and (i), I assume that movement to or through SpecNegP has taken place in overt syntax in (48) and (50).

- (i) Da a. *Jeg har mødt **intet barns far.**
I have met no child's father
 b. *Vi har truet **intet lands sikkerhed.**
we have threatened no country's security

However, movement of a complex NEG-phrase across a verb *in situ* is at least strongly marked.

- (ii) Da a. ?*Jeg har **intet barns far** mødt.
 b. ?*Vi har **intet lands sikkerhed** truet.

This might have to do with the fact that more complex NEG-phrases do not easily undergo non-string-vacuous NEG-shift (see Rögnvaldsson 1986, K. R. Christensen 2005).

- (iii) Da a. Jeg har **intet** hørt t_{NEG}
 b. Jeg har **intet nyt** hørt t_{NEG}
 c. *Jeg har **intet nyt i sagen** hørt t_{NEG}
 d. *Jeg har **intet nyt i sagen om de stjålne malerier** hørt t_{NEG}
I have nothing new about affair-the of the stolen paintings heard

(K. R. Christensen 2005: 65)

- (49) Da a. *Jeg mødte **faren til intet barn.**
I met father-the of no child
 b. *I går kom **faren til intet barn.**
yesterday came father-the of no child
- (50) Da a. Vi giver intet ultimatum, og vi truer **intet lands sikkerhed.**
we give no ultimatum and we threaten no country's security
 b. Efter disse beretninger fra det virkelige liv forekommer **ingen krimis**
after these tales from the real live seems no crime novel's
handling spor usandsynlig.
story at all implausible (KorpusDK)
- (51) Da a. *Vi giver intet ultimatum, og vi truer **sikkerheden i intet land.**
we give no ultimatum and we threaten the security in no country
 b. *Efter disse beretninger fra det virkelige liv forekommer **handlingen i**
after these tales from the real live seems story-the in
ingen krimi spor usandsynlig.
no crime novel at all implausible

The same holds for *wh*-phrases in DP-internal positions. The sentences in (52), where the *wh*-phrases occur in post-nominal positions, are only acceptable as echo-questions, whereas the sentences in (53), where the *wh*-phrases occur in pre-nominal positions, are proper interrogative clauses (see footnote 1).

- (52) Da a. ?**Præsidenten fra HVILKET land** har Dronning Margrethe inviteret
president-the of which country has Queen Margrethe invited
 til klimaforandringsconference?
to climate change conference
 b. ?**Præsidenten fra HVILKET land** har inviteret Dronning Margrethe
president-the of which country has invited Queen Margrethe
 til klimaforandringsconference?
to climate change conference

- (53) Da a. **Hvilke landes kulturprodukter** gider vi at engagere os i om ti år?
which countries' cultural products bother we to engage us in in 10 years
<http://www.cifs.dk/scripts/artikel.asp?id=85&lng=1>
- b. **Hvilket lands salgsteam** har solgt bedst?
which country's sales team has sold best (KorpusDK)

This again points to the conclusion that a phrase in specifier position but not one in complement position may induce feature percolation and pied-piping, permitting licensing of [+NEG] or [+*wh*] to take place in Spec-head configuration; compare (45) and (46) above.¹⁰

There is one well-known exception to the prohibition against feature percolation from complement position which will be relevant in section 3 below: The complement of a preposition is able to – and in many languages must – pied-pipe PP (see Weibelhuth 1992 and Horvath 2005). Preposition stranding as found in English and the Scandinavian languages is cross-linguistically rather rare.

- (54) En a. **Who** have you spoken **to** t?
 b. ??**To whom** have you spoken t?
- (55) Da a. **Hvem** har du snakket **med** t?
 b. ??**Med hvem** har du snakket t?
with whom have you spoken

¹⁰ Notice that a *wh*-phrase may occur in post-nominal position as long as it is licensed by another *wh*-phrase in SpecCP; cf. footnote 1.

- (i) Da Inden de er ret gamle, ved de, **hvem** der er **forældre til hvilke børn** på stuen.
before they are really old know they who that is parents of which children in room-the
[http://www.uddannelse.ltk.dk/media\(3491,1030\)/Virksomhedsplan_2006.pdf.pdf](http://www.uddannelse.ltk.dk/media(3491,1030)/Virksomhedsplan_2006.pdf.pdf)

Similarly, Svenonius (2002) claims that a NEG-phrase may occur in DP-internal complement position in Norwegian if it is licensed by a higher NEG-phrase (see also footnote 4).

- (ii) No a. *Artistene beholdt **rettighetene til ingen av låtene sine**.
 b. **Ingen av artistene** beholdt **rettighetene til ingen av låtene sine**.
(none of) artists-the retained rights-the to none of songs RFX (Svenonius 2002: 143)

- (56) Ge a. ***Wem** hast du gesprochen **mit** t?
 b. **Mit wem** hast du gesprochen t?
with whom have you spoken

- (57) Fr a. ***Qui** as-tu parlé **à** t?
 b. **À qui** as-tu parlé t?
to whom have-you spoken

2.3 German & English: Feature percolation from post-nominal position

As in Danish, *wh*-movement and NEG-shift must take place in overt syntax in German; cf. section 1. However, in contrast to Danish, (49)-(52), *wh*-phrases and NEG-phrases may occur in a post-nominal PP in German, (58) and (59). Moreover, possessive *wh*-phrases and NEG-phrases may emerge as post-nominal genitives, (60) and (61).^{11,12}

- (58) Ge a. **Reiseführer von welchem Anbieter** kannst du empfehlen?
travel-guides of which provider can you recommend
 b. **Reiseführer von welchem Anbieter** sind Eurer Meinung nach die Besten?
travel-guides of which provider are in your opinion the best

<http://community.ferien.de/question/reisefuehrer-von-welchem-anbieter-sind-eurer-meinung-nach-die-besten-insidertipps-uebersichtliche-karten-etc-360.html>

¹¹ 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; compare (i) and (ii) with (11) and (12) above.

- (i) Ge a. ?*Martin ist zufrieden **mit dem Vater von keinem Kind**.
 b. Martin ist **mit dem Vater von keinem Kind** zufrieden.
Martin is with the father of no child pleased
- (ii) Ge a. ?*Martin ist zufrieden **mit dem Vater keines Kindes**.
 b. Martin ist **mit dem Vater keines Kindes** zufrieden.
Martin is with the father of no child content

¹² In Danish and English, the possessive *-s* attaches to the whole phrase whereas it attaches to the noun in German:

- (i) En a. the man with the black hat's wife
 Da b. manden med den sorte hats kone
 Ge c. die Frau des Mannes mit dem schwarzen Hut

- (59) Ge a. Ich habe **den Vater von keinem Kind** getroffen.
I have the father of no child met
 b. Gestern ist **der Vater von keinem Kind** gekommen.
yesterday is the father of no child come
- (60) Ge a. **Die Nationalmannschaft welchen Landes** nennt man auch
the national team which country's calls one also
 "Squadra Azzura"?
Squadra Azzura <http://www.witze-fun.de/quiz/quizfrage/2942>
 b. **Die Hauptstadt welchen Landes** liegt auf einer Insel im Atlantik?
the capital which country's lies on an island in-the Atlantic ocean
http://www.reise-quiz.de/quiz/qmc_afrika_haupt_01/
- (61) Ge a. Mit diesem Buch gewinnt man **das Interesse keines Kindes** – ...
with this book gain one the interest no child's
<http://catalog.ebay.at/Dorn-Bader-Physik-Sekundarbereich-I-Schuelerband-Neubearbeitung-Band-1-ISBN-10-3507862522-ISBN-13-9783507862524-/4172149/r.html?fcls=1>
 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 Turkey's
http://www.politis-europe.uni-oldenburg.de/download/WP5_Rinke_Turkey2006fin.pdf

Given that licensing of [+*wh*] and [+NEG] must be carried out in overt syntax in German and that licensing under Spec-head configuration requires that the phrase in specifier position carry the relevant feature itself, feature percolation would seem to be possible from a post-nominal position in this language.

Similarly, *wh*-phrases and NEG-phrases may appear in a post-nominal PP in English, (62)/(63), alongside occurrence in the specifier position of DP, (64)/(65).

- (62) 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** abrogated the country's constitution this week? http://en.wikinews.org/wiki/Wikinews:Dynamic_quiz/quiz/2009/16
- (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://entertainment.timesonline.co.uk/tol/arts_and_entertainment/books/article388156.ece
- (64) 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)
- (65) 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)

Remember that NEG-shift need not take place overtly in English (see Figure 2). However, the fact that a subject DP may contain a NEG-phrase in post-nominal position suggests that feature percolation is possible from that position. Since LF lowering is not an option, licensing of [+NEG] must take place by moving the subject DP through SpecNegP on its way to SpecIP; compare (34) above. Moreover, the fact that a subject or object in SpecCP may contain a *wh*-phrase in post-nominal position, which needs to be licensed in overt syntax, points to the same conclusion, namely that feature percolation is possible from this position in English, just as it is in German.

3 A cross-linguistic contrast in the structural position of post-nominal phrases?

The previous sections have shown that there is cross-linguistic variation as to the ability of post-nominal *wh*- 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. In contrast, feature percolation and pied-piping is generally permitted with possessive *wh*-phrases and NEG-phrases in pre-nominal specifier position.

In section 2.2, the contrast between pre-nominal and post-nominal *wh*- and NEG-phrases in Danish (and French, see footnote 13 below) was accounted for by the common assumption

that feature percolation is possible from specifier position but not from complement position (see Webelhuth 1992 and Horvath 2005; see also (45) and (46) above). The acceptability of post-nominal *wh*-phrases and NEG-phrases in German and English might then be taken to suggest that feature percolation is possible from complement position in these languages.

Figure 3: Cross-linguistic variation as to feature percolation from complement position

feature percolation from	Da	Fr	Ge	En
specifier position	+	(+ ¹³)	(+ ¹⁴)	+
complement position	-	-	+	+

Alternatively, adhering to the hypothesis that feature percolation is restricted to phrases in specifier position, it might be assumed that post-nominal *wh*-phrases and NEG-phrases are actually not situated in complement position but in a specifier position within DP in German and English. This hypothesis will be investigated in the remainder of this section.

Figure 4: 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)	spec
post-nominal phrases	compl	compl	spec	spec

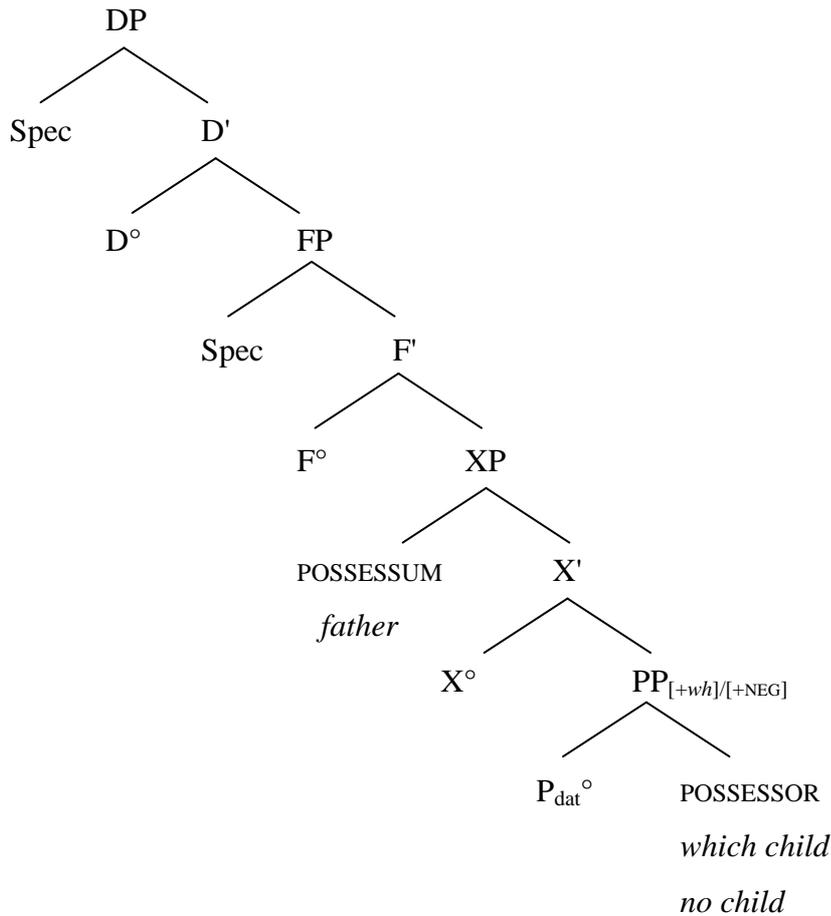
Den Dikken (1998: 195) suggests a predicational structure for possessive constructions. He assumes that the base structure of a possessive construction is a small clause (XP), with a PP possessor phrase in complement position and the possessum in specifier position; cf. (66). (Recall that feature percolation from the complement of P^o is possible such that the entire PP can be marked [+*wh*] or [+NEG]; see 2.2 above.)

¹³ Remember that *wh*-phrases and NEG-phrases do not surface in pre-nominal specifier position in French but are assumed to be able to move to SpecDP at LF. As a consequence, feature percolation can take place and licensing of [+*wh*] and [+NEG] can be carried out via movement of the resulting DP to SpecCP and SpecNegP, respectively; compare (33) and (37).

¹⁴ The German *wh*-/NEG-phrases discussed in section 2.3 are all post-nominal. However, feature percolation is clearly possible from pre-nominal specifier position in German, too.

- (i) Ge. **Wessen Bruder** hast du getroffen?
 whose brother *have* *you met*

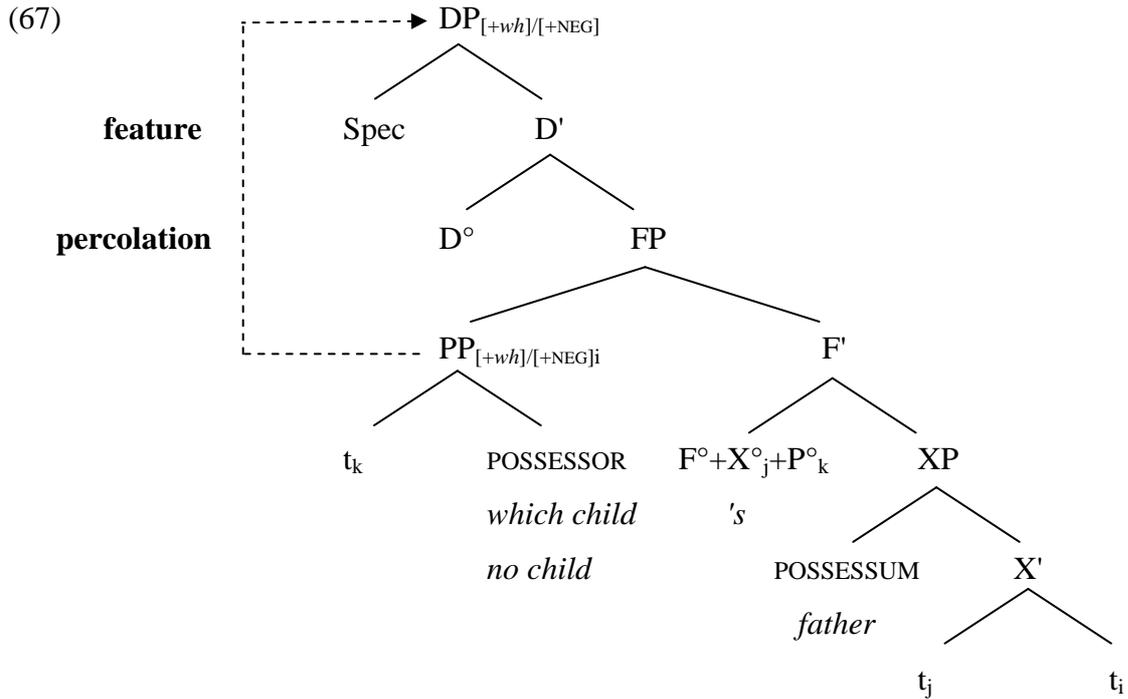
(66)



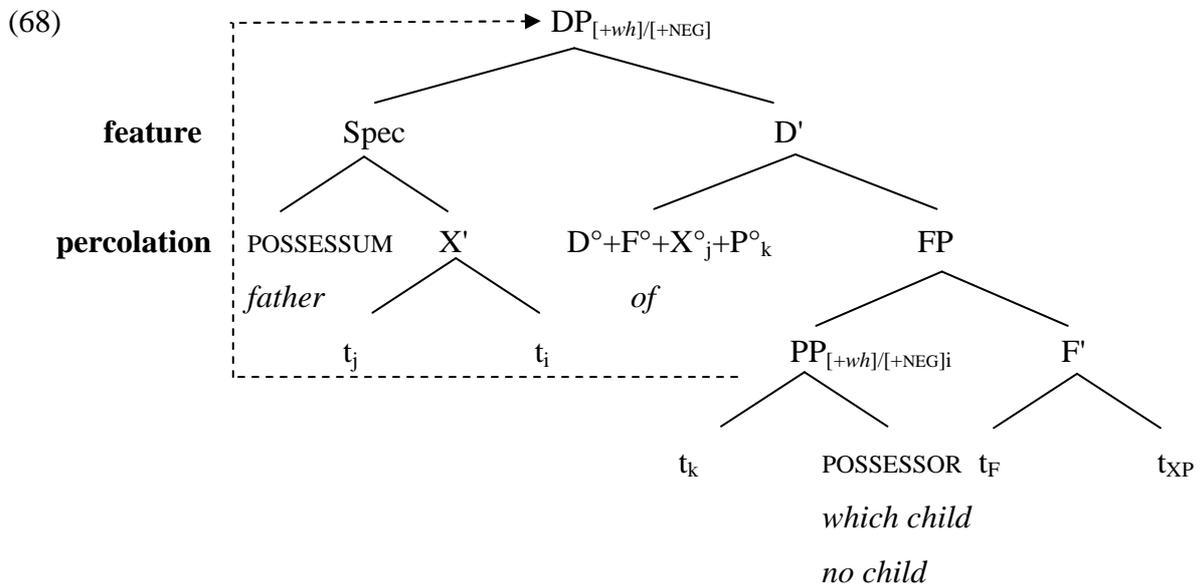
In the pre-nominal possessive construction, the PP possessor phrase moves out of the small clause XP to the specifier position of the functional projection FP dominated by DP. In addition, the head of the possessor phrase P° undergoes head movement through the head of XP to the head of FP, where the complex head is spelled out as *-s*. This is illustrated in (67). Apparently, feature percolation from the possessor PP in SpecFP up to DP is possible: Pre-nominal *wh*-phrases and NEG-phrases are generally acceptable.¹⁵

¹⁵ Radford (2004) also assumes that a pre-nominal possessor appears in the specifier of a functional projection between DP and NP (namely, NumP). He suggests that the features of the phrase in SpecNumP percolate onto D° "perhaps via some form of agreement parallel to agreement between a complementiser and a subject in a number of languages" (Radford 2004: 413). In complementiser agreement cases, C° agrees in number and person with the specifier of its TP complement, as illustrated by the West Flemish example in (i).

- (i) WF a. ... **da** den inspekteur da boek gelezen eet.
 ... *that the inspector that book read has*
 b. ... **dan** d'inspekteurs da boek gelezen een
 ... *that the inspectors that book read have*



For post-nominal possessor constructions, den Dikken (1998) assumes that the remnant small clause undergoes movement to the specifier of DP, with the complex head moving on to D°, where it is realized as *of*.



Under the assumption that the possessor phrase in SpecFP is still able to percolate its features up onto DP, (68), it is expected that licensing of $[+wh]$ and $[+NEG]$ can be carried out by movement of the entire DP to the relevant specifier position. This seems to be the case in German and English, where a DP may contain post-nominal *wh*-phrases and NEG-phrases. In

addition, the fact that post-nominal *wh*-phrases and NEG-phrases cannot be licensed in overt syntax in Danish and French would then point to the conclusion that post-nominal possessive constructions do not involve the structure in (68) in these languages. Instead, they have the more basic structure in (66), in which the possessor phrase occurs in the complement position of the small clause, from which feature percolation cannot take place.¹⁶ Hence, the contrast between German and English on the one hand and Danish and French on the other hand as to the ability of licensing *wh*-phrases and NEG-phrases in post-nominal position would derive from a structural contrast, having to do with whether or not the possessum phrase can undergo leftward movement to SpecDP.

4 Conclusion

Figure 5 illustrates the asymmetries in the distribution of simple and more deeply embedded *wh*-phrases and NEG-phrases in Danish, German, English and French.

Wh-phrases and NEG-phrases carry features ([+*wh*] and [+NEG], respectively) that need to be licensed in Spec-head configuration (*wh*-Criterion, NEG-Criterion). The languages differ as to the point in the derivation at which licensing is carried out. 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 prohibited in English and French.

The licensing requirements on *wh*-/NEG-phrases that are contained in a DP are the same as the ones on simple *wh*-/NEG-phrases. This means, if a simple *wh*-/NEG-phrase needs to be licensed in overt syntax, and consequently, cannot occur *in situ*, a DP that contains a *wh*-/NEG-phrase cannot do so, either. However, it might not be possible to fulfil the licensing conditions due to the embedding of the *wh*-/NEG-phrase. Licensing in Spec-head configuration requires that the phrase in specifier position carries the relevant feature itself. As a consequence, licensing of a more deeply embedded *wh*-/NEG-phrase can only be carried out by movement of the entire DP to the relevant specifier position (SpecCP/SpecNegP) if [+*wh*]/[+NEG] is able to percolate up to DP. In case feature percolation is excluded, licensing cannot take place and asymmetries in the distribution of simple and complex *wh*-/NEG-phrases arise.

¹⁶ This is possibly not in line with den Dikken's (1998) analysis, where the overt preposition in possessive constructions is taken to be a morphologic reflex of head movement to D°.

Figure 5

		SpecCP	C	SpecIP	SpecNegP	V	Compl	
<i>wh</i>	simple phrase	Da a	<i>wh</i>		<i>*wh</i>		<i>*wh</i>	
		Ge b	<i>wh</i>		<i>*wh</i>		<i>*wh</i>	
		En c	<i>wh</i>		<i>*wh</i>		<i>*wh</i>	
		Fr d	<i>wh</i>		<i>wh</i>		<i>wh</i>	
	pre-nominal phrase	Da e	<i>wh's</i> NP		<i>*wh's</i> NP		<i>*wh's</i> NP	
		Ge	--		--		--	
		En f	<i>wh's</i> NP		<i>*wh's</i> NP		<i>*wh's</i> NP	
		Fr	--		--		--	
	post-nominal phrase	Da g	<i>*DP P wh</i>		<i>*DP P wh</i>		<i>*DP P wh</i>	
		Ge	h	DP P <i>wh</i>		<i>*DP P wh</i>		<i>*DP P wh</i>
			i	DP <i>wh's</i>		<i>*DP wh's</i>		<i>*DP wh's</i>
		En j	DP P <i>wh</i>		<i>*DP P wh</i>		<i>*DP P wh</i>	
Fr k		<i>*DP P wh</i> (obj)		DP P <i>wh</i> (sub)		DP P <i>wh</i>		
NEG	simple phrase	Da l		NEG		NEG	<i>*NEG</i>	
		Ge m		NEG		NEG	<i>*NEG</i>	
		En n		NEG		<i>*NEG</i>	NEG	
		Fr o		NEG		<i>*NEG</i>	NEG	
	pre-nominal phrase	Da p			NEG's NP		NEG's NP	<i>*NEG's</i> NP
		Ge			--		--	--
		En q			NEG's NP		<i>*NEG's</i> NP	NEG's NP
		Fr			--		--	--
	post-nominal phrase	Da r			<i>*DP P NEG</i>		<i>*DP P NEG</i>	<i>*DP P NEG</i>
		Ge	s		DP P NEG		DP P NEG	<i>*DP P NEG</i>
			t		DP NEG's		DP NEG's	<i>*DP NEG's</i>
		En u			DP P NEG		<i>*DP P NEG</i>	DP P NEG
Fr v				<i>*DP P NEG</i>		<i>*DP P NEG</i>	DP P NEG	

Pre-nominal *wh*-/NEG-phrases show the same distribution as simple ones (see a-f and l-q in Figure 5). This was accounted for by the assumption that pre-nominal phrases occur in specifier position, from where feature percolation is generally possible.

However, post-nominal phrases seem to vary cross-linguistically as to the ability to induce feature percolation. They seem to be able to do so in German and English but not in Danish and French (see g-k and r-v in Figure 5). In section 3, I suggested that this might be due to contrasts in the structural position of the post-nominal phrase: These were assumed to be located in specifier position in German and English but in complement position in Danish and French, from where feature percolation cannot take place.

Figure 6

		Da	Ge	En	Fr
overt movement	<i>wh</i> -phrase	+	+	+	±
	NEG-phrase	+	+	-	-
feature percolation from	pre-nominal position	+	(+)	+	(+)
	post-nominal position	-	+	+	-

In German and English, post-nominal *wh*-phrases and NEG-phrases are acceptable (in the relevant positions). In contrast, in Danish, where both *wh*-movement and NEG-movement must take place in overt syntax, post-nominal *wh*-phrases and NEG-phrases are excluded (but see also footnote 10). In French, the pattern is more complex since *wh*-movement and NEG-shift need not/must not take place overtly, giving rise to asymmetries between subjects and objects as well as between *wh*-phrases and NEG-phrases. DP-internal post-nominal *wh*-phrases and NEG-phrases are acceptable if the DP occurs in a position from which LF licensing is possible. (As laid out in section 2.1, LF licensing involves movement of the *wh*-/NEG-phrase to a specifier position, from which feature percolation is possible, and subsequent movement of the entire DP to SpecCP or SpecNegP.) Thus, a *wh*-phrase or NEG-phrase may occur in DP-internal complement position in an *in situ* object since licensing of [+*wh*] and [+NEG] can take place at LF. Moreover, a *wh*-phrase but not a NEG-phrase may appear in subject-internal position due to differences in the target positions of *wh*-movement and NEG-shift (above vs. below the canonical subject position): Licensing of [+NEG] must be carried out in overt syntax by movement of the subject through SpecNegP on the way to SpecIP whereas licensing of [+*wh*] can take place by LF movement to SpecCP. Finally, a *wh*-phrase inside an object in SpecCP is ungrammatical as feature percolation and thus licensing cannot take place in this position.

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