Negation in Swedish: Where It's Not At

Peter Sells

Stanford University

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Department of Linguistics
Stanford University
Stanford, CA 94305-2150
sells@stanford.edu
http://www-csli.stanford.edu/users/sells/

Introduction

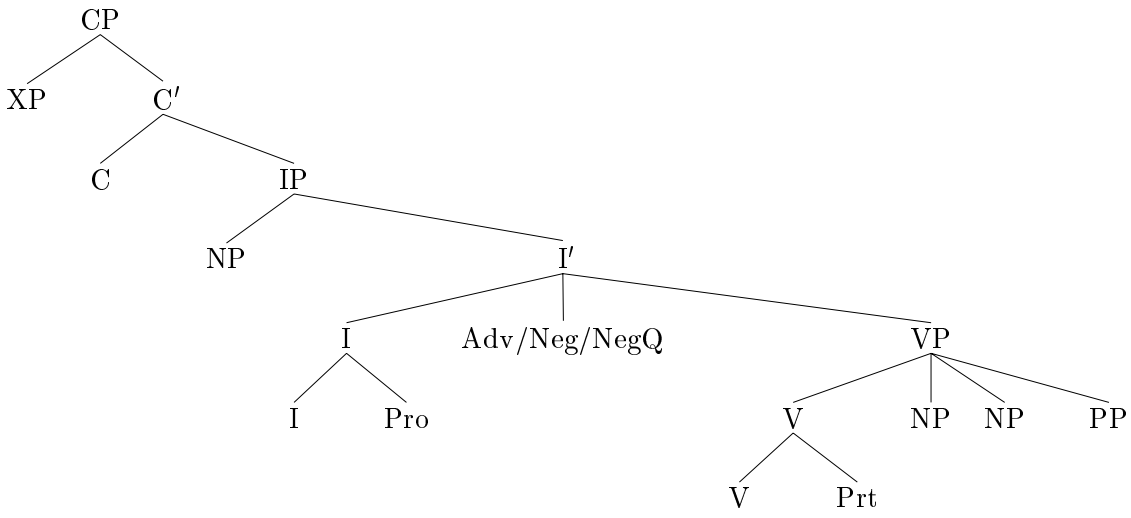
Christensen (1986) noted that negative quantifiers in the Scandinavian languages have an unusual distribution that suggests some interesting syntactic properties. More recently, Kayne (1998) and Platzack (1998) have taken the Scandinavian data to present evidence for a positive licensing condition on negative quantifiers, to the effect that they must be in the Specifier of a NegP. Illustrating with data from Swedish, I will discuss the structural positions of negation and of negative quantifiers, and show that the right generalization for their positions is in fact a negative one: in a clause articulated into CP-IP-VP structure, these negative elements cannot appear within VP. I will also discuss how this characterization can be neatly modelled in a base-generated theory like LFG, and adopt a realizational approach to the analysis of negation. Finally, I will discuss an extension of the analysis to negative concord languages.*

1. Overview and Background

1.1. Swedish Clause Structure

Main clauses in Swedish are V2 structures, and I take it that they are rooted in either IP or CP, depending on whether the initial phrase is a subject or a non-subject, with a finite verb in the second position. In this view, SpecIP in Swedish is the subject position, and SpecCP is an initial topic or focus position. Objects in Swedish (as in all the Scandinavian languages) can be shifted forward out of VP, in the celebrated phenomenon of Object Shift. Swedish allows a variety of constituents to appear between I and VP in the clause structure schematized in (1), including shifted pronominal objects, and various medial adverbials.

(1) Swedish Clausal Structure



*For their help in answering my many questions about Swedish, I am grateful to Elisabet Engdahl and Benjamin Lyngfelt. Line Mikkelsen and Helge Lødrup kindly provided me with examples from Danish and Norwegian when I was first learning about the phenomena discussed here. I also thank Joan Bresnan and participants at the LFG-00 conference in Berkeley for useful suggestions about the analysis.

The basic facts of clausal positioning that I am assuming are in (2).

(2) a. In subject-initial V2 clauses, the subject is in SpecIP and the finite verb in I.

b. In non-subject-initial V2 clauses, the subject is in SpecIP, the finite verb in C, and the topicalized non-subject is in SpecCP.

c. In non-V2 embedded clauses, I is not instantiated and the finite verb is in V (see (3)c).

Some possibilities are shown in (3), with a showing normal argument positions within VP, and b showing a shifted pronominal object, which is in the position of 'Pro' in (1).

(3) a. Jag har inte [$_{\text{VP}}$ gett boken till henne].
I have not [$_{\text{VP}}$ given the.book to her]

b. Jag kysste henne inte
I kissed her not

c. ... att jag inte [$_{\text{VP}}$ har gett boken till henne]
... that I not [$_{\text{VP}}$ have given the.book to her]

In embedded clauses, where V2 structures are usually absent, the finite verb necessarily follows medial adverbials, as seen in (3)c.

It is uncontroversial in Scandinavian that negation appears to the left of the position of a canonical VP. In (3)a, the finite verb is in I and the non-finite participle form is in V, with negation preceding it. Additionally, the forward placement of the pronominal object in (3)b is evidence of Object Shift out of VP, and negation follows the object, showing that negation follows I but precedes V in the structure in (1). The original proposal about the distribution of negative quantifiers in Christensen (1986) recognizes that they have an affinity with the position of negation, that is, they are external to VP. There seems to be a similarity between pronominal objects shifting forward out of their base position within VP, and NegQP objects also moving from their base position to one outside of VP. These similarities will be seen more clearly in section 2 below. However, there are also some crucial differences in the distribution of shifted pronominal objects and of NegQPs, and which show that the two phenomena are theoretically quite distinct.

1.2. Negation

Let us first look at the expression of simple clausal negation, by the adverb *inte*. This is one member of a large class of medial adverbs in Swedish, which come in a relatively fixed order, as shown in (4); (5) gives some illustrative examples, with *inte* underlined (based on Holmes and Hinchliffe (1994, 513)).

(4) Order of Medial Adverbial Elements

a. Short modal adverbs, e.g., *ju* 'as you know', *nog* 'probably'.

b. Short pronominal adverbs, e.g., *alltså* 'therefore', *därför* 'for that reason'.

c. Longer modal adverbs, e.g., *visserligen* 'to be sure', *verkligen* 'really', *möjligen* 'possibly'.

d. Negations, e.g., *inte* 'not', *aldrig* 'never'.

e. 'Floated' quantifiers, e.g., *alla* 'all'.

(5) a. Igår kunde han [$_{I'}$ ju alltså troligen inte [$_{VP}$ ha läst bockerna]].
yesterday could he [$_{I'}$ as.you.know thus probably not [$_{VP}$ have read the.books]
'Yesterday as you know he could probably have not read the books thus.'

b. Jag [$_{I'}$ kysste dem inte alla [$_{VP}$ på kinden]].
I [$_{I'}$ kissed them not all [$_{VP}$ on the.cheek]]

As these examples involve V2 clauses, naturally such adverbials have to be at least in third position within the clause. In fact, once the V2 requirement is removed, these adverbials can precede the subject. The examples in (6) from Holmberg (1993) (see also Holmberg and Platzack (1995)) show that in a non-V2 embedded clause, a sentential adverb can appear anywhere within the IP domain, but cannot appear within VP.[1]

(6) a. att (möjligen) Johan (möjligen) [$_{VP}$ köpte (*möjligen) en bok]
that (possibly) Johan (possibly) [$_{VP}$ bought (*possibly) a book]

b. att (inte) Johan (inte) [$_{VP}$ gillar (*inte) prinsesstårta]
that (not) Johan (not) [$_{VP}$ likes (*not) princess cake]

Finally, in a V2 clause, any adverb, including negation, can be placed in the initial position, which is SpecCP.

(7) Inte var det Selma.
not was it Selma
'It was NOT Selma.'

The unmarked position for negation is in the medial position, just to the left of VP, as shown in (1), though positions higher in the FP projections (IP and CP) are also possible, as the examples here have shown.

1.3. Negative Quantifiers

The Scandinavian languages have a set of negative quantifiers which intuitively alternate with or replace a sequence of negation and a negative polarity indefinite pronoun (as schematized in (8)). Each word has forms which vary by gender and number, for example *ingen* ('N'-gender, singular), *inget* ('T'-gender, singular), *inga* (plural).

[1] Faarlund et al. (1997, 890ff.) cite the pre-subject position as the unmarked position for embedded clause negation in Norwegian.

(8) a. The negative quantifier *ingen* ('no(one)')
alternates with *inte* ... *någon* ('not ... any(one)').

b. The negative quantifier *ingenting* ('nothing')
alternates with *inte* ... *någonting* ('not ... anything').

Some simple Swedish examples (after Holmes and Hinchliffe (1994, 198)) are shown in (9)–(10). Note that, compared to English, (10)a/c are surprisingly ungrammatical.

(9) a. Ingen såg mig.
noone saw me

b. Jag såg ingen.
I saw noone

(10) a. *Jag har sett ingen.
I have seen noone

b. Jag har inte sett någon.
I have not seen anyone

c. *Jag pratade med ingen.
I spoke with noone.

d. Jag pratade inte med någon.
I spoke not with anyone.

These examples contain either a negative quantifier or a negative polarity indefinite in construction with negation. I will use 'NegQP' to refer to both the quantifier and the containing noun phrase. The first main theoretical discussion of these elements and their distribution is in Christensen (1986), which is mostly about Norwegian, but the other Mainland Scandinavian languages show similiar behavior. Christensen shows that the NegQPs can appear in the surface position of negation, or in front of that position; but they can appear no further back in the sentence than the position where negation would (or perhaps, could) appear. Platzack (1998) updates this analysis by suggesting that both *inte* and negative quantifiers are in SpecNegP, located above VP. Kayne (1998) also develops the idea the object negative quantifiers move out of the VP to SpecNegP. As the surface position of a negative quantifier cannot be further back than the expected position of negation, the examples in (9) allow *ingen*, while the grammatical examples in (10) have *någon*, as the surface position of the object with a finite auxiliary and main verb is after the surface position of negation, as is the position of a prepositional object in (10)c–d. Note that in (9)b, the finite verb is in I, so the following *ingen* need not be within VP.

In addition to being in the subject position as in (9)a, NegQPs can also be in 'topic' position; in fact, topicalizing a NegQP object from its position in ungrammatical examples like those in (10) leads to grammatical examples: even though (10)a/c are ungrammatical, the examples in (11) are fully grammatical.

(11) a. Inga romaner läser Jon ut.
no novels reads John out

b. Inga romaner har jag läst.
no novels have I read

c. Inga romaner berättade han om.
no novels told he about

The relation of the topic to its argument position can involve a true long-distance dependency. (12)a illustrates this with a Norwegian example from Christensen and Taraldsen (1989, 72); note that the medial or final positioning of the NegQP in (12) is ungrammatical.

(12) a. Ingen bøker har Jens prøvd å lese. Nor.
no books has Jens tried to read

b. *Jens har ingen bøker prøvd å lese. Nor.
Jens has no books tried to read

c. *Jens har prøvd å lese ingen bøker. Nor.
Jens has tried to read no books

Based on these examples, the distribution of NegQPs can be stated as follows: they may appear in initial position in any kind of V2 clause; beyond that they may naturally follow the finite verb only if the finite verb is the main verb and hence is in I or C. Putting this in more technical terms, we can state it as in (13):

(13) a. A NegQP may be a TOPIC, in SpecCP (as in (11)).

b. A NegQP may be a SUBJ, in SpecIP (as in (9a)).

c. A NegQP may be an OBJ (9b), but it cannot appear within VP (hence (10) requires *någon*).

In fact, there is a very simple abstraction over these generalizations, including the negative *inte*: negative elements cannot appear within VP. The data that follow will show the correctness of these generalizations, though the claim that the object in (9)b is not within VP needs to be properly substantiated.

For completeness, I will mention here that there are 3 expressions of negative quantification in Swedish, as outlined in (14):

(14) The expression of negative quantification:

a. as a NegQP like *ingen*

b. as a sequence of clausal negation and a negative polarity indefinite *inte* ... *någon*

c. as a constituent with negation negating a negative polarity indefinite [*inte någon*]

The focus in this paper is on the distribution of the type (a) expression. The type (b) expression is grammatical as long as *inte* c-commands/precedes the indefinite. The type (c) expression is always grammatical, but sometimes has a narrow scope constituent negation interpretation, rather than always expressing clausal negation. However, the existence of the type (c) expression has an important consequence for the way the relation between the f-structure and c-structure is handled here, discussed below regarding (35).

2. The Distribution of NegQPs

2.1. NegQPs are External to VP

It is in fact not entirely straightforward to show that an object NegQP appears external to VP, for in its surface position it actually follows most medial adverbs, as illustrated with *ju* and *ofta* below. Only the orders of medial elements shown here are grammatical.

(15) a. Man förstår ju ingenting.
one understands as.you.know nothing

b. Hon hade ofta ingenting sagt.
she had often nothing said

c. Hon påstod att hon ofta ingenting hade sagt.
she claimed that she often nothing had said

These data show that the NegQP is not in the surface position of object shifted pronouns, for these canonically precede all medial adverbs (see (3)b), and in fact (15)b/c would be ungrammatical if the negative object were replaced by a pronominal object. Naturally, the relative position of the negative adverb *inte* and a NegQP cannot be determined, but the evidence suggests that the NegQP is under I′, as a left sister of VP, in the same hierarchical position as the negative adverb *inte*. This part of Christensen's analysis, that *inte* and an object NegQP are roughly in the same position, seems to be correct; Platzack (1998) effectively updates this analysis by putting both elements in SpecNegP (where NegP has a null negative head).

Yet, on the basis of the examples in (15), it could be argued that a VP-external position for NegQP has not yet been motivated, and the fact that a NegQP follows all medial adverbs could be taken as counter-evidence, to the effect that the NegQP is actually within VP, at its left edge.

There is other evidence that shows more clearly that the NegQP in the grammatical examples is external to VP—that it really is effectively in the same position as a medial adverbial, following the finite verb in I but preceding VP. One strong argument is that if there is more than one auxiliary, the NegQP can only appear right after the finite auxiliary: (16)a is grammatical and (16)b is not.

(16) a. Jag skulle ingenting ha sett ändå.
I should nothing have seen nevertheless

b. *Jag skulle ha ingenting sett ändå.
I should have nothing seen nevertheless

The reason that (16)b is ungrammatical is that it forces the NegQP to be placed within VP (internal to the VP headed by *ha*), and this is clearly not tolerated. The alternate account, that the NegQP is at the left edge of VP, would have to stipulate that a NegQP can only be at the left edge of the highest VP, to account for the contrast in the examples.

Although the positioning of NegQPs is different from that of shifted objects ((15)b/c and (16)a are ungrammatical with pronominal objects), the two phenomena interact. The two bare objects of a ditransitive verb in Swedish come in the order Goal–Theme and are usually referred to as the IO and DO respectively. If the NegQP is the DO, the only grammatical examples involve a pronominal (and preceding) IO, which allows a surface analysis in which both objects are external to VP.

(17) a. Jag lånade dig inga pengar.
I lent you no money (*dig* can shift to be outside VP)

b. *Jag lånade Sven inga pengar.
I lent Sven no money (*Sven* must be in VP)

c. Jag lånade inte Sven några pengar.
I lent not Sven any money

(18) a. Jag gav honom ingenting.
I gave him nothing (*honom* can shift to be outside VP)

b. *Jag gav Elsa ingenting.
I gave Elsa nothing (*Elsa* must be in VP)

c. Jag gav inte Elsa någonting.
I gave not Elsa anything

The b examples are key: they are ungrammatical, and as non-pronominal objects (proper names here) cannot be shifted out of VP, the following NegQPs are necessarily within VP. The contrasting acceptability of the a examples shows that there must be no VP containing the NegQPs, and this is possible if the pronominal IOs have undergone Object Shift, thereby allowing the NegQPs to appear external to VP too.[2]

Now consider (19) from Teleman et al. (1999, vol. 2, p. 432):

(19) Hon hade inga biljetter köpt.
he had no tickets bought

Here *köpt* heads VP, and so the NegQP either precedes that head in VP, or is external to VP. The former possibility is unlikely, as Swedish does not allow anything to precede a non-finite verb in VP. This is why the lowest placement of *alla* in (20), from Holmberg (1999), is ungrammatical.

(20) Jag undrar varför studenterna inte (alla) har (*alla) åkt till Lund.
I wonder why the.students not (all) have (*all) gone to Lund

Hence there are 3 pieces of evidence that NegQPs are external to VP, and not left-periperheral within VP.

2.2. Problem Examples

In a transformational approach, there are some similarities about the surface positioning of pronominal objects and of NegQPs which suggest similar derivations—essentially, both involve moving an object forward from its base position, out of VP. Pronominal Object Shift is subject to some surface constraints usually referred to as 'Holmberg's Generalization', following the pioneering work of Holmberg (1986). Conceived of as a process, Object Shift cannot apply to an object if there is any overt material (a verb, a particle, or another object) within the VP to the left of the position of the potentially shifting object (see Holmberg (1997), Holmberg (1999)). In an analysis which directly moves a NegQP subject to Holmberg's Generalization, examples like (15)b/c and (16)a violate Holmberg's Generalization, for the NegQP has moved over overt VP-internal verbal material. Such examples suggest that Holmberg's Generalization is irrelevant to the distribution of NegQPs.

However, the idea that NegQPs move and are subject to Holmberg's Generalization is apparently seen in the difference between Swedish and Norwegian when there is a particle in VP. In contrast

[2]See also Jónsson (1996) for similar arguments from Icelandic.

to (21)a, which is good (in Norwegian), the Swedish examples in b and c are both ungrammatical, and only the periphrastic expression in d is possible, with the negative polarity determiner *några* (examples from Christensen (1986)).

(21) a. Jon leser ingen romaner ut. Nor.
John reads no novels out
'John finishes reading no novels.'

b. *Jon läser inga romaner ut. Swe.
John reads no novels out

c. *Jon läser ut inga romaner. Swe.
John reads out no novels

d. Jon läser inte ut några romaner. Swe.
John reads not out any novels

The contrast between a and b is directly attributable to Holmberg's Generalization; an object may precede a particle in VP in Norwegian, and so it may undergo Object Shift, if we allow that a NegQP phrase such as *ingen romaner* can undergo Object Shift. Replacing the NegQP in each example by an object pronoun would preserve grammaticality. In Swedish, an object must normally follow a particle, and hence that object must be in VP. From this point of view, example c has the right phrase structure, but it violates the condition that NegQPs cannot appear within VP. Hence only the periphrastic expression in d is grammatical.

Nothing in the present proposal accounts for the contrast in (21)a/b, and I leave it as an open problem. However, it is worth noting that a medial NegQP with a following non-finite verb form is much more acceptable than a following simple particle:[3]

(22) a. ?Jon har inga romaner läst ut.
John has no novels read out

b. *Jon läste inga romaner ut.
John read no novels out

In terms of Holmberg's Generalization, example a represents a greater violation than b does, but a is clearly more acceptable. Hence it seems unlikely that the account of (21)b is due to Holmberg's Generalization, for in many other grammatical examples it is clearly violated.[4]

2.3. The Distribution of NegQPs Does Not Involve Movement

Returning to the analysis of Christensen (1986), her proposal is that the distribution of NegQPs is captured by a transformation which turns an adjacent sequence of *inte* and a negative polarity item into the corresponding NegQP. This transformation applies in two cases: first, if the two items which need to be adjacent happen to be adjacent in the string, as in the case of *inte* and an immediately following negative polarity object, and second, if the negative polarity element is a subject or topic which precedes *inte*, in which case *inte* moves up to cliticize to it, and then the NegQP transformation applies. This is illustrated in (23):

[3] My thanks to Benjamin Lyngfelt for this observation.

[4] I do not mean in any way here to deny the robustness of Holmberg's Generalization with regard to Object Shift.

(23) a. Jag såg inte någon. $\Longrightarrow$ Jag såg ingen. (= (9b))
I saw not anyone I saw noone

b. Någon såg inte mig. $\Longrightarrow$ Någon-inte såg mig. $\Longrightarrow$ Ingen såg mig. (= (9a))
anyone saw not me anyone-not saw me noone saw me

c. Jag har inte sett någon. (no change, = (10b))
I have not seen anyone

Christensen's account will only account for some of the examples seen so far; and, for example, the transformation would not apply in (24)a, as *inte* and *någonting* are not adjacent, and *någonting* does not precede *inte*.

(24) a. Hon har inte sett någonting.
she has not seen anything

b. Hon har ingenting sett.
she has nothing seen

Now while (24)a is acceptable, so is (24)b, at least in colloquial Swedish. Christensen's analysis cannot generate (24)b, as *inte* and *någonting* are not adjacent, and only *inte* is allowed to raise up. (15)b/c, (16)a, and (19) also have this property.

Similar facts are shown in (25). The a example is ungrammatical as the NegQP phrase is inside VP, but b is relatively acceptable in colloquial registers (if disfavored in prescriptive grammars, and not quite as acceptable as (24)b).

(25) a. *Jag har läst inga romaner.
I have read no books

b. ?Jag har inga romaner läst.
I have no books read

A natural update of Christensen's analysis is to say that the NegQP starts out in structures like (25)a and moves to SpecNegP, its position in (25)b, to the left of VP. Setting aside the problem the apparent violations of Holmberg's Generalization,[5] this account accounts for the problematic examples discussed so far in this section.

However, for oblique objects, the fact that topicalization of a NegQP is grammatical while medial positioning of it is not (as shown again in (26) below) argues very strongly against a derivational analysis and for a representational analysis of the NegQP phenomenon. Recent derivational approaches are found in Jónsson (1996), Kayne (1998), and Platzack (1998), who claim that negative *inte* is in SpecNegP, the medial position just external to VP, and that NegQPs overtly raise from a VP-internal argument position to SpecNegP. This amounts to a 'positive' licensing condition on negative elements—at some point in the derivation, they must be in SpecNegP. Assuming that all arguments orginate with VP, an argument expressed by a NegQP would first raise to SpecNegP, to be licensed, and then may move on further up if it is a subject or a topic. This would account for the distribution of NegQPs as described in (13), except that it involves a contradiction under a

[5]This problem is noted in e.g., Kayne (1998, 132, fn. 5).

derivational approach.[6] Let us consider the examples in (26). The contradiction for the derivational approach is that the first derivational step for (26)d is impossible: a NegQP phrase cannot move from its base object position to the medial position (SpecNegP, by assumption here). Yet this step (from b to c in (26)) is crucial in the licensing of the NegQP.

(26) a. Jon har inte berättat om några romaner.
John has not told about any novels

b. *Jon har berättat om inga romaner.
John has told about no novels

c. *Jon har inga romaner berättat om.
John has no novels told about

d. Inga romaner har Jon berättat om.
No novels has John told about

There are two separate but related facts about the distribution of NegQPs: (i) in the medial position, only objects (non-obliques) are licensed, and hence c is bad; and (ii), in the initial position, any topicalizable phrase is licensed. Hence, the medial position is rather restricted compared to the initial position, but as the NegP analysis necessarily assumes that all movements must pass through the medial position, it cannot account for the acceptability of examples like (26)d.

So far then, the distribution of negative elements is clear: they cannot be within the surface VP, and the function they have in the clause is entirely determined by their surface position. These are fully representational generalizations which at best are unexpected and at worst inexpressible in a derivational approach.

3. The Distribution of Negative Elements in LFG

The LFG analysis has two parts: first, the possibilities for generating objects external to VP, and second, the association of sentential negative scope with morphologically negative elements.

3.1. Structure-Function Associations

Even when a NegQP corresponds to a clausal object, as in (24)b and (25)b, it appears in the same position as the negative adverb, external to VP (in the same place as Neg in (1)). This medial positioning for NPs is restricted to (in)direct objects: hence the key contrast between (26)c and (24)b, for in the former the medial NegQP correponds to an oblique's object, not a clausal object. However, topicalizing such an oblique's object, as in (26)d, is fully grammatical, and the NegQP is correctly external to VP. The contrast between the c and d examples in (26) is a consequence of the structure-function association principles: for arguments, the medial position in c can only be associated with (in)direct objects, while the initial topic position in d can be associated with any clause-internal function, and may potentially be a long-distance dependency.

The LFG principles of structure-function annotation for Swedish should conform to the descriptions in (27).

[6] This is discussed in part as a case of improper movement in the analysis of Jónsson (1996).

(27) a. SpecCP expresses a DF (TOP or FOC), and associates that DF with any clausal GF via $(\uparrow \text{GF}^{+}) = \downarrow$.

b. Within IP, only direct functions (SUBJ, IOBJ, OBJ) are assigned. SpecIP only expresses the SUBJ. Object functions appear within I′, either in the object position 'Pro' adjoined to I or as a NegQ in the medial position.

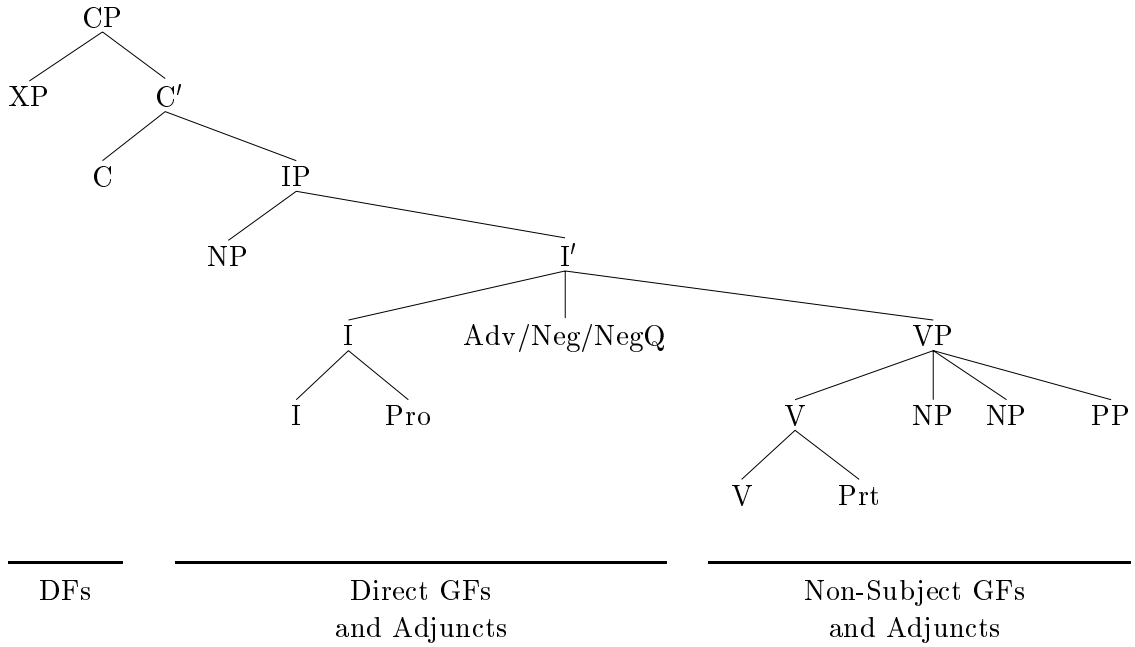
c. Within VP, only non-subject GFs are assigned.

We can think of these in a slightly different way: in the Swedish clause, only direct (argument) functions are possible in the immediate IP projection, and there is a subject > object hierarchical asymmetry, in that subject is structurally higher than object. Hence, subject can never be lower than I′, and a (non-DF) object can never be higher than I′.

As such, these principles would allow objects freely inside or outside VP; however, the only VP-external objects that Swedish allows are shifted pronominals or NegQPs. Although I will not build it into the analysis, the right insight for this situation seems to be that objects are normally within VP, and that only under certain circumstances are they external—specifically, only when they can be X^0 pronominal objects, or when the dictates of sentential scope force NegQPs to be VP-external (see below).

The positions for expression of functions in Swedish is summarized in (28).

(28)



3.2. Scope

The adverb *inte* may appear inside various constituents, but when it does it expresses constituent negation. In fact, the real generalization is that a negative element cannot take clausal scope out of VP, to get a sentential negation reading. As noted by Svenonius (1998), (29) is grammatical, even though *ingenting* is within VP. The example is grammatical as a case of double negation with narrow scope for *ingenting* (it must have narrow scope as it is within VP).

(29) Ingen har gjort ingenting.
noone has done nothing = 'Everyone has done something.'

Here, a negative concord reading would have a different interpretation, 'It is not the case that anyone has done anything', which is effectively 'No one has done anything'. (30) does not have this interpretation. The following examples, from Teleman et al. (1999, vol. 4, p. 201), illustrate the same point:[7]

(30) a. Inte bara de yngre har ingenting att göra.
not only the younger have nothing to do
'It is not only the younger (people) who have nothing to do.'

b. Inga svenskar går väl aldrig i kyrkan.
no Swedes go I-suppose never to church
'For no Swedes is it true that they never go to church.'

These are again double negative interpretations; the negative concord interpretations would be 'It is not only the younger who have anything (something) to do' and 'It is not true that there are Swedes who ever go to church'. Consequently, we need to account for the following distributions of forms and interpretations:

(31) a. The negative adverb *inte* takes sentential scope when it is generated within the IP or CP projection; it cannot be directly dominated by VP. If generated within a smaller constituent (NP, PP, etc.), it may indicate constituent negation or clausal negation, depending on the position of the containing constituent (see (35)).

b. A NegQP takes sentential scope only if generated external to VP. If generated within VP, it takes narrow scope under another negation.

So, the right analysis is not a matter of simply dictating the c-structure distribution of negative elements; rather it is a matter of assigning constituent or clausal negation relative to the c-structure position of the negative element(s).

3.3. Mechanisms

The key to capturing the generalizations above about NegQPs is to consider the relation between the morphological features and the syntactic features. What we know is that a NegQP that is subject or object and external to VP actually negates the whole clause; when it is VP-internal, this is not possible. Nevertheless, a VP-internal NegQP still has (narrow scope) negative force. As noted above, this means that we have two cases: one, where each element with negative form is interpreted as narrow negation on that constituent, and two, where an element with negative form constributes clausal negation. It is this latter case that is restricted to VP-external positions in Swedish.

It will be useful to think of what kind of analysis we need in terms of a (partial) typology of negation types in (33); recall that FP covers IP and CP. First, I define a predicate 'contained-in', to help express the generalizations.

[7] My thanks to Helge Lødrup and Benjamin Lyngfelt for discussion of the interpretation of *väl* in (30)b.

(32) 'Contained-in': α is contained-in βP iff α is immediately dominated by a node of category β.

(33) A Partial Typology of Negation Types

Assuming that *not* etc. expresses an ADJ(unct) function, negation of the clause is expressed within a GF of that clause.

a. English: any negative argument, or *not* at the clausal level, can license sentential negation.

b. Swedish: only a negative argument contained-in FP, or *inte* contained-in FP, can license sentential negation.

Following Frank and Zaenen (1998) and Spencer and Sadler (1999), I take it that morphological expression is projected from f-structure information: there are principles of morphological expression of the f-structure attributes and values (see also Ackerman and Webelhuth (1998)). I assume that sentential scope for negation is indicated by [NEG +] in the clausal f-structure, and that this information is projected into morphological information according to the principles in (34). Following Spencer and Sadler (1999), I represent c-structure information using capitalized lowercase words for names and a colon separating a feature from its value.

(34) Negative Syntactic and Morphological Features:

Let f_i be an f-structure and c_i be the set of corresponding c-structure nodes, by the reverse mapping ϕ^{-1}. Each c-structure node is a set of attribute-value pairs.

a. Constituent Negation
$[\text{NEG } +]_i \Longrightarrow c_j$ has [NegForm:+], where c_j occurs anywhere in the clause, and $c_j \in c_i$.

b. Clausal Negation
$\begin{bmatrix} \text{NEG} & + \\ \text{GF} & [\ ]_j \end{bmatrix}_i \Longrightarrow c_k$ has [NegForm:+], where c_k does not occur within VP, and $c_k \in c_j$.

The first part just says that a negative form in the c-structure can express semantic negation of that constituent. The second part says that certain negative forms in the c-structure can express clausal negation. English is the same as Swedish, except it lacks the external-to-VP restriction in (34)b.

There are various reasons to adopt this kind of constructional approach, rather than simply annotating each negative element with a defining equation $(\uparrow \text{NEG})=+$. First, a NegQP like *ingen* does not normally negate its own constituent, but rather, it negates the clause containing it. So instantiating [NEG +] within the f-structure corresponding to the NegQP itself has little use.

Second, it might be argued that at least the negation *inte* should carry $(\uparrow \text{NEG})=+$, and if analyzed as a co-head, directly negate the clause nucleus. However, this leads to a loss of generality: in (35), *inte* is constituent-internal, yet the whole negative constituent provides clausal negation, as that constituent is VP-external. Again, setting things up so that the SUBJ itself has [NEG +] is not of any obvious use.

(35) [Inte någon elev] har underrättats.
[not any pupil] has inform.PASS
'No pupil has been informed.'

Additionally, there are two arguments that come from negative concord languages for the approach here. Under the standard defining equation approach, such languages would have to have a different analysis from a language like English, for arguably a negative form does not necessarily contribute [NEG +] in such languages. In the approach here, NegQPs in negative concord languages will have more information in their lexical entries compared to NegQPs in multiple negation languages like (standard) English and Swedish, but the information is not qualitatively different (see section 4.2 below). Finally, in that section there is also a theory-internal argument against the defining equation approach.

Let us now consider some simple examples to see how the interpretation is expressed constructionally.

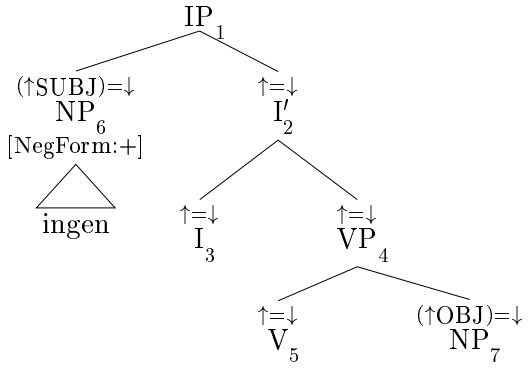
(36)	a.	Ingen såg mig. noone saw me	(34)b is satisfied: [NEG +] at the clausal level corresponds to [NegForm:+] on a constituent external to VP.
	b.	Jag såg ingen. I saw noone	(34)b is satisfied: [NEG +] at the clausal level corresponds to [NegForm:+] on a constituent external to VP.
(37)	a.	*Jag pratade med ingen. I spoke with noone.	(34)b is not satisfied: [NEG +] at the clausal level does not correspond to [NegForm:+] on a constituent external to VP.
	b.	Jag pratade inte med någon. I spoke not with anyone.	(34)b is satisfied: [NEG +] at the clausal level corresponds to [NegForm:+] on a constituent (*inte*) which is external to VP.
(38)	a.	Inga romaner har jag läst. no novels have I read	Assuming the DF of *inga romaner* to be FOC, (34)b is satisfied: [NEG +] at the clausal level corresponds to [NegForm:+] on a constituent which is external to VP. The identification of FOC with OBJ in the f-structure in an independent fact.
	b.	Inga romaner berättade han om. no novels told he about	Assuming the DF of *inga romaner* to be FOC, (34)b is satisfied: [NEG +] at the clausal level corresponds to [NegForm:+] on a constituent which is external to VP. The identification of FOC with OBL OBJ in the f-structure in an independent fact.

To get at the parts of the c-structure that we are interested in, we need to pick out a c-structure node, and its mother's category. Then, for example, we can find just those parts of a c-structure that are part of the IP projection (whose category is I). Effectively, we consider different projections of the same information, into the f-structure parts and c-structure parts, perhaps along the lines

of Andrews and Manning (1999). I will not try to present a fully formal account here, but will try to show explicitly what needs to be formally expressed.

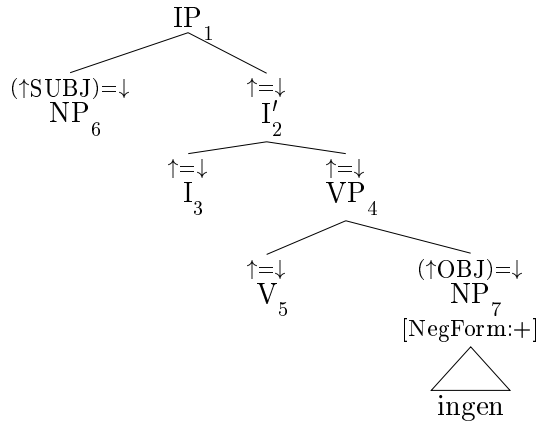
Consider the schematic pair of structures in (39), using *ingen* 'noone' to illustrate, where I assume that this has [NegForm:+] and the semantics of 'a person'.

(39)
$$\begin{bmatrix} \text{PRED} & \text{`}\ldots\text{'} \\ \text{GF}_6 & \begin{bmatrix}\text{PRED} & \text{`a person'}\end{bmatrix} \\ \text{GF}_7 & \begin{bmatrix}\text{PRED} & \text{`}\ldots\text{'}\end{bmatrix} \\ \text{NEG} & + \end{bmatrix}_{1,2,3,4,5}$$



Here, GF_6 is mapped back to NP_6, and GF_7 to NP_7. By (34)b, (39) is well-formed in Swedish, with the NegQP in the subject position expressing clausal negation. In contrast, (40) is not a well-formed pair in Swedish, though it would be in English.

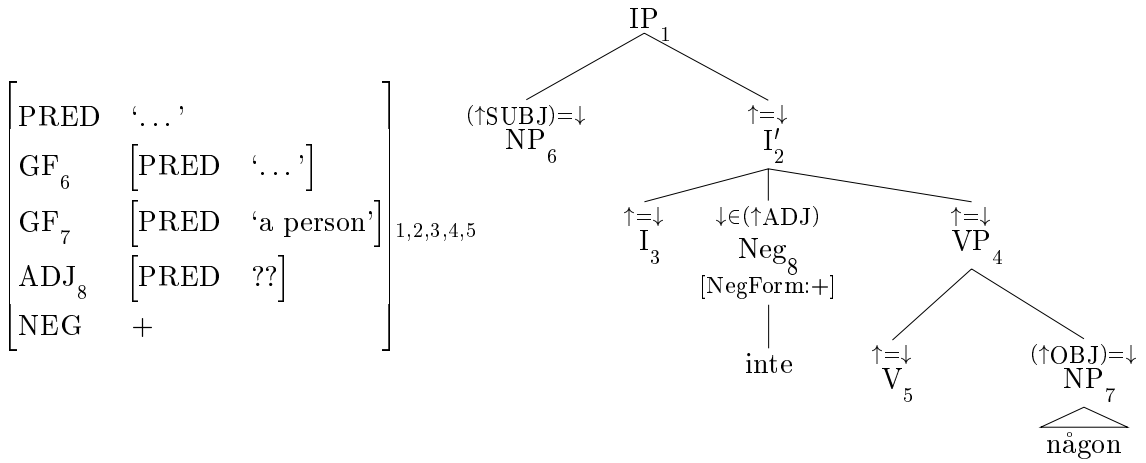
(40)
$$\begin{bmatrix} \text{PRED} & \text{`}\ldots\text{'} \\ \text{GF}_6 & \begin{bmatrix}\text{PRED} & \text{`}\ldots\text{'}\end{bmatrix} \\ \text{GF}_7 & \begin{bmatrix}\text{PRED} & \text{`a person'}\end{bmatrix} \\ \text{NEG} & + \end{bmatrix}_{1,2,3,4,5}$$



Here, (34)b is not satisfied, as the [NegForm:+] constituent is contained-in VP. To express the structure where x_7 is an indefinite quantifier, it is necessary to have *inte* in construction with an indefinite like *någon*. To be parallel with the analysis of arguments, I treat negation as being inside a GF, namely ADJ, though this raises a technical question as to what the nature of the PRED of that GF is. Assuming this problem can be solved, the pair in (41) is well-formed.[8]

[8]It would be possible to treat negation as a co-head, in which case the clause itself would effectively have [NegForm:+], and then (34)a would apply. In itself, this analysis would work, but would not limit the distribution of negation to VP-external positions.

(41)



4. Prospects

I will briefly consider the theoretical differences between multiple negation and negative concord languages that the analysis above leads us to postulate.

4.1. Multiple Negation Languages

As there can only be one instantiation of [NEG +] in each f-structure nucleus, an example with more than one negative element in it must have a schematic f-structure like that in (42), with a negative element in the c-structure corresponding to each [NEG +].

(42)
$$\begin{bmatrix} \text{PRED} & \text{'...'} \\ \text{GF} & \begin{bmatrix} \text{PRED} & \text{'...'} \\ \text{NEG} & + \end{bmatrix} \\ \ldots & \ldots \\ \text{NEG} & + \end{bmatrix}$$

There is a strict match between the number of semantic occurrences of [NEG +] and the number of constituents with [NegForm:+] expressing those occurrences. This gives rise to multiple negation in the relevant languages. Perhaps surprisingly, we will see below that a negative concord language like Italian also shows this strict matching, in a restricted domain.

4.2. Negative Concord Languages

In negative concord languages, certain expressions of negation actually license clausal negation, while other occurrences of negative quantifiers do not license or express negation, but need to find themselves in the presence of a 'real' negation. In LFG, this can be expressed by associating a constraining equation with them:

(43) Negative concord quantifiers: (GF ↑) NEG $=_c$+

This says that a negative quantifier must be in a containing nucleus where [NEG +] is licensed.[9] In fact, due to this, there will be never be a way to express an f-structure like (42) in a negative concord language; in particular, there will never be a way to express constituent negation, for by (43) the quantifier requires [NEG +] not in its own f-structure but in the containing f-structure.

Perhaps surprisingly, the negative licensing conditions in a negative concord language like Italian are essentially the same as the licensing conditions in Swedish. In Italian, true negation is expressed by a negative element contained-in IP, but VP-internal negative quantifiers are only concordial, and need a true negation licensed from the IP domain. Consider the data in (44), from Ladusaw (1992):

(44) a. Nessuno ha visto Mario.
noone has seen Mario

b. *Nessuno non ha visto Mario.
noone not has seen Mario

c. *Mario ha visto nessuno.
Mario has seen noone

d. Mario non ha visto nessuno
Mario not has seen noone

e. Nessuno ha visto nessuno.
noone has seen noone

The constraints on negative expression are clearly c-structural: although the subject in (44)a can express negation without *non*, and in fact necessarily without *non*, a postposed subject in the VP requires *non*, as in (45).

(45) Non ha telefonato nessuno.
not has telephoned noone

Let us consider (44)a. There is [NEG +] in the clausal nucleus. Assuming the same licensing conditions for Swedish, there should be a [NegForm:+] constituent contained-in IP, and there is, *nessuno*. *nessuno* itself has a constraining equation, namely (43), and this is satisfied. Hence, the example is grammatical. In this way the analysis captures the insight that Ladusaw (1992, 251ff.) argues is important in negative concord languages: that in such a position, *nessuno* both expresses the negation and simultaneously checks for negation. Note that this analysis is formally inexpressible in a defining equation approach: it would be theoretically meaningless for a lexical item to both define and constrain an attribute and its value.

Returning to the examples, (44)c is ungrammatical, as there is no legitimate expression of the [NEG +] in the clause nucleus. Adding in *non*, as in (44)d, provides the expression of [NEG +]. As *non* has the properties of a preverbal clitic, and as it seems to provide true negation when present, we could analyze as a carrier of [NEG +], adjoined to the verb and annotated $\uparrow=\downarrow$.

[9] True negative polarity items would have a similar constraining equation, but would lack the morphological specification [NegForm:+]. The account here is somewhat idealized, as negative concord quantifiers in Italian are licensed in a variety of downward-entailing contexts, of which overtly expressed negation is just one.

(46) Italian clausal negation

non: (↑ NEG)=+, [NegForm:+]

This provides [NEG +] directly to the clausal f-structure, and effectively [NEG +] is licensed as a case of constituent negation, by (34)a.

The ungrammaticality of (44)b is also instructive, for it shows that the language cannot tolerate two 'real' negations: according to (46), *non* expresses a real negation, and by (34)b, *nessuno* in the subject position does too. Hence the one-to-one relation between meanings and expressions seen above for English and Swedish also shows up in this restricted context in Italian.

Finally, the parallels with Swedish are even greater when we consider the constrast in (47), examples from Rizzi (1982):

(47) a. Mario non ha parlato con nessuno.
Mario not has spoken with noone

b. Con nessuno ho parlato!
with noone I-have spoken

Within VP, the PP *con nessuno* requires a licensing *non*, but when it is topicalized—one cannot tell whether it is adjoined to IP or contained-in CP—*con nessuno* needs no other licensing element.

Although somewhat sketchy, I think this section shows how the overall approach here can correctly analyze the expression of negation at the same time as allowing for the constraining effects of negative concordial elements. Further issues to be given a more detailed account include the percolation of [NegForm] features in a PP like *con nessuno* above, the constraining of clausal negation from phrases with embedded quantifiers such as *the mother of noone*,[10] which suggests that (43) should be modified, and, a better characterization of exactly what attribute it is that (43) is constraining for.

5. Conclusion

I have argued for several related points: first, that Swedish negation is restricted in terms of which interpretations are possible from which c-structure positions, regardless of the grammatical function of the negative element itself. Second, I noted that the irrelevance of the grammatical function effectively forms a strong argument against a derivational approach to the statement of constraints on the distribution of negative forms. Third, I argued that a constructional approach to the expression of negation provides the simplest and most general analysis, and fourth, that the approach extends to negative concord languages, an extension that would be impossible under a standard defining equation approach.

The analysis here gives up the idea from standard LFG that the f-structure is fully described by defining equations in the c-structure, in favor of a kind of correspondence model, as is implicit in the arrows in (34). This revised view of LFG has been argued for on other empirical grounds by Ackerman and Webelhuth (1998) and Spencer and Sadler (1999), and it accords well with the Optimality Theoretic instantiations of LFG, in particular the model in Kuhn (2000).

[10] Thanks to Ivan Sag for this observation.

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