Yes/no questions and the relation between tense and polarity in English and Finnish

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It is argued that the structure of the sentence in English as well as Finnish is C [Pol [T…]], where Pol(arity) has negative or affirmative value. Yes/no questions are derived, universally, by movement of a wh-marked Pol to C, deriving an operator-variable relation between C and Pol. No category with interpretable features can intervene between C and Pol, as it would block the crucial relation between C and Pol. It is argued, with reference to Finnish, that we do not need to assume any head with uninterpretable features such as Agr5 between C and Pol, either. For English, the theory is based on Zwicky & Pullum's 1983 arguments that the negation -n't in English is an inflection, combined with the analysis of inflected words as derived by head movement and incorporation of a lexical head in the inflectional head.

Keywords: negation, questions, head movement, finiteness, AGR

Introduction

The order and hierarchy of sentential functional categories has been a long-standing controversy within syntactic theory, especially since Pollock 1987 proposed the split-INFL hypothesis. The controversy concerns both what the hierarchy is in various individual languages, as well as the related, larger question whether the hierarchy is universal or parameterised. The question discussed in this paper is the relation between Tense and Negation, or more generally, Tense and Polarity, with particular reference to English and Finnish. More specifically, the paper is an investigation of the hypothesis that Polarity c-commands Tense in English as well as in Finnish. In the case of Finnish this is uncontroversial, in the case of English it is more controversial, as the negation does not ever linearly precede the category encoding tense. I will show that the
English negation -n't corresponds closely to the Finnish negation, with only some morphological differences. I will also argue that Polarity is the highest head in the IP-domain in both languages, which is controversial in the case of Finnish as well as English. I will particularly focus on consequences that this analysis of negation has for yes/no questions (henceforth abbreviated YNQ).

Zwicky and Pullum 1983 argued that the English negation n't in didn't, won't, can't etc. is an inflection, not a clitic. I will combine this insight with the widely assumed, yet controversial hypothesis that inflected forms are derived in the syntax by movement. More specifically I will assume that forms inflected with suffixes in head-initial languages are derived by head-movement and left-adjunction of a head to the suffix, essentially as described in Baker 1988 and more recently Julien 2002.

For didn't, won't, etc., this entails that it is derived from an underlying structure where the sentential head Neg c-commands T, containing the auxiliary, by left-adjunction (incorporation) of T to n't, as shown in (1).

\[
\text{(1)} \quad \text{NegP} \\
\quad \text{Neg} \\
\quad \text{TP} \\
\quad \text{T} \\
\quad \text{Neg} \\
\quad \text{n't} \\
\quad \text{t} \\
\quad \text{did} \\
\]

Following much other work on English auxiliaries I assume that the modal auxiliaries and auxiliary do are merged as exponents of the category T, while auxiliary have and be are moved to T. Subject–Aux Inversion (SAI), as in (2), is standardly taken to be head-movement of the auxiliary to C.

\[
\text{(2)} \quad \text{Didn't they speak French?} \\
\]

Since SAI applies only to tensed auxiliaries, it has been described as Tense-movement to C (T-to-C) in much recent work on the sentential structure of English (for example Pesetsky & Torrego 2001). But (1) entails that that cannot be right. Instead, in the case of negative sentences, it would appear to be Neg-to-C, where Neg incorporates T in the form of an auxiliary. If Neg is the exponent of a category Polarity (Pol) which is either [+neg] or [−neg], where the exponent of the value [−neg] is a null-morpheme, then SAI can be formally
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described as Pol-to-C, and for example Did they speak French? would have the intermediate structure (3) (ignoring the subject), where at the next step, Pol moves to C.

(3)

\[
\text{CP} \quad \text{PolP} \\
\text{C} \\
\text{Pol} \\
\text{Pol} [-\text{Neg}] \\
\text{TP} \\
\text{did} \\
\text{T} \\
0 \\
0 \\
t
\]

In the following I will discuss various consequences of this hypothesis.

A particularly interesting consequence of the hypothesis is that it makes possible a unification of YNQs and wh-questions: All questions are formed by movement of the questioned constituent to the C-domain, triggered by a feature in C. In wh-questions the questioned constituent is an argument or an adverbial, in YNQs the questioned constituent is polarity, encoded in the head Pol, moved to the C-domain by SAI.

This presupposes that there is a functional head Pol with affirmative value in non-negated finite clause (as argued by Laka 1994). Furthermore, given that head movement is subject to strict locality such that a head α can move and adjoin to a head β only if α selects β (Baker 1988, Julien 2002), it presupposes that there is no functional head between Pol and C (the head which encodes the question-feature in a YNQ). More precisely, there cannot be a functional category there with interpretable features, since such a head would block the selection relation between C and Pol. This excludes heads such as Fin(ite) or Top(ic) (assumed in various works, since Rizzi 1997), as heads encoding interpretable features in that domain. A head encoding only uninterpretable features, such as verbal φ-features (subject–verb agreement) and possibly an EPP-feature would presumably not interfere with the selection relation between C and Pol, and could, on that account, occur in the domain between C and Pol. However, if we concur with Chomsky 1995: 352ff. that a head encoding exclusively uninterpretable features is an impossibility, then there can be no head at all in that domain. This is a question which I will discuss in some detail in this paper.

If movement of the finite verb or auxiliary to T in YNCs, in English SAI, is
Pol-movement to C triggered by a question-feature in C, the we expect to see movement of the negation to C in negative questions quite generally in languages which have overt movement of the finite verb or auxiliary to C in non-negative questions. We expect to see this at least in all such language where the negation word is a head. Instances of such languages have, indeed, been noted in the literature. One language will be discussed in some detail in this paper, namely Finnish. Other examples include the Paduan dialect of Italian (see Zanuttini 2001:525f.) and several dialects of Chinese (see Cheng & al. 1996).

1. A note on previous analyses and the semantic relation between Tense and Negation

I am not the first one to propose that Neg c-commands T in English. Zanuttini (1996) argues for a strong version of this hypothesis, primarily based on her investigation of Romance languages: Neg selects TP universally. A version of this hypothesis is articulated in Laka 1994, also with reference to English. Haegeman (1995) also adopts hypothesis that Neg selects TP, empirically based primarily on her investigation of West Flemish and Romance. Haegeman also discusses English, though, and argues that n’t is a realization of Neg0, which c-commands T, and that not is a specifier of NegP. This view is also reflected in Haegeman and Guéron 1999. But Haegeman 1995 and Haegeman and Guéron 1999 refrain from drawing the conclusion that SAI is Pol-movement to C, with all that that entails. Instead sweeping formulations such as the following can be found: “On its way to C the auxiliary transits through Neg0 and picks up the NEG-feature” (Haegeman 1995:181, also referring to Rizzi 1996) and “n’t is moved along with the inflected auxiliary in I-to-C movement” (Haegeman 1995:189).

Arguments from the semantics of tense and negation are not unequivocal. Eythórsson 2002, following Lopez 1994, argues that negation takes scope over tense, in the unmarked case, in English as well as in many (or all?) other languages.

(4) Bill didn’t eat a hamburger.

Informally, the meaning of (4) is that there is not a time in the past at which Bill ate a hamburger. It does not mean that there is a time in the past at which Bill did not eat a hamburger. It is standardly assumed that scope corresponds to c-command in syntactic structure, and the null hypothesis is that it does so as a result of merge, without movement. That is to say, negation is merged above T,
not vice versa. On the other hand it could be argued that (5) actually means that there is a time in the past, namely yesterday, when Bill did not eat a hamburger.

(5) Bill didn’t eat a hamburger yesterday.

However, Lopez 1994 (as reported in Eythórsson 2002) argues that this is not what (5) means. What it means is that within the time interval denoted by yesterday there is not a time at which Bill ate a hamburger. That is to say, the adverbial provides a time frame within which the truth of the proposition is computed. If so, the negation does indeed take scope over tense, in the un-marked case.1

2. Polarity in Finnish

Finnish is an interesting language in this connection mainly for the following reasons: First, it is a particularly clear case of a language where subject agreement is dissociated from Tense, potentially presenting a strong argument for agreement as a separate head. Second, Finnish has head movement to C in YNQs, with (overt) Neg-movement in negative questions and V-movement in non-negative questions, which makes for a particularly interesting comparison with English.

The negation in Finnish is an auxiliary-like element inflected for person and number in agreement with the subject. The agreement inflection is the same as appears on the verb in the absence of negation. Following Holmberg & al. 1993 (henceforth H&al.), I will illustrate the relation between negation, tense, and agreement with the conditional mood (con), where it is particularly transparent.

(6) a. Minä osta-isi-n kahvia.
   I buy-1sg con coffee
   “I would buy coffee.”
   b. Minä e-n osta-isi kahvia.
   I neg-1sg buy-con coffee
   “I wouldn’t buy coffee.”

The agreement suffix, here 1sg, is suffixed to the verb, outside con in the affirmative sentence, but to the negation in the negative counterpart, while con remains suffixed to the verb. The following paradigms show that the agreement inflection is morphologically exactly the same whether it is sitting on the negation or the tensed verb, except for some phonologically motivated variation
I assume, following Holmberg et al. that con is an exponent of finite T (called TM, for Tense-Mood, in that work). Negation invariably precedes that category, hence uncontroversially c-commands it. Subject agreement is thus clearly dissociated from T. The generalization is that subject agreement is realized on the highest (visible) sentential head below C, which is either Neg or T, where T incorporates the verb (or the auxiliary verb ole "be").

In Holmberg et al. the analysis of (6a), for example, is as shown in (8), where F is short for ‘finite’; The category which is realized as subject agreement is assumed to also encode finiteness.

(8) \([_F F] [_{[TP \cdots V]}_{[1SG] \ [\text{[CON]}]}]\)

The verb moves and left-adojins to T, which then moves and adjoins to F. The analysis of (6b), repeated here as (9a) is (9b).

(9) a. *Minä en ostaisi kahvia.*
    "I wouldn’t buy coffee."

b. 

```
    F
   / \           / \           / \           / \           / \           / \           / \           / \   
  F'     NegP     NegP     NegP     NegP     NegP     NegP     NegP     NegP     NegP
      /   \       /   \       /   \       /   \       /   \       /   \       /   \       /   \   
     minä     F     T       T       T       T       T       T       T       T
       /   \     / \         / \         / \         / \         / \         / \         / \   
      /   \     /   \       /   \       /   \       /   \       /   \       /   \       /   \   
     T
        / \     / \         / \         / \         / \         / \         / \         / \   
      VP    VP    VP        VP        VP        VP        VP        VP        VP    
        / \     / \         / \         / \         / \         / \         / \         / \   
     V       T       T       T       T       T       T       T       T       T
          / \     / \         / \         / \         / \         / \         / \         / \   
       osta     -isi     tv     kahvia
```

The verb moves and adjoins to T. Neg moves and adjoins to F. The subject moves from VP to specFP (possibly via intermediate Spec-position(s)).
In terms of the theory of Agree outlined in Chomsky 2000, F would have a set of uninterpretable \( \phi \)-features (u-\( \phi \)), which are assigned a value by the subject NP. Finnish is an SVO language with an EPP-feature which triggers movement of the nominative subject NP to specFP in the unmarked case of a transitive or unergative sentence. Finnish differs from English though in that the category which checks the EPP feature need not be the subject. In the case where the subject is focused, or where there is no nominative subject, some other referential category (an argument or a locative, temporal or instrumental adverbial) can move to specFP checking the EPP-feature. The category so moved is interpreted as a ‘topic’, referring to the entity about which the predicate says something new; see Holmberg & Nikanne 2002 for details. Even so, F must have an EPP-feature triggering movement of this category to specFP.

In YNQs, the head carrying the agreement inflection, that is the negation or the finite verb (= the highest visible head in IP) moves to C, adjoining to the question particle -\( \text{kö} \)/\( \text{kö} \). (10c) shows that the tensed verb cannot move across the negation. The structure of (10b) would be (10d):

(10) a. Ostasi-\( \text{-t-kö} \) sinä kahvia?
    “Would you buy coffee?”

b. E-\( \text{-t-kö} \) sinä ostasi-\( \text{-t-kö} \) kahvia?
   “Wouldn’t you buy coffee?”

c. *Ostaisiko sinä et kahvia?
   “Would you buy coffee?”

d. -\( \text{C} \)

Assume, following the discussion in Section 1, that the category that is attracted to C in YNQs is not F but Pol, with affirmative or negative value. This presupposes that every finite sentence has a head Pol, realized as the negation in
negative clauses but generally unrealized in affirmative clauses. In affirmative clauses, T moves and adjoins to Pol. In YNQs Pol moves to C. Assuming that the agreement suffix is a feature of F, Pol-to-C must pass through F picking up the agreement, as indicated by the morpheme order in (10b). But now a problem ensues. In order for C to attract Pol, C must select Pol, which is to say Pol must be the next head down, by standard assumptions regarding locality of movement. But in the analysis just sketched, F intervenes between C and Pol. Now if the intervening head has only uninterpretable features, it will presumably be invisible for selection; the head will, in fact, be deleted by LF, having had all its features deleted in the course of the derivation. If the Pol-to-C movement hypothesis of YNQs is adopted, then either there is no F at all between C and Pol, or it consists of just uninterpretable features (verbal φ-features and an EPP-feature).

The argument in H&al for assuming that F encodes not just agreement features and the EPP but also finiteness was the following:

There is a finite construction where, arguably, F is realized, but not as agreement, namely the passive. The analysis in H&al of (11a) would be (11b):

(11)  a. Kahvi ostettaisinn.
    ‘The coffee would be bought.’
    b.  oste-tta-isi-Vn
        buy-pass-con-F

The suffix -Vn, where V is an underspecified vowel assigned the value of the preceding adjacent vowel, only occurs in the passive, in complementary distribution with the agreement suffixes, and is invariant. Holmberg et al. conclude that it is an exponent of F but without φ-features. Since it is only found in finite passive clauses, they conclude that F encodes finiteness. (12) exemplifies passive in a nonfinite, participial clause, where -Vn is not possible.

(12) Kahvi on oste-tta-va (*Vn) heti.
    coffee is buy+pass-prc at-once
    ‘The coffee is to be bought at once.’

If F consists of just uninterpretable features, then the -Vn suffix must be reanalyzed as, say, the realization of a default, neutral value of u-φ (the uninterpretable verbal φ-feature complex). There is an alternative, though, partly based on Mitchell 1991: Assume there is no F, but instead u-φ is a property of Pol.
More precisely, Pol would consist of either + or −negative, u-φ, and an EPP-feature. The feature complex u-φ is assigned a value by the subject through Agree (leaving aside the question whether Nominative case is assigned to the subject in the same process). Pol with value [+neg] is then realized as one of the agreeing forms of the negation, depending on the value assigned to u-φ. Pol with the value [−Neg] is realized as null in active sentences, but realized as −Vn in the passive. This accounts for why −Vn only occurs in affirmative passives; compare (14) and (11a).

(14) Kahvia ei ostettaisi(*-Vn).

It must also have an additional [+suffix] feature, triggering movement of T (incorporating the verb) to Pol. This would be in line with Chomsky 1995: 352ff. where Chomsky argues against the existence of heads made up exclusively of uninterpretable features, that is heads such as AgrS and AgrO. Since uninterpretable features have to be deleted before reaching LF, these heads would invariably be deleted in the course of the syntactic derivation, and so would the portion of the tree that they project. A structure such as, say, [AgrP DP Agr [TP T]], where DP is attracted by an EPP-feature of Agr, would invariably collapse into [TP DP T] at LF. If so, the relevant EPP-feature and the φ-features might be encoded on T, directly; they would be a lexical property of (finite) T. A corollary of this is that a head may have more than one specifier; a functional head may have as many specifiers as it has EPP-features licensing the specifiers. See also Holmberg & Platzack 1995: 19–20 for arguments against Agr as a sentential head.

3. The English negation n’t is an inflection

In this section I will argue that the English negation -n’t is an inflection, and that the forms don’t, won’t, etc. are derived by head movement and incorporation of
T into the negation, more precisely, into negative Pol, which entails that Pol c-commands T in English just as in Finnish.

The alternatives to the analysis according to which the negation n’t is an inflection are

(a) It is a form of the independent negation word not, the result of a phonological contraction rule operating on the structure (15), to derive (in this case) the form [dīdn].

\[(15) \quad \text{did} \quad \text{not} \rightarrow \text{[dīdn]}\]

(b) It is a clitic derived by movement and right-adjunction of the negation to the auxiliary, where the derived complex constituent is spelled out as [dīdn].

\[(16) \quad \text{T} \quad \text{Neg} \quad \text{not} \rightarrow \text{[dīdn]}\]

Alternative (a) is easily disposed of. Since the auxiliary and the negation under that analysis do not form a syntactic constituent, it is incompatible with the possibility of SAI of negative auxiliaries. The irregular forms won’t, shan’t, and Southern British English can’t are also evidence against a purely phonological account.

Alternative (b) represents what is probably the standard view of negative auxiliaries, although it is rarely formulated explicitly. Zwicky & Pullum’s (1983) (henceforth Z&P) arguments against this analysis, as a representative of the analysis of n’t as a clitic, are based on a comparison of the properties of clitics and inflections in a range of clear cases. They identify the following as criterial properties:

A. Clitics can exhibit a low degree of selection with respect to their hosts, while affixes exhibit a high degree of selection with respect to their stems.
B. Arbitrary gaps in the set of combinations are more characteristic of affixed words than of clitic groups.
C. Morphophonological idiosyncracies are more characteristic of affixed words than of clitic groups.
D. Semantic idiosyncracies are more characteristic of affixed words than of clitic groups.
E. Syntactic rules can affect affixed words, but cannot affect clitic groups.
F. Clitics can attach to material already containing clitics, but affixes cannot.

They then proceed to show that n't qualifies as an affix by all these criteria. Consider first A: n’t is highly selective, attaching only to finite auxiliaries.

(17)  
  a. I prefer not/*prefer'n't to leave at this point.  
  b. Well, for her not/*hern’t to understand is the last straw. (Z&P)  
  c. Would the police have not/*haven’t been informed?

Affix-Criterion B is satisfied by the non-existence of the forms *mayn’t and *amn’t (in most dialects). Criterion C is satisfied by irregular forms such as won’t and shan’t. As for Criterion D, Z&P mention the variation between those Aux+n’t forms which have the reading [NOT Aux] (for instance can’t) and those which have the reading [Aux NOT] (for instance mustn’t); These will be discussed below. As for Criterion E they mention SAI, and for Criterion F, they mention (9):

(18) *I’dn’t be doing this unless I had to.

As discussed by Z&P, ‘d (here the contracted form of would) is a clitic, by their criteria. The fact that n’t cannot attach to X+’d is then another indication that n’t is an affix, not a clitic.

Obviously, Z&P’s argumentation is based on a particular view of what a clitic is. They assume a distinction between simple clitics and special clitics, where simple clitics are essentially phonologically reduced forms of full lexical items, while special clitics have a distribution which is different from the corresponding full forms; for instance, the French pronominal clitics are special clitics, since they precede the finite verb, while the corresponding independent pronouns follow the finite verb. Z&P discuss the possibility that n’t may be a special clitic, but eventually reject this hypothesis.

Let us, for the sake of argument, accept that there are special clitics which may undergo cliticization in the syntax, and therefore may precede syntactic operations. This would then, in principle, permit analysis (7), where n’t is cliticized to T in the syntax, and may then follow T under movement to C. There may be another reason for excluding analysis B, though, that is if right-adjunction is universally prohibited. This was argued by Kayne 1994, on the basis of certain theoretical arguments, ultimately as a consequence of Kayne’s Linear Correspondence Axiom. More recently, empirical arguments have been put forth by Julien 2002:234ff., based on an extensive cross-linguistic survey of
tense and aspect morphology, in support of a universal ban against adjunction to the right of a head.4

4. SAI and the semantics of yes/no-questions

Let us, however, for the sake of argument accept the possibility of right-adjunction. Let us then compare analysis (7) (underlying order is [T [Neg]], n’t right-adjoins to Aux+T) with analysis (1) (underlying order is [Pol [T]], Aux+T left-adjoins to Pol) with regard to their implications for how SAI works, in particular in YNQs, such as (12):

(19) Don’t you speak French?

As for Analysis (7) there do not seem to be any interesting implications: SAI is formally T movement to C, where T may or may not have a negation attached to it. There is no semantic reason why T would move to C, though, so SAI is essentially a linearization rule, akin to, say, V-to-I in French in the framework of Chomsky 1993 and subsequent works. It could be formalized as a parameterized property of the question feature in C: In some languages the feature is ‘strong’, attracting the closest head with phonological features, that is T (where T must then contain an auxiliary, in English).

Analysis (1), on the other hand, has an interesting implication: According to this analysis, SAI is Pol-movement to C. A YNQ is a question about the polarity of a proposition. Therefore SAI in YNQs may be construed as a semantically motivated rule, in a certain sense.

At least ever since Chomsky 1976, wh-movement is widely viewed as a syntactic operation deriving a structure which is almost isomorphic with the LF of wh-questions or relatives or other wh-constructions. Since LF is the input to semantic interpretation, wh-movement is, in this specific sense, a semantically motivated operation.

Consider wh-questions: A wh-question such as (13) can be seen as having the tripartite structure familiar from studies of quantification (see Larson and Segal 1995 and references there): an operator, a restriction, and a proposition with a variable.

(20) Who did John talk to?

a. A proposition with a variable: John talked to x,

b. a restriction: x is a person,

c. a question operator: Qx
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The restriction is derived from a combination of the meaning of the *wh*-word and the discourse context; *who* is restricted to humans by virtue of its lexical meaning, but may, in addition, be restricted to a set of contextually given individuals (say, Ian and Emma), in which case the restriction in (20) is ‘*x* is Ian or Emma’.

In narrow syntax Q is encoded by a feature in C (in other words, there is a special complementizer encoding the feature [Q] required in questions). The role of *wh*-movement is then:

a. it provides an overt expression of [Q], and
b. it ensures the binding relation between the operator and the variable, in the syntax represented by the copy (the trace) of the *wh*-phrase, by virtue of the movement chain.

In the case of *wh*-in-situ there must be some other overt expression of the presence of the Q-feature, typically a question particle in C (or a special intonation, as in French). And the operator-variable relation must be established in some other way than by overt movement. I return to *wh*-in situ directly, after discussing SAI in YNQs.

A YNQ such as (21) can also be seen as a tripartite structure, analogous with (20a, b, c), particularly with the version of (20) where the restriction is a finite set of individuals. In YNQs the variable whose identity is requested is polarity, its range restricted to two values: negative or affirmative.

(21) Do you speak French?
   a. A proposition with a variable: You *x*-speak French. (or ‘You either do or you don’t speak French’)
   b. a restriction: *x* is negative or affirmative.
   c. a question operator Qx.

The question-operator again starts out as a Q-feature in C, by assumption the same feature as in *wh*-questions. Then the role of SAI is:

a. it provides overt expression of [Q], and
b. it ensures the binding relation between the operator and the variable, represented by the trace of Pol, by virtue of the movement chain.

The same would be the case for the negative question (22):

(22) Don’t you speak French?

The structure is the same, except that the moved Pol contains the negation. (21) and (22) are both questions about the polarity of the proposition, and both can replied by yes or no. In that sense they are synonymous. I return briefly to
negative questions at the end of this section.

What about embedded questions in English, and more generally YNQs where there is no overt movement of Pol (as seems to be the case in many languages)? I take it that languages with (overt) Pol-movement in YNQs are to languages without (overt) Pol-movement in YNQs as languages with (overt) wh-movement are to languages without (overt) wh-movement. For the sake of concreteness, I assume a theory of wh-movement along the lines of Watanabe 1992, Chomsky 1995:263, Hagstrom 1998. In this theory a wh-expression is underlingly a compound, made up of a wh-morpheme and an indefinite pronoun. For example who would be underlingly [wh-somebody]. All languages have wh-movement, but differ with respect to whether the movement affects just the wh-morpheme, or whether it pied-pipes the indefinite pronoun. In wh-in-situ languages (Japanese, Chinese, and many other languages) the indefinite pronoun is not pied piped, but is spelled out in situ. In most European languages the whole compound is moved, together with the phrase it heads. Assuming the copy theory of movement, a copy of the indefinite pronoun is left behind in either case, whether spelled out or not, and is interpreted as a variable, selectively bound by the question-operator in the C into whose Spec-position the wh-element is attracted.

Applying this theory to YNQs, I assume that there is a form of Pol which can be represented as wh-Pol. A sentential head C with a Q-feature will always attract wh. Languages (and constructions) differ with respect to whether Pol is pied-piped with wh. In English direct questions all of wh-Pol is moved, together with an incorporated auxiliary. In English embedded question I assume wh alone moves, stranding Pol. Wh moved to C (or to SpecCP, according to Kayne 1991) is spelled out as whether. More generally, I suggest that clause-initial questions particles in languages where YNQs are marked by such a question particle can be analyzed as spell-outs of wh, extracted from wh-Pol.

The theory articulated above bears a certain resemblance to that of Rizzi 1996. Rizzi proposed, as an explanation of why English has SAI in wh-question, that T in English questions has a wh-feature, and that the role of SAI is to transport this feature to C, where it enters into a crucial Spec–Head agreement relation with the wh-phrase moved to SpecCP. In the present theory Pol (not T) crucially has a wh-feature in YNQs, because Pol is the questioned constituent in YNQs, and this is the feature attracted by C thus causing SAI. There is no reason, in the present theory, why Pol in wh-questions would have a wh-feature. If it does, the feature has another status than it has in YNQs, in fact, it would be uninterpretable (in terms of the distinction between interpretable and uninter-
interpretable features of Chomsky 1995: 277–279). The present theory implies that SAI in YNQs is a different operation than SAI in \textit{wh}-questions; Only in YNQs is the operation semantically motivated, in the sense discussed. We predict that there will be languages which have Pol-movement to C in YNQs but not in \textit{wh}-questions. Finnish is one such language.

One advantage of the hypothesis that YNQs are derived by ‘\textit{wh}-movement’ of Pol, creating an operator-variable relation is that it provides the basis for a theory of elliptic replies to YNQs. This is explored, particularly in relation to Finnish, in Holmberg 2001. The following is a very brief and somewhat simplified resumé:

The reply to a YNQ in Finnish typically consists of just the finite verb.

\begin{enumerate}[a.]
\item \textit{Puhuuko Pertti ranskaa?}
\item \textit{Puhuu.}
\end{enumerate}

This is derived by Pol-movement, Pol incorporating the finite verb, to a polarity focus position in the C-domain, with ellipsis of IP. Finnish does not have pro drop in the 3rd person (see Holmberg & Nikanne 2002), so (23b) cannot be derived, say, by pro drop of the subject and object. The elided IP is recovered by copying the LF of the IP of a preceding sentence. That recovered IP must contain a variable Pol, or the polarity focus operator will have no variable to bind. Only if the preceding sentence is a YNQ, will it have a variable Pol, provided by movement of \textit{wh}-Pol to C. Therefore expressions like (23b) are only heard as replies to YNQs. In English a YNQ is typically replied by just an affirmative or negative particle, \textit{yes} or \textit{no}. These replies are also derived by ellipsis of IP, with \textit{yes} or \textit{no} spelling out a polarity focus operator with affirmative or negative restriction. The polarity focus operator must bind a variable. It will do so, provided that the IP recovered from the preceding sentence is that of a YNQ, derived by Pol-movement to C. As demonstrated in Holmberg 2001 a number of syntactic and semantic properties of elliptic replies can be explained in this framework.

Finally, a note on negative questions. Given that Pol is crucially a variable in YNQs, the negation, whether moved to C (the case of the Finnish negation and English \textit{n’t}) or remaining in IP (the case of \textit{not}), does not do what the negation does in declarative sentences, that is negate a proposition. What it
does is give rise to certain Gricean implicatures, primarily concerning the expected answer. For instance, (22) may convey the expectation of an affirmative answer, or in a different context, the expectation of a negative answer. What it cannot be is a neutral, information-seeking question. That the negation is semantically ‘active’ in the question is shown by the fact that negated questions require replies which are morphologically or syntactically different from replies to polarity-neutral questions. For instance the counterpart of (22) in French would be answered affirmatively by *si*, while the corresponding non-negative question would be answered affirmatively by *oui*. Given the theory of elliptic replies in Holmberg 2001, the effect of *si* is to neutralize the negation recovered along with the IP recovered from the preceding negative question.

5. *Does not* vs. *doesn’t*

English has an alternative sentential negation form, employing the independent negation word *not*:

(24) a. John does not speak French.
    b. Does John not speak French?

Two analyses of this construction have been proposed in recent years: One is that *n’t* is an exponent of the sentential head NEG, while *not* is the specifier of an empty NEG head. This analysis is proposed by Haegeman 1995: 180–190. According to the other analysis there are several negation positions in English: *n’t* is merged high, above T, while *not* is, or at least can be, merged in a lower position, below T. This analysis is articulated in Laka 1994, Zanuttini 1996, Cormack & Smith 2002. Let us first consider Haegeman’s (1995) analysis. In terms of the present theory, the abstract sentential head would presumably be Pol with negative value. The intermediate structure would then be (25).

\[
\text{Pol} \text{[PolP not } \text{[Pol} \text{]}}\text{Pol[TP does+T vP]}}\text{]}\text{[neg]}
\]

The relation between *not* and Pol would presumably be a negative concord relation: Either *not* or Pol has the interpretable negative feature, and the other term of the relation gets an uninterpretable negative feature by agreement/concord. The word order in (24a), *does* preceding *not*, indicates movement of *does* across *not*. What would the landing site be? Haegeman 1995 postulates a head AgrS between C and NEG (here Pol), which attracts T moving via NEG.
Note that if I am right about the nature of SAI in YNQs, then the head between C and NEG/Pol would have to consist of uninterpretable features only, so like AgrS, in that respect. In the YNQ, the Q-feature in C could then select and attract NEG/Pol. Given that T is first attracted to NEG/Pol, the auxiliary would then end up adjoined to C in the YNQ, resulting in the word order in (24b).

However, we have just seen that we can dispense with AgrS as a sentential head in Finnish, a language where the empirical arguments for such a head seemed particularly strong. In view of this, plus the conceptual and empirical arguments against Agr as a head, alluded to above (end of Section 3) I would therefore like to consider the alternative to Haegeman’s analysis of English not, according to which n’t and not are two structurally independent forms of negation, n’t merged with TP (i.e. c-commanding T), not merged with vP (i.e. c-commanded by T).

(26) \[ \text{PolP Pol} \] \[ \text{TP does+T [not vP]} \] \]

Double negation constructions such as (27), based on Horn 1972, show that two negation positions can be filled simultaneously in English.

(27) A good Christian can’t not go to Church and still be saved.

This example also shows that not is not a negative polarity item which receives its negative value by concord with negative Pol, but instead n’t and not both have inherent, interpretable negative value. This is furthermore confirmed by the fact that not occurs as a sentential negation in non-finite clauses. I return to negation in non-finite clauses below, but first, consider the contrast between (28a,b) (see Laka 1994: 29).

(28) a. *Anyone doesn’t want beer.
   b. Doesn’t anyone want beer?
   c. Does anyone not want beer?

Aux+n’t moved to C licenses the negative polarity item anyone in subject position. Anyone is licit in (26c) as well, as many negative polarity items are licit in questions, but the interpretation is different. While (28b) means ’Is there not anyone such that he wants beer?’, (28c) can only mean ’Is there anyone such that he does not want beer?’. The difference is shown clearly by the fact that the same answer ’Yes’ has diametrically different meaning in the two cases. Thus (29a) is a possible answer to (28b), while (29b) is a possible answer to (28c).

(29) a. Yes. (I want some beer.)
   b. Yes. (I prefer wine.)
The contrast between (28b) and (28c) indicates that Pol moved to C in (24b) or (28b) does not have the same feature content as Pol does when affixed with \textit{n't}. It is thus implausible that it would encode (interpretable) negation. Instead, we can maintain that Pol in (24b, 28c) encodes (just) \textit{[wh]}, while the interpretable \textit{[+neg]} feature is encoded by \textit{not}. We are committed to the view that there is a category Pol in YNQs, but we are not committed to the position that Pol in negative questions always contain \textit{[+neg]} value, only to the position that it contains a \textit{wh}-feature, attracted by C in YNQs, leaving behind a variable Pol. We can also maintain, as Zanuttini (1996) and Ouhalla (1990) do, that \textit{not} is a head, preventing V-movement to T and therefore causing \textit{do-support}, more or less as in Pollock’s (1989) theory.

6. Polarity and finiteness

The negation word in Finnish is only found in finite clauses. Non-finite clauses are negated by using the so called Abessive case (ABE), corresponding to ‘without’, affixed to a participial form of the verb.

\begin{enumerate}
\item a. \textit{Pekka päätti ostaa kahvia.} \\
\hspace{1cm} Pekka decided buy-INF coffee
\item b. *\textit{Pekka päätti ei ostaa kahvia.} \\
\hspace{1cm} Pekka decided \textit{neg buy-INF coffee}
\item c. \textit{Pekka päätti olla osta-ma-tta kahvia.} \\
\hspace{1cm} Pekka decided be- buy-PRC-ABE coffee
\end{enumerate}

“A more literal translation of (30c) would be ‘Pekka decided to do without buying coffee.’

The English negation form \textit{n’t} also does not occur in non-finite clauses.

\begin{enumerate}
\item a. *I consider hern’t to be reliable.
\item b. *I promise ton’t drink any more coffee.
\end{enumerate}

I propose that this is because \textit{n’t}, like the Finnish negation word \textit{e-} is a spell-out of Pol, which is a head selecting finite T as complement. Polarity in the sense of affirmation or negation of the truth of a proposition is a property associated with finiteness.

But English has an alternative negation word, namely \textit{not}, which, by hypothesis, merges with vP. As such it may occur in non-finite contexts; I leave
aside the question how the alternative order where not precedes to is derived.

(32) a. John decided to not buy coffee.
    b. John decided not to buy coffee.

This supports the hypothesis that not in (24a,b) encodes interpretable negation. English just happens to have two negations, n’t and not, where n’t is restricted to finite clauses, being an exponent of the finite head Pol, while not typically occurs in non-finite clauses but can be used in finite clauses, too.

7. Other Germanic languages

The other Germanic languages do not exhibit the kind of direct morphological evidence of a category Pol c-commanding T that English and Finnish do. None of them exhibit movement of an overt negation together with the finite verb or auxiliary to C, in the manner of English (but see below on colloquial Swedish and Norwegian). There is some variation regarding the position of the negation word relative to other sentential constituents among the other Germanic languages, but on the whole the position corresponds more closely to the ‘low’ position of English not than it does to English n’t. For instance, in German and Dutch the negation word is positioned to the right of the position of scrambled objects, and in the Scandinavian languages, to the right of object-shifted objects.

(33) a. Sie haben dieses Buch nicht gelesen. (German)
    they have this book not read
    b. Þeir lasu þessa bók ekki. (Icelandic)
    they read this book not
    ‘They didn’t read this book.’

Is there nevertheless a category Pol in these languages, morphologically invisible but with essentially the same syntactic properties as Pol has in Finnish and English? As all the Germanic languages have V-to-C in YNQs, the logic of the theory articulated here is that they do, indeed, have a category Pol which is selected by C in YNQs, therefore necessarily c-commanding T and not separated from C by any head with interpretable features (hence by no head at all, if heads without interpretable features do not exists). In YNQs Pol has the wh-feature attracted by C. Unlike English, the other Germanic languages have V-to-T movement, and (by hypothesis) T-to-Pol. Consequently, in YNQs, the finite verb ends up in C.
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(34) a. *Haben sie dieses Buch (nicht) gelesen?*
   have they this book not read
b. *Lasu þeir þessa bók (ekki)?*
   read they this book not
   “Did they (not) read this book?”

Conceivably, the ‘inversion’, i.e. finite verb movement to C in YNQs serves as a trigger experience for Germanic children, sufficient for postulating a head Pol c-commanding T, in spite of the low negation. Alternatively Pol is simply universal.

Swedish and Norwegian exhibit a construction which looks like it might be derived by Neg-movement to C.

(35) a. *Ska`nte du gå hem nu?* (Swedish)
   shall-not you go home now
b. *Ha`kke han vært her før?* (Norwegian)
   has-not he been here before

The negation word in (standard) Swedish and Norwegian may precede or follow the subject. The unmarked case is for the subject to precede the negation, since, apart from NPIs, all subject types can precede the negation. Typically, the negation precedes the subject when the subject is indefinite or focused; see Svenonius 2002.

(36) a. *Kan inte någon hjälpa mej här?* (Swedish)
   can not somebody help me here
   “Can’t somebody give me a hand?”
b. *Kommer inte du heller med?* (Swedish)
   comes not you either along
   “Aren’t you coming along, either?”

Holmberg 1993 analyzes the variation in the relative order of subject and negation as a matter of leaving the subject in specTP (lower than negation) or moving it all the way to specAgrSP (higher than negation). Svenonius 2002 analyses it in terms of order of Merge.

However, in spoken Norwegian and Swedish it is common for the negation to precede even a weak pronominal subject, typically with a reduced form of the negation, as exemplified in (35). Conceivably this reflects a change in the categorical identity of the negation: The standard negation word *inte/ikke* is reanalysed as a Pol head, therefore moving along with the finite verb to C.

One reason for not assuming that the negation ends up preceding the
subject as a result of Pol-movement in standard Swedish or Norwegian is that an adverb can intervene between the fronted verb and the negation.

(37) *Kommer alltså inte du helter med?*  
comes thus not you either along  
“Aren’t you coming along either, then?”

Thus, insofar as the constructions in (35) are derived by Pol movement, it is a matter of reanalysis of a construction where the subject is in a (marked) lower position, low enough to be preceded by the standard negation word.

Finally, a complication: The Germanic languages other than English are all V2 languages, the finite verb moving to ‘second position’ in the left periphery in all main clauses (in some of the languages in embedded clause, too); see Vikner 1995. If V2 is a matter of head-to-head movement from VP to C, and if negative declarative sentences all have a head Pol as the highest head in the IP-domain with interpretable negative or affirmative value, then the prediction is that in negated sentences, the finite verb in C should license a NPI in subject position, as English Aux-’n’t does (see (28)). The prediction is false. (38) shows that the Swedish NPI *ett dugg* cannot precede the negation, neither when it precedes the finite verb, nor when it follows the finite verb, as in (38d). That is to say, the finite verb in V2 position does not appear to encode an (interpretable) negative feature.

(38) a. *Det brukar inte hända ett dugg här.*  
there tends not happen a drop here  
“There’s usually nothing happening here.”
b. *Ett dugg brukar inte hända här.*  
a drop tends not happen here  
c. *Här brukar inte ett dugg hända.*  
here tends not a drop happen  
d. *Här brukar ett dugg inte hända.*  
here tends a drop not happen

How do we account for this? One possibility is that V2 is not, in fact, head movement, while V-to-C in YNQs is. See Nilsen 2003 for arguments that V2 is not head movement. Nilsen does not discuss the case of YNQs; it remains to be seen whether there are any differences between YNQs and V2 sentences which would motivate (radically) different analyses for the two constructions. Alternatively, while inversion in YNQs is clearly a syntactically triggered operation, creating an operator-variable relation as outlined in Section 5, V2 is not a
syntactically triggered movement but a pure linearization rule, thus applying in the Phonology (as suggested by Chomsky 1995: 368). As such it is not expected to have any effect on scope relations.

8. A final note

In Section 3 I argued that there cannot be any head with interpretable features between C and Pol, as it would block the required local relation between C and Pol. In Section 5 I argued that YNQs are derived by wh-movement of Pol. It might be objected that Q-marked C in ordinary wh-questions seems to attract the closest accessible wh-phrase regardless whether there are intervening phrasal categories. So why could a Q-marked C not attract a wh-marked Pol across non-wh-marked heads?

The objection is justified; I have no principled reason for assuming that wh-type head-movement is different from phrasal wh-movement with regard to locality. However, the observation is that whenever a head moves overtly in a YNQ, it is the highest head that moves. As shown by (39 = 10c), T cannot move across the negation in a Finnish YNQ.

(39) *Ostaisiko sinää kahvia?
buy-CON-Q YOU NEG coffee

That may be because there is no such thing as a wh-marked T. But furthermore, English not (by hypothesis a head merged lower than T) cannot move across the auxiliary to derive a negative YNQ, although, as we have seen, NEG heads do undergo movement to C in YNQs in other constructions.

(40) *Not John does speak French?

I can only conclude that head-movement, including wh-movement type head-movement is indeed subject to stricter locality than phrasal wh-movement.

Notes

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1. But see Cormack and Smith 2002, who reach the opposite conclusion, based on an example where the time adverbial is sometimes.
2. The only clear disadvantage of this theory as compared with that of H&P is that it does not account directly for the order of morphemes V-tense/mood-agreement, which follows directly in Mirror Principle fashion in H&P and Mitchell 1991.

3. But see Flagg 2003 concerning the argument from (18).

4. Another analysis of negated auxiliaries, which can be found in the literature, is that forms such as don't, can’t, etc. are lexical items, drawn in that form from the lexicon. For every affirmative auxiliary form (including every finite form of be) there would be a negative counterpart, all formed in the same way: Aux+n't. This makes it possible to dispense with Pol as a distinct category in English; instead T would encode polarity as well as tense and (sometimes) modality. This theory is probably a notational variant of the theory articulated in this paper (the negated auxiliaries are formed in the lexicon, not in the syntax), but without consequences as regards the hierarchic relation between tense and polarity.

5. In addition, the wh-morpheme which moves may be overt or covert. According to Hagstrom 1998 it is overt in Japanese; the sentence-final question particle ka or no is the wh-morpheme, overtly moved to C.

6. This suggests an alternative analysis of the Finnish question-particle ko/kö: Instead of being a spell-out of the Q-feature in C which triggers Pol-movement, it is the spell-out of of the wh-feature of Pol which pied-pipes the rest of Pol when moving to C. I will not pursue this hypothesis in this paper, though.

7. Haegeman 1995 does not assume a distinction between interpretable and uninterpretable features. Instead, NEG and its specifier are assumed to crucially share an interpretable negation feature. I am taking for granted that a NEG head does not need to be in construction with a negative specifier. On this issue, see Rowlett 2002.

8. Matters are complicated by the observation that two not’s appear to be possible, too:

(i) A good Christian would not not go to Church.

An alternative analysis of (27) and (i) would be that they are biclausal, the modal auxiliaries actually selecting a bare infinitival clause as complement. However, the referee for LYYB provides the following authentic example of a sentence with two negations, but without a modal auxiliary:

(ii) Don’t forget. I didn’t not take the plane, I missed the plane. (Tolkien, Michael: Among the Dead, Faber and Faber, 1993:169.)

It is also striking that Mainland Scandinavian appears not to allow corresponding constructions with two negations, as will be discussed in Section 8. This correlates, probably not accidentally, with the fact that Mainland Scandinavian does not have a negation like n’t.

9. Thanks to Ian Roberts (p.c.) for bringing this example to my attention, as an example of a head movement operation which affects scope relations, therefore must be in Narrow Syntax, and thereby is a counterexample to Chomsky’s (2000) proposal that head movement is all post-Narrow Syntax.
References


Yes/no questions and the relation between tense and polarity in English and Finnish


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