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English Negation from a Non-Derivational Perspective

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Introduction

A different perspective on grammatical research, even on well-known phenomena, can sometimes provide us with arguments for a quite unexpected and new analysis. This paper claims that if we accept the view that the English negator not can be either a modifier or a complement, we can offer a more straightforward and explicit explanation for English negation than those couched in terms of head-movement and functional projections including NegP (e.g., Pollock 1989).

1 Basic Properties of English Not

The English negator not behaves in very much the same way as negative adverbs like never. Their similar distribution is particularly clear in nonfinite verbal constructions, such as gerundive, infinitival and bare verb phrases, as can be seen, by comparing (1) and (2).

\begin{enumerate}
  \item a. Kim regrets [never [having seen the movie]].
  \item b. We asked him [never [to try to call us again]].
  \item c. Duty made them [never [miss the weekly meeting]].
\end{enumerate}

\begin{enumerate}
  \item a. Kim regrets [not [having seen the movie]].
  \item b. We asked him [not [to try to call us again]].
  \item c. Duty made them [not [miss the weekly meeting]].
\end{enumerate}

But there also exist several properties which distinguish not from a negative adverb like never. One obvious fact that distinguishes the negator from the negative adverb is the so-called do-support phenomenon in English. The examples in (3) show that in non-auxiliary finite verb phrases, the particle not requires the dummy verb do. But a true negative adverb like never has no such a requirement.

\begin{enumerate}
  \item a. *Tom not borrowed Mary’s book.
  \item b. Tom did not borrow Mary’s book.
  \item c. Tom never borrowed Mary’s book.
\end{enumerate}

A more striking property of the negator not lies in VP deletion. As noted by Baker (1972), Sag (1976) and others, VP deletion immediately after adverbs like never is not permitted, as illustrated in (4).

\begin{enumerate}
  \item a. Tom has written a novel, but Peter never has .
  \item b. *Tom has written a novel, but Peter has never .
\end{enumerate}
However, a peculiar property of *not* is found in finite clauses. Consider the examples in (5).

(5) a. Tom has written a novel, but Peter has not __.
   b. Mary has finished her homework, but Peter has not __.

It is possible to elide VPs after a *not* following a finite auxiliary, unlike VPs that follow adverbs.

Any analysis of English negation thus needs to account for the essential properties of *not*: On the one hand it behaves like the negative adverb, but on the other hand it exhibits certain differences. My purpose here is to provide a non-derivational analysis of both these properties.

2 *Not* as a Modifier

In capturing the adverbial and non-adverbial properties of the negative particle, the proposed analysis starts from the three basic assumptions summarized below.

- The negative particle *not* and the negative adverb *never* are both preverbal adverbs and hence both modify a VP (cf. Ernst 1992, Baker 1991).


- Neither head-movement nor *do*-support exists in English (contra Baker 1991 and Ernst 1992). All structures especially (including those involving the negator) are base-generated (cf. Gazdar et al. 1982, Pollard and Sag 1994).

Given these basic assumptions, let us consider how we can deal with English negation. The first claim I made is that *not* is an adverb that modifies a VP. This claim then implies that the negation can randomly occur as a VP modifier unless otherwise constrained. However, one peculiar property of *not* is its restricted occurrence: first of all it cannot precede a finite verb.

(6) a. *John [not [left]].
   b. *John [not [has gone]].
   c. *John [not [is leaving]].

In capturing this empirical generalization, I adopt the framework of HPSG (Head-driven Phrase Structure Grammar) which allows lexical representations to be formulated with considerable precision. (7) is a simplified lexical entry for the negator *not.*

1
The lexical entry (7), following Pollard and Sag's (1994) analysis, specifies that not selects for the nonfinite VP that it modifies. This selectional relation between the modifier (adverb) and the modified element (nonfinite VP) is manifested by the value of the head feature MODIFIER. Also the CONTENT value represents that the negation semantically takes the meaning of the modified VP \( [\bar{2}] \) as its argument.

The lexical entry (7) readily captures various distributional possibilities of not, first of all.

(8) a. *John [not \( V_P[f_i_n] \) [has gone]].
   b. *John certainly [not \( V_P[f_i_n] \) [talked to me]].
   c. *John [not \( V_P[f_i_n] \) [always agreed with me]].

As shown in (8), not cannot modify a finite VP. But, as is clear from the examples in (9), it can modify any nonfinite VP.

(9) a. I saw John acting rude and [not \( V_P[g_e_r] \) [saying hello]].
   b. I asked him to [not \( V_P[b_e_c] \) [leave the bar]].
   c. Kim has [not \( V_P[p_a_r_t] \) [been drinking the wine]].

Further we need no additional statement to account for its position in coordination sentences like (10).

(10) a. John will [[not [walk]] and [talk]].
   b. John will [not [walk] and [talk]].
   c. John will [[walk] and [not [talk]]].
   d. You can [[walk for miles] and [not [see anyone]]].

In each case the negation modifies a base form VP, satisfying our lexical specification. The analysis also correctly predicts that the postfinite not can either scope over only the first conjunct or over both conjuncts, as shown in (10)a and (10)b. But if we accept the general assumption that only categorically identical constituents can be coordinated, an analysis adopting the NegP hypothesis seems to run into a problem: examples in (10) would force the NegP hypothesis to change this well-accepted assumption. Under the NegP hypothesis, where the overt negation occupies the head of NegP, the sentences in (10) would be NegP and VP or VP and NegP coordinations. And even one allows these non-identical constituents to be conjoined, an explanation must still be provided for the impossibility of coordinations like CP and IP.

3 Not as a Complement

My analysis has provided a clean and simple way of accounting for much of the distributional possibilities of not. But there still remain facts to be accounted for, especially with respect to VP deletion.
3.1 VP Deletion

As shown in section 1, one peculiar property of not comes from VP deletion. Unlike other adverbs, the negation immediately after a finite auxiliary can be stranded after VP deletion. Before laying out our analysis, let us first consider general cases where VP deletion has been applied. Consider the contrast between (11) and (12).

(11) a. Kim can dance, and Sandy can _, too.
    b. Kim has danced, and Sandy has _, too.

(12) a. *Mary considered joining the navy, but I never considered _.
    b. *Mary wanted to go and Sandy wanted _, too.

These illustrate the standard generalization that VP deletion is possible only after an auxiliary verb. In capturing this, I first assume the VP deletion lexical rule given in (13), incorporating the main idea from the VP deletion metarule of Gazdar et al. (1982).

(13) VP Deletion Lexical Rule:

\[
\begin{align*}
\text{HEAD} & \quad \text{verb}^{[+\text{AUX}]} \\
\text{COMPS} & \quad \langle \text{VP} \rangle \\
\text{COMPS} & \quad \langle \_ \rangle
\end{align*}
\]

The lexical rule in (13) guarantees that VP deletion applies only to an auxiliary verb selecting a VP complement. Taking an auxiliary verb as its input, this lexical rule thus gives us as output another lexical entry whose VP complement is not realized. The verbs such as can and has in (11) are all auxiliary verbs ([+AUX]) and subcategorize for a VP complement. Thus, the VP complement of all these verbs can undergo the lexical rule. But the lexical rule cannot be applied to verbs such as consider and want in (12), simply because they are non-auxiliary verbs ([−AUX]).

Now, let us return to the issue of VP deletion after an adverb. One important constraint on VP deletion is that it cannot apply immediately after an adverb, repeated here in (14).

(14) a. *Kim has never studied French, but Lee has always _.
    b. *Tom has written a novel, but Peter has never _.

One simple fact we can observe from (14) is that adverbs cannot modify an empty VP. In the framework of HPSG, VP modifying adverbs carry at least the lexical information given in (15).

(15) \[
\begin{align*}
\text{HEAD} & \quad \text{adv}^{[\text{MOD} \text{ VP} : \emptyset]} \\
\text{CONTENT} & \quad \text{RELATION} \quad \text{adv-rel} \\
\text{ARG} & \quad \emptyset
\end{align*}
\]
The lexical entry in (15) simply states that the adverb with this lexical information modifies a VP. The head feature MOD guarantees that the adverb selects the head VP it modifies. Given Sag and Fodor’s (1994) traceless theory, an ungrammatical example like (14)a would then have the structure given in (16).\(^{5}\)

\[
\begin{array}{c}
\text{V[+AUX]} \quad \text{VP} \\
\text{\text{\text{always}}} \\
\text{Adv[MOD VP;2]}
\end{array}
\]

HPSG has a small set of schemata, analogous to X’ schemata, which specify partial information about universally available types of phrases. The adjunct schema is one of the universally available options for well-formed phrases. This adjunct schema roughly says that an adjunct and the head it selects for through its modifier feature (MOD) forms a well-formed phrase. Now look at the structure in (16). In our lexical theory where a VP modifier (e.g., always and never in (14)a,b) selects for its head VP through the head feature MOD(IFIER), the absence of this VP then means that there is no VP the adverb can modify. And this results in an ill-formed structure: no universal schema in HPSG renders such a structure acceptable, thus explaining the ungrammatical of (14)a,b.

One more striking property of not with respect to VP deletion that we have not discussed yet is that the negator not after a finite auxiliary can be stranded, as illustrated in (17).

\[
\begin{array}{c}
\text{a. Kim said he could have heard the news, but Lee said that he could not} \\
\text{b. *Kim said he could have heard the news, but Lee said that he could have not .}
\end{array}
\]

If the negation not in (17)a and (17)b were taken to be a modifier, we would predict both of these examples to be unacceptable since in both cases there is no VP for the negation to modify.

To account for the puzzling contrast between (17)a and (17)b, I adopt Warner’s (1994) suggestion that there is another way to introduce the adverb not into syntax. Borrowing the general technique of categorial grammar which allows a functor to be type-shifted to an argument or vice versa,\(^{6}\) I assume that a verb can be ‘converted’ into another verb selecting for the negation not as an additional complement (or equivalently, converting the modifier not to a syntactic complement) via a lexical rule as given in (18).\(^{7}\)
(18) English Adverb Conversion Lexical Rule:

\[
\begin{align*}
\text{HEAD} & \quad \text{verb[+AUX, fin]} \\
\text{COMPS} & \quad \langle \Pi \text{VP} \rangle \\
\text{CONTENT} & \quad 2
\end{align*}
\]
\[\rightarrow\]
\[
\begin{align*}
\text{COMPS} & \quad \langle \text{Adv}_I \#3, \Pi \text{VP} \rangle \\
\text{CONTENT} & \quad 2\langle \text{ARG} 2 \rangle
\end{align*}
\]

The lexical rule in (18) takes as input any finite auxiliary which selects for a base VP complement and yields as output another verbal entry which adds the negation as another complement, i.e., adds it onto the finite verb's COMPS list. The lexical rule also has a semantic effect: the converted complement adverb's content (3) becomes the main content of the lexical rule output, with the meaning of the input (2) being its argument.

Now notice that the output of this lexical rule in (18) can be the input of the VP-deletion lexical rule. We have seen that any auxiliary selecting for a VP complement can undergo this lexical rule. Thus, nothing prevents the output of the Adverb Conversion Lexical Rule from undergoing the VP-Deletion Lexical Rule, as illustrated in (19).

(19) Applying the VP Deletion Lexical Rule:

\[
\begin{align*}
\text{HEAD} & \quad \text{verb[+AUX, fin]} \\
\text{COMPS} & \quad \langle \text{Adv}_I, \text{VP[bse]} \rangle
\end{align*}
\]
\[\rightarrow\]
\[
\begin{align*}
\text{HEAD} & \quad \text{verb[+AUX, fin]} \\
\text{COMPS} & \quad \langle \text{Adv}_I \rangle
\end{align*}
\]

Now let us turn our attention to VP deletion after the negator not (relevant data repeated in (20)).

(20) a. Susan may have been studying, but Mary may not ___.
    b. *Susan may have been studying, but Mary may have not ___.
    c. *Susan may have been studying but Mary may have been not ___.

Given the input domain of the Adverb Conversion Lexical Rule, the negation not in (20)a can be converted to the complement of the finite auxiliary, allowing the structure in (21).

(21)

\[
\begin{array}{c}
\text{VP} \\
\text{V[+AUX]} \quad \text{Adv[MOD VP]} \\
\text{could} \quad \text{not}
\end{array}
\]

Notice that the phrase [could not] in (21) forms a well-formed head-complement structure where not is the complement of the head could. Nothing blocks this structure. Under this analysis, the ungrammaticality of (20)b and (20)c also falls out naturally. The negations in (20)b and (20)c are just modifiers. They cannot be complements. We have seen that an adverb requires the VP it modifies to be present in order to form a well-formed structure. But the VPs that the adverbs modify are absent here. Our non-derivational analysis thus gives us a simple and explicit explanation for these VP deletion facts.
3.2  Scope

In section 1, we have observed that the negation *not* displays adverbial properties concerning scope relations. But there are exceptions to the generalization that the linear order of two adverbs determine their relative scope: a negation that immediately follows the finite auxiliary may take scope over the latter (cf. Gazdar et al. 1982).

Consider the example in (22) first.

(22) Kim may not drink the wine on the table.

Example (22) can have two different relative scope readings between the modal and the negation, as illustrated in (23).

(23) a. Kim is not permitted to drink the wine on the table.
    b. Kim is permitted to not drink the wine on the table.

Recall that *not* can be either a VP modifier or a complement of the finite auxiliary via the proposed lexical rule. This then allows us to generate two possible structures for the sentence (22), as represented in (24).

(24) a. Kim $VP[may \ VP[not \ VP[base][drink the wine on the table]]]$
    b. Kim $VP[v[may] \ Adv[not] \ VP[base][drink the wine on the table]].$

In the structure (24)a, *not* is a base VP modifier governed by the modal. Under the structural determination of scope, then, the reading where *may* scopes over the negation is naturally expected. In (24)b, the negation is the complement of the finite auxiliary via our proposed lexical rule. Since the incorporated negation is syntactically a complement but is semantically still the ‘functor’ ([*not*(Modal’(VP’))]) according to the proposed lexical rule, *not* takes scope over the auxiliary *may* in this case.

But there are well-known lexical exceptions concerning the scope of negation. As noted by Horn (1972), not all finite auxiliaries exhibit scope ambiguity with a following negation. Especially the epistemic verbs such as *may* and *must*, and semi-auxiliary verbs like *need* do not induce this kind of scope ambiguity with the negation immediately following.

(25) a. Kim must not drink the wine on the table.
    b. Kim need not drink the wine on the table.

The *not* in (25) can only have narrow scope with respect to the modal verb *must*. But the *not* in (25)b has only wide scope.

We might try to simply bar the epistemic *may* and *must* from undergoing the Adverb Conversion Lexical Rule. But this treatment would create a problem in accounting for VP deletion facts:

(26) a. Lee must go back to his country, but Kim must not __ .
    b. Lee needs to go back to his country, but Kim need not __ .
Since VP deletion after the negation *not is possible if and only if it is the complement of the finite auxiliary in our system, we cannot claim that the *not in (25) is a modifier. The solution to this problem lies in rather positing a lexical restriction: we can lexically specify that when the epistemic verbs such as *may and *must take the negation as a complement, they take wider scope over the negation. But an auxiliary like *need is lexically specified so that it takes narrower scope than the following negation. Given the general assumption that lexical rules can have exceptions, these scope facts provide further support for our analysis.

3.3 More on the Justification of Not as a Complement

Though there seems to be no direct and obvious evidence for the complement status of *not, several pieces of indirect evidence clearly support this proposal. There are cross-linguistic phenomena where adverbs behave like complements in certain contexts such as adverb incorporation in Chukchee, Modern Greek, and Nahuatl, syntactic case marking on adverbs in Finnish and Korean, and adverbial agreement in Italian. Though space limitations prevent us from elaborating these facts here (see Kim and Sag (1995) and the references therein), we could argue that phenomena like these, exhibiting certain parallels between complements and adverbs, motivate analyses in terms of a conversion rule similar to the one I adopt here.

Even in English, we can find some cases where adverbs act like complements. One obvious similarity can be found in subcategorization facts. Though adverbs are not usually selected by the verb, there are certain verbs which subcategorize for an adverb, as noted by Jackendoff (1972), McConnell-Ginet (1982), and others.

(27) a. Tom behaved *(rudely) to Marcia.
    b. The job paid us *(handsomely).
    c. John worded the letter *(carefully).
    d. The management has treated John *(contemptuously).

The presence of the adverbs in (27) is obligatory. The omission of the adverbs here renders the sentences in (27) unacceptable.

Such parallels between complements and adverbials in terms of subcategorization again make it reasonable to allow certain adverbs to function as complements. We have in particular seen that the English particle *not has dual properties: adverbial properties and non-adverbial properties. In capturing the non-adverbial properties of the negation, we have allowed the negation immediately after a finite auxiliary to become a complement of the auxiliary via the lexical rule. This lexical rule then predicts certain differences between the postfinite auxiliary negation *not and the negation in other positions. There are more cases showing differences between the two.

VP fronting, a phenomenon similar but not identical to VP deletion, shows another peculiar property of the negator *not (cf. Ernst 1992).
(28) Mary said she would not be eating broccoli, and
   a. [be eating broccoli] she will not __.
   b. [not be eating broccoli] she will __.

(29) Mary said she would be not eating broccoli, and
   a. *[eating broccoli] she will be not __.
   b. [not eating broccoli] she will be __.

As can be seen from the contrast (28) and (29), only the negation immediately following the finite auxiliary can be stranded as in VP deletion.

Examples of tag questions given in (30) also exhibit another difference between the negation immediately following the finite auxiliary and the one not following it.

(30) a. He has not spoken to her for days,  
    \{has he? \ 
    \{*hasn’t he? \}
    b. He has often not spoken to her for days,  
    \{*has he? \ 
    \hasn’t he? \}

The choice of tag types is dependent upon the structure of the main clause. The contrast given in (30) shows that only the negative immediately after the finite auxiliary can affect the choice of the tag types.

One may argue that these differences just reflect the distinction between sentential negation and constituent negation, as has been traditionally assumed. Why can’t we just follow this dichotomy? Why can’t we accept the view that negation immediately after the finite auxiliary is sentential negation and the one in other positions is constituent negation? Leaving aside the question of how this dichotomy can deal with the nonadverbial as well as adverbial properties of not, the question arises as to what determines that the not following the finite auxiliary is a sentential adverb.

There are convincing cases showing that the not in the post-auxiliary position is different from sentential adverbs in several respects. For example, the emphatic usage of sentential adverbs provides us one clear difference. Sentential adverbs like always and never can be repeated for emphasis, as illustrated in (31).

(31) a. Mary always always always goes home.
    b. Mary never never never goes home.

It seems to be possible to repeat the negator not also, as shown in (32).

(32) a. Mary could not not go home.
    b. Kim may not not go home.

But the repetition of not is different from that of sentential adverbs. Each negator crucially contributes to composing the meaning of the whole sentence. Thus, (32)a and b mean, respectively, that it is not possible for Mary not to go home and Kim is not permitted not to go home. This indicates that unlike sentential adverbs, the negator not can not used as emphatic.11
Various properties of the negation _not_ immediately after the finite auxiliary
distinguish it either from adverbial modifiers or from sentential adverbs. And
direct and indirect empirical facts we have seen provide convincing arguments
for allowing the negation to serve as a complement in a restricted context, i.e.,
when following a finite auxiliary verb.

4 Conclusion

We cannot deny that grammar is to some extent an indeterminate system.
Categories and structures, for example, often do not have neat boundaries.
We are tempted to overlook such uncertainties, or to pretend that they do
not exist. In particular, the English particle _not_ displays dual properties:
adverbial properties and non-adverbial properties. I have proposed that one
plausible way to capture these dual properties is to allow the negator _not_ to
be converted to a complement in a particular lexically restricted environment,
namely following finite auxiliary verbs. This ‘conversion’ lexical rule mecha-
nism has been well justified by phenomena such as VP deletion, VP fronting,
and Scope.

It is true that a derivational grammar whose chief explanatory resources are
functional projections including NegP and syntactic movement might be able
to account for the phenomena I have dealt with here. But, in this paper, I have
exploited a non-derivational and surface-oriented framework of Head-driven
Phrase Structure Grammar, whose foundations lie in a concrete conception
of constituent structures, a limited set of universal principles, and enriched
lexical representations. The proposed analysis has shown how the interaction
of a concrete _X_'-theory and the strict lexicalism that HPSG employs can draw
effects similar to those of head movement and functional categories, and further
permit a simple and explicit explanation for negation (and several related
phenomena) that provides many descriptive and explanatory advantages.

Notes:

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help from Elizabeth Bratt, Tony Davis, and Rob Malouf. All errors and misinterpretations
are, of course, mine.

1The negator _not_ can modify other categories such as AdjP, PPs, and AdvPs, as in (i).

i. a. This is a not unattractive doll in some ways.
    b. I like beer, but not in the morning.
    c. I visit them not very often.

For such cases, we can loosen up the restriction of what _not_ can modify.

2I assume that English VPs are partitioned according to two VFORM values, _finite_
and _nonfin(i)te_. The sort _nonfin_ has _base, inf(inite), ger(undive),_ and _part(ictiple)_ as its
subsorts.

3One possible solution seems to posit an additional functional projection such as PolP
(Polarity Phrase) or _Σ_ Phrase (cf. Laka 1990) and generate a null element as its head for
each declarative sentence.

4 Examples like (i) are not VP deletion but null anaphora complement cases.
i. a. The children began singing songs, and the adults began __ too.
b. Tom continued being noisy, although Terry stopped __.

Hankamer and Sag (1976) classify anaphoric processes into two groups: deep and surface anaphora. The difference is that the former permits nonlinguistic antecedents, while the latter allows only linguistically expressed antecedents. Given this distinction, VP deletion is an instance of surface anaphora, whereas null complement such as in (i) is an instance of deep anaphora.

5Sag and Fodor (1994) reexamine empirical motivations for phonetically empty categories which have been important theoretical foundations in modern GB analyses. They show that all independent arguments for the existence of traces such as auxiliary contraction, wanna contraction, and position of floated quantifiers are neither satisfactory nor well-grounded. They also present positive arguments for terminating filler-gap dependencies by lexical heads, not by traces. See Sag and Fodor (1994) for details.

6For concrete examples of type-shifting (or raising) rules in categorial grammar, see Partee and Rooth (1983), Dowty (1988), among others. This idea of converting adverbs into complements has been independently proposed for various phenomena by Miller (1991), lida et al. (1994). Especially see Warner (1993), Abeillé and Godard (1994), and Kim and Sag (1995) for using the same technique for English and French negation.

7Notice here that this lexical rule mechanism, though adopting its basic idea from the type-shifting method in categorial grammar, is basically different from it. While a categorial grammar allows type-shifting as a general principle, our system permits it only in limited cases: the system lexically controls its application. Thus in a strict sense, the lexical rule does not type-shift a modifier to a complement, but allows the ‘conversion’ of a modifier into a complement in the given environment.

8I assume that AdvJ restricts adverbial complements to only a small subset of adverbs like not and so in English.

9One may ask whether it is acceptable not to satisfy the MOD feature of the adverb not in such a case. But note here that the structure (32) is not an adjunct structure, but a head-complement structure because the negation is now converted to a complement. The HPSG theory says nothing about what happens when a complement has a MOD value. Thus its presence in a complement does not affect the well-formedness of the given phrase.

10See Kim and Sag (1995) for further discussion.

11But notice that the repetition of not is not always possible:

i. a. *John wants to not not go.
b. *John could not not go.

Whether one attributes no immediate recursive of the modifier not as in (ia) to a syntactic, semantic or pragmatic source, the question remains of why then the negator can be repeated in cases like (32). The analysis proposed here can provide a simple answer to this. The two not's in (32) are different: the first one is the complement not and the second one is the modifier.

References


