

# The Structure and Logical Form of Negative Sentences\*

Jamal Ouhalla, Queen Mary--London University

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## 1. Introduction

It is well known that languages differ in how they mark sentence negation overtly. For example, Standard French (Pollock 1989) and West Flemish (Haegeman 1995) mark sentence negation with two elements, whereas Italian (Belletti 1990) and English mark it with only one element. The same type of variation is found among the Arabic languages. The Western (North African) group mark sentence negation with two elements (Benmamoun 1992) which are both obligatory in all contexts (except the ones which include a polarity phrase; see section 6). The (Middle) Eastern group has the same two-negation elements pattern, but the most dominant pattern, at least in non-verbless sentences, is one where the postverbal negation element is missing. In this paper, the two groups are represented by Moroccan Arabic (1a) and Lebanese Arabic (1b), respectively<sup>1</sup>. The preverbal negation element *ma* is glossed as NEG and the postverbal element *sh(i)* as VAR(IABLE) for reasons that will become clear later on:

1. a. *ma msha \*(sh) Omar.* (Moroccan Arabic)  
NEG went VAR Omar  
'Omar did not go.'
- b. *maa raah (shi) Kariim.* (Lebanese Arabic)  
NEG went VAR Kariim  
'Kariim did not go.'

Languages which mark sentence negation with two elements played a major motivating role for the idea that negative sentences include a NegP in their structure (the NegP hypothesis), although the evidence was originally based on the fact that negation blocks movement of main verbs in English (Pollock 1989), clitic movement

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<sup>1</sup> The Lebanese Arabic examples in the paper were provided to me by Joseph Aoun and Lina Choueiri.

in Berber (Ouhalla 1988) and Romance (Kayne 1989), and adjunct extraction in English and other languages (Rizzi 1990 and Ouhalla 1990). The fact that NegP makes available two positions in the structure of negative sentences, a head position and a specifier position, coupled with the fact that one of the two negation elements has the properties of a head and the other of a specifier (or adverb) seemed to fit the NegP hypothesis rather neatly.

Moreover, it became possible to reduce the difference between languages which mark sentence negation with one element and the ones which mark it with two elements to the minimal difference in whether both or only one of the two possible constituents of NegP is overtly realised (Ouhalla 1990). The head-properties versus specifier-properties of negation elements were also found in languages which mark sentence negation with a single element. This difference opposes English, where the negation element appears to have the properties of a head on the grounds that it blocks verb-movement, versus the Continental Germanic languages, where the negation element does not seem to have any blocking effect on verb-movement (Ouhalla 1990).

The NegP-hypothesis was also invoked to account for the difference between languages where the sentence negation marker appears to be situated lower in the structure (IP-internally) and languages where it appears to be situated higher in the structure (IP-externally) (Ouhalla 1988, 1990, 1991, 1993a). In English, the sentence negation marker is situated between inflection/auxiliaries and the main verb (lower), whereas in Italian, it is situated on the left-edge of the sentence, preceding verbal inflection and auxiliaries (higher). More than one explanation has been suggested for this difference. According to one view, the difference in the surface position of the sentence negation element reflects a difference among languages in the position (or hierarchical order) of NegP relative to the other constituent in the structure of the sentence. Another view holds that NegP has the same fixed position in all languages, and that the difference in its placement in surface representations is due to various reasons such as whether the verb moves or does not move out of VP to a higher position in the structure<sup>2</sup>.

This paper addresses the different but obviously related question what, if anything, the pattern whereby sentence negation is marked with two elements reveals about the Logical Form (LF) of negative sentences as well as their structure and derivation. The most commonly held view is that sentence negation corresponds to a negative (Neg-) operator in the LF representation of negative sentences. Assuming that natural language operators are all subject to the requirement that they must bind a variable (the 'ban against vacuous quantification', Chomsky 1986a), negative sentences must include a variable in their representation, in addition to the Neg-operator. Granting this, one could put forward the hypothesis that the pattern whereby sentence negation is marked with two elements indicates the existence of such operator-variable link in negative sentences. That is, one could postulate that one of the two elements corresponds to (or spells out) the Neg-operator and the other the variable bound by the Neg-operator. One of the major aims of this paper is to show that there is good evidence for this hypothesis from the Arabic languages. Sections 2

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<sup>2</sup> See Shlonsky (1997) for a detailed discussion of both views in relation to Arabic and Hebrew.

and 3, between them, discuss five different contexts, besides the context of neutral negative sentences illustrated in (1a), where the particle *sh(i)* is found and where it clearly corresponds to a variable bound by a different type of operator in each case.

While the nature of the variable that *sh(i)* spells out is relatively clear in each of the five contexts discussed, it is not so in negative sentences. The issue is a familiar one and has obvious implications for the LF representation and derivation of negative sentences, namely whether sentence negation takes the whole sentence within its scope, including the (higher) subject position, or only the predicate. The surface position of the sentence negation marker across languages presents at best conflicting evidence, given that it appears lower in some languages and higher in others. The distribution of polarity phrases, often taken as a reliable indicator, is not of much help either. English excludes polarity phrases from the higher subject position of neutral negative sentences, suggesting that the scope of sentence negation does not extend to the higher subject position. On the other hand, Moroccan Arabic allows polarity phrases in the subject position, including the higher (preverbal) subject position, suggesting that the scope of sentence negation includes the (higher) subject position (Benmamoun 1997). The second major aim of this paper is to make a case for the hypothesis that sentence negation involves only the predicate, meaning only the predicate is negated. The hypothesis translates structurally as the idea that NegP is located immediately above VP (or the predicate phrase). Differences in the licensing of polarity phrases in the subject positions are due to whether the Neg-operator particle (the head of NegP) is displaced by verb-movement to a higher position in the sentence. These issues are discussed in sections 4 & 5.

Section 6 discusses the complementary distribution between the variable particle and polarity phrases. There is no attempt to provide an alternative analysis for existing theories of the nature of polarity phrases and their relationship to the Neg-operator. The aim is simply to evaluate the implication of the absence of the variable particle from such sentences for the idea that negative sentences involve an operator-variable link.

## **2. The postverbal negation marker as a variable**

The Moroccan Arabic postverbal negation particle *sh(i)* probably derives historically from the Classical Arabic noun *shay?* ‘thing’. The English equivalent noun has become an integral part of non-referential expressions such as *something* (*some-thing*) and *nothing* (*no-thing*), where it has an indefinite/indefinite reading. The Arabic noun *shay?* ‘thing’ seems to have suffered the same fate in Moroccan Arabic, on the assumption that *sh(i)* is a reduced form of it. The particle *sh(i)* can be found in at least five other contexts (besides sentence negation) where it has an indefinite/indefinite reading. Two of these contexts are discussed in this section and the three others in the next section.

One context is wh-phrases. Moroccan Arabic wh-pronouns are formed by attaching the particle *sh(i)* to inflection which expresses the animate/inanimate distinction (2a&b). The complex thus formed can then be joined with a common noun

to form wh-NP's such as in (2c&d). (3) is an example of a multiple wh-question with one wh-phrase pre-posed and the other in-situ:

- (2) a. sh-kun 'who' (Moroccan Arabic)  
 b. sh-nu 'what'  
 c. sh-men bnt 'which girl'  
 d. sh-men ktab 'which book'
- (3) (qul-li) shmen bnt grat shmen ktab.  
 (tell-me) which girl read which book  
 '(Tell me) which girl read which book.'

The other context are non-specific indefinite noun phrases of the type illustrated in (4a&b). These are formed by attaching the particle *sh(i)* to a common noun<sup>3</sup>:

- (4) a. shi ktab (Moroccan Arabic)  
 'some book (or other)'
- b. (Nadia) grat (Nadia) shi ktab.  
 (Nadia) read (Nadia) some book  
 'Nadia read some book (or other).'

The noun phrases in (2&3) and (4) are precisely the kind of indefinites that have been claimed NOT to include an operator in their representation (Heim 1982, Reinhart 1995). They merely introduce a variable and the restriction on it. The variable introduced by non-specific indefinites is bound by an external operator, such as adverbs of quantification or an existential operator inserted by Existential Closure. Assuming that the Moroccan Arabic indefinites of the type illustrated in (2&3) and (4) wear their LF on their sleeves, the particle *sh(i)* can be said to spell out the variable and the noun represents the restriction on the variable. The representation of such noun phrases would then be roughly as in (5), where (for convenience) the particle *sh(i)* is located under D and N inside NP (the restriction) in a DP structure:

- (5) a. [dp sh(i) [np ktab]]  
 b. { x ( ktab) }  
 'some/which book'

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<sup>3</sup> Moroccan Arabic makes an overt distinction between non-specific and specific indefinites. The former are marked with the particle *sh(i)*, as shown in the main text, and the latter with the numeral *wahd* 'one':

- (l) grat Nadia wahd l-ktab. (Moroccan Arabic)  
 read Nadia one the-book  
 'Nadia read a specific book.'

This overt distinction is part of an overall pattern in the language which will become clearer as we proceed, namely that in many instances constituents and sentences seem to wear their LF on their sleeves. Categories which in languages like English would correspond to a gap or an abstract category, such as variables and some operators, tend to be spelled out in terms of distinctive particles with a consistent distribution in Moroccan Arabic.

A consistent approach to *sh(i)* requires that it be assigned the same status in all contexts in which it occurs. That is, if *sh(i)* is the spellout of a variable in non-specific indefinite noun phrases, it must be the spellout of a variable in all contexts in which it occurs, although the type of variable involved may differ from one context to the other. This means that in negative sentences such as (2b), *sh(i)* is also the spellout of a variable, with the preverbal negation element *ma* probably being the spellout of the Neg-operator. Granting this, the question that needs to be answered is the following: What kind of variable does *sh(i)* spell out in negative sentences? In non-specific indefinites, *sh(i)* presumably spells out an argument variable. This is obviously not the case in the type negative sentences under discussion, except, perhaps, when they include a polarity phrase (see section 6).

To the extent that Moroccan Arabic negative sentences wear their LF on their sleeves, they reveal a fundamental property of negative sentences in general, namely that they include an operator-variable link in their representation. Using Moroccan Arabic negative sentences as a model for the moment, the Neg-operator is located higher in the structure, given that it appears before the verb, and the variable it binds is located lower in the structure, given that it appears following the verb. The implied representation of negative sentences is roughly as in (6), where the variable is located immediately to the left of the predicate phrase, pending the discussion of its position below:

(6) Neg(x)... [ x [predp PRED....

Languages which mark sentence-negation with only one element spell out (or lexicalize) only one of the two positions, with expected variation as to which of the two positions is spelled out. For example, Lebanese Arabic appears to spell out the (higher) Neg-operator position, but not the (lower) variable position (at least not obligatorily). The option whereby the variable position is spelled but not the Neg-operator position is arguably found in Standard Arabic *laa*-negatives illustrated in (7a) (Ouhalla 1993b, 1997):

(7) (Zaynab) lam tara (Zaynab) Zayd. (Standard Arabic)  
 (Zaynab) VAR+PAST see (Zaynab) Zayd-  
 ‘Zaynab did not see Zayd.’

As Benmamoun (1992) points out, the Standard Arabic negative particle *la(a)* occupies roughly the same position as the English *not*. However, this does not necessarily mean that the English *not* also spells out the variable. There are reasons to believe that it spells out the Neg-operator rather than the variable. The fact that it appears lower in the structure even though it is a Neg-operator will be explained later on.

### 3 Evidence for the variable status of the postverbal negation marker

The particle *sh(i)* is found in three other contexts: negative clefts (in Moroccan Arabic), yes/no-questions (in Moroccan Arabic and Lebanese Arabic) and wh-questions (in Iraqi Arabic). In all three contexts, *sh(i)* appears to spell out a

propositional variable, and in all three contexts it consistently appears on the left-edge of the clause realising the proposition in question.

Moroccan Arabic negative clefts have the form shown in (8a&b). The particle *sh(i)* appears on the left-edge of the clause preceding the auxiliary, as part of a complex which also includes the Neg-operator particle *ma-*:

- (8) a. ma-shi qrat Nadia l-ktab. (Moroccan Arabic)  
 NEG-VAR read Nadia the-book  
 ‘It is not the case that Nadia read the book.’  
 \*’Nadia did not read the book.’
- b. ma-shi kant Nadia katqra l-ktab.  
 NEG-VAR was Nadia reading the-book  
 ‘It is not the case that Nadia was reading the book.’  
 \*’Nadia was not reading the book.’

As shown in the gloss, negative clefts involve quantification over the whole proposition/sentence and not just a constituent of it. The variable ranges over a set of propositions. The (embedded) clause in (8a&b) is the (chosen) value of the variable, although the relation involved is one of exclusion given the negative nature of the operator: Neg(x) [ x (= Nadia read the book)].

Basically the same pattern is found in yes/no-questions. This is shown in (9a&b), where *sh(i)* appears on the left-edge of the clause as part of a complex which also includes the particle *wa-*. The exact status of *wa-* is not clear, but it is not implausible to treat it, by analogy with (8a&b), as the spellout of the Q-operator:

- (9) a. (swwelt-u) wa-sh qrat Nadia l-ktab? (Moroccan Arabic)  
 asked-I-him -VAR read Nadia the-book  
 ‘(I asked him) if Nadia has read the book(?)’
- b. (swwelt-u) wa-sh kant Nadia katqra l-ktab(?)  
 asked-I-him Q-VAR was Nadia reading the-book  
 ‘(I asked him) if Nadia was reading the book(?)’

In Karttunen’s (1977) analysis of questions, yes/no-questions are taken to denote the set of propositions that represent true answers to them. The Q-operator ranges over the set of such propositions and the clause under its scope represents the (chosen) value of the propositional variable bound by the Q-operator. In the context of this theory of questions, (9a&b) would have a representation along the following lines: Q(x) [ x (= Nadia read the book)], where x is the propositional variable spelled out by the particle *sh(i)*.

The variable particle *sh(i)* is also found in Lebanese Arabic yes-no questions, although with a slightly different distribution at least as far as non-constituent yes/no-questions are concerned. Choueiri (1995) explains that (in non-constituent questions) *sh(i)* can occur immediately following the verb (10a) or at the end of the question (10b), but not in the initial position (10c):



Q-operator ranges over the set of propositions which represent true answers to the question. In view of this, it is not surprising that wh-questions resemble yes/no-questions in that they also instantiate *sh(i)* located in the left-peripheral position. In wh-questions, as in yes/no-questions, *sh(i)* spells out the propositional variable bound by the Q-operator. The clause immediately following the variable particle represents the (chosen) value of the variable: Q(x) [x (= E(y) [Mona thought Ali bought y(thing)]]].

The wh-pronoun *she-no* ‘what’ in (11) also includes the particle *sh(i/e)*, on a par with its counterpart in Moroccan Arabic discussed in the previous section. In this particular instance, *sh(i/e)* spells out an argument variable. The two instances of the particle in (11) confirm, first, that *sh(i)* spells out a variable and, secondly, that it can spell out either an argument variable, as in wh-pronouns and non-specific indefinite noun phrases, or a propositional variable, as in negative clefts, yes/no-questions and wh-questions. When *sh(i)* spells out an argument variable it appears in the argument position (or on the left-edge of the indefinite noun phrase in the argument position) and when it spells out a propositional variable it appears on the left-edge of the relevant clause. Moroccan Arabic negative sentences indicate that *sh(i)* can correspond to a third type of variable which is yet to be identified. This task is carried out in Section 4<sup>4</sup>.

#### 4. The postverbal negation marker as a predicate variable

The distribution of the variable particle *sh(i)* relative to the reading of sentences appears to be highly consistent. The variable particle consistently appears on the left edge of the constituent it corresponds to. In view of this, it should be possible to identify the nature of the variable it spells out in neutral negative sentences from its distribution/placement of *sh(i)*. The task is not as straightforward as it may seem, however<sup>5</sup>.

In sentences with one (main) verb, the variable particle appears immediately following the verb and preceding the postverbal subject. This is the case irrespective of whether the verb is in the perfective (past tense) or the imperfective (non-past tense):

- (12) a. (Omar) ma qra shi (Omar) l-ktab. (Moroccan Arabic)  
(Omar) NEG read VAR (Omar) the-book

<sup>4</sup> The fact that *sh(i)* can be related to a broad range of operators implies that it has no inherent content, negative or otherwise. This is consistent with the view advocated here that it spells out a variable. Rowlett (1996) defends the view that the French preverbal negation particle *ne* has no inherent negative content, on the grounds that its presence is optional, at least in non-Literary French. The negative force of French negative sentences resides with the postverbal particle *pas*, which is treated as the Neg-operator. According to Rowlett’s analysis, *pas* is the equivalent of the Moroccan Arabic (Neg-operator particle) *ma* and *ne* the equivalent of the variable particle *sh(i)*. This parallelism appears to be inconsistent with the fact that distributionally, *ne* is the equivalent of *ma* (they both appear preverbally) and *pas* the equivalent of *sh(i)* (they both appear postverbally, at least in sentences which involve verb-movement to a higher position). Note, however, that the (Middle) Eastern dialects such as Lebanese Arabic, it is the variable particle *sh(i)* which is optional. The Neg-operator particle *ma* is obligatory in all contexts.

<sup>5</sup> The distribution of the variable particle *sh(i)* is discussed in Benmamoun (1992). Here I will only recall some of the facts relevant to the point of the present discussion.

‘Omar did not read the book.’

- b. (Omar) ma kayqra shi (Omar) l-ktub.  
(Omar) NEG read VAR (Omar) the-books  
‘Omar does not read books.’

When the sentence includes the auxiliary verb *kan* ‘be’ or the future modal *ghad* ‘will’, in addition to a main verb in the imperfective form, the variable particle appears immediately before the auxiliary/modal and preceding the main verb:

- (13) a. ma kan shi kayqra l-ktab. (Moroccan Arabic)  
NEG was-he VAR reading the-book  
‘He was not reading the book.’
- b. ma ghad shi yqra l-ktab.  
NEG will-he VAR read the-book  
‘He will not read the book.’

The pattern is basically the same in negative imperatives. The Neg-operator particle appears before the verb and the variable particle following the verb and preceding other VP-material:

- (14) ma tglš shi temma! (Moroccan Arabic)  
NEG sit VAR there  
‘Don’t sit there!’

In nominal sentences, that is copular sentences without and (overt) BE, the variable particle appears attached to the Neg-operator particle in the form of the complex *ma-shi* (NEG-VAR) located between the subject and the predicate (15a). Such sentences can optionally include a ‘pronominal copular’ (PRON), in which case the Neg-operator particle and the variable particle can either appear immediately following it in the form of the complex *ma-shi* (NEG-VAR PRON) (15b) or on opposite sides of it: *ma+PRON+shi* (NEG-PRON-VAR) (15c) (Benmamoun 1992):

- (15) a. Omar ma-shi mrid/f l-dar. (Moroccan Arabic)  
Omar NEG-VAR sick/in the-house  
‘Omar is not sick/in the house.’
- b. Omar huwwa ma-shi mrid/f l-dar.  
Omar PRON NEG-VAR sick/in the-house  
‘Omar is not sick/in the house.’
- c. Omar ma huwwa shi mrid/f l-dar.  
Omar NEG PRON VAR sick/in the-house  
‘Omar is not sick/in the house.’

In none of the contexts listed above does the variable particle appear outside (i.e. on the left-edge of) the sentence/clause. In view of the discussion in the previous two sections, this distributional property of the variable particle in neutral negative

sentences allows us to draw at least one clear conclusion. The variable particle is not the spellout of a propositional variable in neutral negative sentences. Recall that when the variable particle spells out a propositional variable, it consistently appears on the left-edge of the relevant sentence/clause.

Apart from this, the picture remains slightly unclear. In sentences with a verb, the variable particle appears after the verb, and in sentences without a verb, the variable particle appears on the left-edge of the predicate phrase. The latter suggest that the variable particle spells out a predicate variable in neutral negative sentences. If this conjecture is correct, it must carry over to sentences with a verb, with the possibility that the surface placement of the variable particle is distorted by the presence of the verb and the movement process which affects it.

Let us therefore tentatively assume that both nominal and verbal neutral negative sentences derive from the representation shown in (16), which is based on the word order pattern found in nominal sentences. Purely for convenience, the Neg-operator particle is placed under NEG (the head position) and the variable particle under Spec,NEG:

(16) [ip SUBJ [i' I [negp VAR [neg' Op [predp PRED...

Negative nominal sentences are derived by cliticization of VAR onto the head NEG, perhaps a default (or last resort) option applied in the absence of a verb<sup>6</sup>. This

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<sup>6</sup> An alternative analysis would be to associate the variable particle with PREDP right from the start as the spellout of a feature shared with NEG. This would be consistent with Benmamoun's (1992) observation that the Moroccan Arabic *sh(i)* is probably located lower than NegP, possibly adjoined to VP.

The idea that a negation element could be the spellout of a feature associated with a given constituent in the sentence is argued for in Ouhalla (1993b, 1997) in relation to the Standard Arabic negation particle *maa*. As shown in (ia-c), the scope of *maa* is consistently restricted to the category immediately following it, suggesting that it is a constituent negation element of sorts. Moreover, constituents negated by *maa* must appear in the sentence initial position which corresponds to the position usually occupied by preposed focus phrases. Constituent negation seems to be an instance of focus ('negative focus'). In (ic), the constituent negated is the whole IP (sentence focus), and the derivation of the example involves movement of the complex *maa*+IP to Spec,F:

- (I) a. *maa* Zaynab qara?at l-kitaaba. (Standard Arabic)  
 NEG Zaynab read the-book  
 'It's not Zaynab who read the book.'
- b. *maa* l-kitaaba qara?at Zaynab.  
 NEG the-book read Zaynab  
 'It's not the book that Zaynab read.'
- c. *maa* qara?at Zaynab l-kitaaba.  
 NEG read Zaynab the-book  
 'It's not the case that Zaynab read the book.'

It is perhaps no accident that there are no contexts, as far as I know, where the scope of *maa* is restricted to the predicate phrase. This seems to be the function of the other negation particle in the language, i.e. *la(a)* (7a). The status of *la(a)* is a kind of 'predicate marker' can also be seen in non-negative contexts, such as focus sentences of the type illustrated in (ii):

process derives the pattern typical of negative nominal sentences whereby the Neg-operator particle and the VAR-particle appear in the form of a complex situated between the subject and the predicate

Verbal negative sentences have a more complex derivation by virtue of the fact that they include a verb which is subject to an obligatory movement process. Abstracting away from the position of the postverbal subject for the moment, the verb moves as far as at least I/Tns. Given the strictly local nature of verb movement (HMC), the verb moves through NEG on its way to I/Tns. The first step results in the verb picking up the Neg-operator particle under NEG and carrying it along to I. This results in the stranding of the variable particle under Spec,NEG which then cliticizes (leftward) onto the complex [NEG+V] to form the complex [NEG+V+VAR] typical of negative sentences. The derived representation is roughly as shown in (17):

(17) [ip (SUBJ) [I' [NEG+[V]]+VAR [negp... [vp...

According to this scenario, verb movement is the process which results in the displacement of the Neg-operator particle from its underlying position immediately to the left of the predicate.

Structure (16) and the proposed derivation of negative nominal and verbal sentences make it possible to make sense of the otherwise odd idea that the distribution of the variable particle marks the scope of the Neg-operator. Variables do not have scope and therefore cannot be said to mark/define scope. Strictly speaking, the variable particle marks the underlying position of the Neg-operator which is more transparent in negative nominal sentences than it is in verbal sentences. The impression that the variable particle marks the scope of the Neg-operator is a function of the standard view that the scope of an operator is defined by its position in the structure (its c-command domain). In (16) the scope of the Neg-operator is the predicate phrase, with the obvious implication that sentence negation involves negation of the predicate. The variable bound the Neg-operator is therefore a predicate variable ranging over a set of predicates. Although representation (16) appears to be consistent with the syntactic properties of neutral negative sentences, it is not entirely obvious that the variable it includes is a predicate variable. The problem is a familiar one, namely, how to distinguish neutral negative sentences, which do not appear to have a presupposition, from sentences which do. I will come back to this issue in section 6.

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(ii) (?inna) Zaydun la-muhaajirun. (Standard Arabic)  
 FM Zayd FM/emigrating  
 'Zayd is EMIGRATING.'

In the Arabic linguistic tradition, sentences such as (ii) are said to be instances of predicate focus marked with the particle *la(a)* on the left-edge of the focused predicate in combination with the optional sentence focus marker *?inna* in the initial position. In Ouhalla (1993b, 1997), *?inna* is analyzed as the spellout of the focus operator and the particle *la(a)* as the spellout of the variable bound by the focus operator. The focused constituent represents the (chosen) value of the variable.

For the moment, note that (16) is also the structure often assigned to English negative sentences (Pollock 1989). The difference is that English main verbs fail to move to and beyond NEG in English, thereby triggering *do*-support<sup>7</sup>. This convergence on the structure of negative sentences leads to the rather strong position that perhaps negative sentences across languages derive from one and the same underlying structure, where NegP is situated immediately to the left of the predicate phrase (or thereabouts). The view that negative sentences across languages derive from one and the same underlying representation is argued for in Shlonsky (1997), although the structure he advocates is slightly different from the one entertained here<sup>8</sup>. The structure entertained here was based on two major arguments. One is that it is consistent with all types of neutral negative sentences in Arabic, as well as English. The other argument is that it is consistent with the conclusion that the Neg-operator targets the predicate rather than the whole sentence in neutral negative sentences. The latter argument plausibly generalises to all languages, since it is unlikely that sentence negation targets different constituents in different languages. In other words, if the position of NegP is determined by the scope of the Neg-operator, it is unlikely to vary across languages.

Having said that, it seems that the scope of the Neg-operator can be interfered with by movement processes which apply in the derivation of negative sentences. This issue is discussed in the next section in relation to the licensing environments for polarity phrases.

## 5 The scope of the Neg-operator and polarity phrases

The licensing of polarity phrases is said to obtain under a c-command relation holding of S-structure representations: the polarity phrase must be in the c-command domain of the Neg-operator at S-structure (Ladusaw 1992, 1996). Movement processes which apply in the mapping onto S-structure therefore can feed this relationship. In view of this, the analysis outlined in the previous section makes a rather straightforward

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<sup>7</sup> The structure is also consistent with the fact that in Turkish the negation morpheme appears inside the inflectional elements of TNS and AGRS: [V+NEG+TNS+AGR] (see Ouhalla 1993a for discussion). It is arguably also consistent with the Romance languages cited in Zanuttini (1997) and Cinque (1997) such as Cembra, Lisignano and Brazilian Portuguese, where the negation element appears low following all complements. Cinque (1997: fn 37, p.201) notes that the fact that the complements precede the negation element may be due to movement of the complements to a position to the left of the negation element.

<sup>8</sup> The structure advocated by Shlonsky (1997) is one where NEG is situated between AGRS and TNS in a Split Infl representation: [ AGRS [NEG [TNS [V.... This is the position often associated with the preverbal negation element in Romance (Belletti 1990, Ouhalla 1990). I believe that the left-peripheral nature of the preverbal negation in Romance is not inconsistent with an analysis whereby it is carried along with the verb from a lower position immediately above VP. Note that there is independent evidence for such a scenario from Aux Inversion structures in French and Italian, where the negation element appears to the left of the inverted verb (see Belletti 1990 and Cinque 1997). I do not see any reason why the analysis should not extend to the pattern found in Berber, where the negation element appears to the left of the verbal complex (Ouhalla 1988, 1991). It remains to be seen whether the analysis extends to the pattern found in Irish, where the negation element is often said to be associated with Comp (Acquaviva 1996 and references cited therein). Cinque (1997: 201; note 201) notes that the negation element in (Quebec) French examples such as *J'ai cache les ciseaux pour que pas que ma fille se bless* is also associated with Comp.

prediction. In languages/sentences where the Neg-operator particle is not displaced to a position which c-commands the higher subject position are not expected to license polarity phrases in the higher subject position of negative sentences. Languages/sentences where the Neg-operator particle is displaced to a position which c-commands the higher subject position are expected to license polarity phrases in the higher subject position.

English was identified above as a member of the first group of languages. As is well-known, English does not allow polarity phrases in the subject position of negative sentences, e.g. *\*Anyone did not see Mary*, as opposed to the direct object position, e.g. *Mary did not see anyone*. This contrast can also be found between the higher subject position and the lower subject position in existential (*there*)-sentences, e.g. *\*Anyone isn't in the garden* versus *There isn't anyone in the garden*. These facts of English make it clear that the Neg-operator is not subject to an LF-movement process which places it in a higher position in the sentence.

However, there is evidence which indicates that the English NEG alone undergoes at least short movement. The evidence relates, among other things, to the scope of NEG in relation to the Modal in examples such as *John can't/cannot answer the question*, where NEG appears to have scope over the Modal ('John is not capable of answering the question (out of ignorance)') and *John can NOT answer the question*, where NEG does not seem to have scope over the Modal ('John is capable of not answering the question (out of defiance)'). The movement in question is 'short' in the sense that the derived position of NEG does not take the higher subject position within its scope, e.g. *\*Anyone can't answer his teacher's question*<sup>9</sup>. To the extent that this reasoning is correct, the English examples cited seem to show that NEG is not subject to LF reconstruction in sentences where it is displaced overtly<sup>10</sup>.

Moroccan Arabic was identified in the previous section as one of the languages where the Neg-operator particle is displaced to a higher position, at least in verbal sentences. Benmamoun (1997) shows that Moroccan Arabic indeed allows polarity phrases in the subject position, both the lower (postverbal) position (18a) and the higher (preverbal) position (18b):

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<sup>9</sup> The conclusion extends to cases involving the verb BE and a polarity phrase in the subject position, e.g. *\*Anyone isn't in the garden*. The problem of locality (HMC) that would arise from having to move BE across NEG does not arise under the view that BE is inserted directly under I/TNS (Cinque 1997, Ouhalla 1988, 1991). Benmamoun (1992) argues that a similar process of NEG-movement to TNS is involved in the derivation of Standard Arabic *la(a)*-negatives. This is the reason the negation particle carries tense inflection in these constructions (7a).

<sup>10</sup> The view that displaced negation elements are interpreted in their 'base position' (reconstruction) is argued for in Cinque (1997). Note that the distribution of polarity phrases in English is not inconsistent with a reconstruction analysis for displaced negation elements. As pointed out in the main text, the distribution of polarity phrases in English excludes an LF-raising analysis for the Neg-operator. Reconstruction is basically a lowering process. The examples cited in the main text relating to the scope interaction between NEG and the Modal *can* seem to cast doubt on a reconstruction analysis for displaced negation elements. However, the scope properties of Modals and their interaction with other scope taking elements is not straightforward. Note that the polarity phrase *anyone* is allowed in the subject position of the non-negated modal *can*, e.g. *Anyone can answer the question*, though not in the subject position of a negated modal, e.g. *\*Anyone can't answer the question*.

- (18) a. ma shaf hetta wahd Nadia. (Moroccan Arabic)  
 NEG saw anyone Nadia  
 ‘Noone saw Nadia.’
- b. hetta wahd ma shaf Nadia.  
 anyone NEG saw Nadia  
 ‘Noone saw Nadia.’

Assuming a Split Infl structure for Arabic where AGRS is lower than TNS with NEG intervening between them<sup>11</sup>, the (lower) postverbal subject position corresponds to Spec,AGRS and the (higher) preverbal subject position to Spec,TNS. The verb invariably moves to TNS:

- (19) [tnsp (SUBJ) TNS+NEG+V [negp NEG [agrsp (SUBJ) AGRS [vp ...

The lower (postverbal) subject position is clearly within the c-command domain of the Neg-operator particle situated under TNS. As for the higher (preverbal) subject position, Benmamoun (1997) suggests that spec-head agreement should be included in the set of conditions for the licensing of polarity phrases. Recall that we were forced earlier by independent reasons having to do with the locality restriction on verb movement to conclude that the verb moves through NEG and carries the Neg-operator particle along with it. Besides the fact that this scenario results in the derivation of the desired word order, with the Neg-operator particle preceding the verb, it has the consequence of placing the Neg-operator under TNS where it enters into a spec-head agreement relation with the subject polarity phrase in Spec,TNS.

Benmamoun’s suggestion that spec-head agreement should be included in the set of the licensing conditions for polarity phrases is also necessary to account for the fact that polarity phrases are possible in the subject position of negative nominal sentences (20):

- (20) hetta wahd ma mrid/f l-dar. (Moroccan Arabic)  
 anyone NEG sick/in the-house  
 ‘Noone is sick/in the house.’

Negative nominal sentences were said earlier not to involve verb-movement, with the implication that the Neg-operator particle does not get displaced to a higher position. However, the fact that negative nominal sentences allow a polarity phrase in the subject position suggests otherwise. The Neg-operator particle must be in a spec-head agreement with the polarity phrase in the subject position, as in SV verbal sentences. There is independent evidence for this conclusion which will be discussed shortly.

To lay the ground we need first determine the structure of nominal sentences. As shown in (21a), nominal sentences admit present tense adverbs but are incompatible

<sup>11</sup> See Benmamoun (1992) and Ouhalla (1988, 1991) for arguments for such a structure for Arabic sentences. See Shlonsky (1997) for a different view.

with past tense and future tense adverbs. This fact confirms that they only have a present tense reading. More importantly, it reveals that nominal sentences must have a TNS category in their representation with a present tense value that determines the type of temporal adverbs that can be used with nominal sentences. There is however no evidence that they include an AGRS in their representation which parallels the one in verbal sentences. This is the case even when the ‘pronominal copular’ element PRON is present<sup>12</sup>:

- (21) Omar (huwwa) (ma-shi) mrid/f l-dar. (Moroccan Arabic)  
 Omar (PRON) sick/in the-house  
 ‘Omar is sick/in the house.’

Accordingly, nominal sentences have the structure roughly shown in (22) which is basically the same structure as for verbal sentences except that it lacks AGRS. When PRON is present, it is located under TNS and perhaps undergoes covert LF-movement to F (Ouhalla 1996). As in verbal sentences with the SV order, the subject is in Spec,TNS. For the right licensing environment for a subject polarity phrase to hold, the Neg-operator particle must be in TNS, as in verbal sentences too:

- (22) [tnsp SUBJ [tns’ TNS ([negp NEG) [predp PRED...

The evidence for the claim that the Neg-operator particle is located under TNS and therefore is in spec-head agreement with a subject polarity phrase in Spec,TNS has to do with the examples in (23a&b) and (24a&b):

- (23) a. Omar ma huwwa shi mrid/ f l-dar. (Moroccan Arabic)  
 Omar NEG PRON VAR sick/in the-house  
 ‘Omar is not sick/in the house.’  
 b. Omar huwwa ma-shi mrid/f l-dar.  
 Omar PROM NEG-VAR sick/in the-house  
 ‘Omar is not sick/in the house.’
- (24) a. hetta wahd ma huwwa mrid/f l-dar.  
 anyone NEG PRON sick/in the-house  
 ‘Noone is sick/in the house.’  
 b. \*hetta wahd huwwa ma mrid/f l-dar.  
 anyone PRON NEG sick/in the-house  
 ‘Noone is sick/in the-house.’

(23a&b) were discussed earlier in relation to the distribution of the variable particle. They show that when PRON is present, it can appear either between NEG and VAR,

<sup>12</sup> See Ouhalla (1996) for arguments that the feature which PRON contributes to the interpretation of nominal sentences is the focus feature [+F]. Nominal sentences with PRON clearly have a focus reading which is absent in PRON-less examples. The elements collectively referred to as PRON are nothing more than the members of the series of strong/emphatic independent pronouns with independent focus properties when they occur in the subject position of verbal sentences.

as in (23a), or preceding the complex NEG+VAR, as in (23b). (23a) is derived by movement of NEG to TNS+PRON, and subsequent cliticization of VAR (leftward) onto the complex NEG+PRON. (23b) results when NEG fails to move to TNS. (24a) and (24b) are the exact parallels of (23a) and (23b), respectively. (24b) shows that when NEG fails to move to TNS a polarity phrase is excluded from the subject position (Spec,TNS).

It seems that there is good evidence that the scope of the Neg-operator can be extended via displacement to embrace higher positions in the sentence, including the higher subject position. To the extent that this conclusion is warranted, it gives rise to what seems to be a paradox when combined with the conclusion that the Neg-operator targets the predicate in neutral negative sentences. At least in examples where the Neg-operator particle is displaced to a higher position, its scope seems to be both limited to the predicate phrase (VP) and to include higher positions in the sentence structure. The paradox could arguably be resolved under the reconstruction analysis for displaced Neg-operator particles, though only if accompanied with the stipulation that the licensing of polarity phrases is determined at S-structure (perhaps via some feature-assignment process of the type suggested in Lasnik and Saito 1984 and Chomsky 1986b for traces in relation to ECP) and does not necessarily depend on the Neg-operator being in a c-commanding position with respect to the polarity phrase at LF. I leave the issue open and turn to a discussion of the complementary distribution between the variable particle and polarity phrases<sup>13</sup>.

## 6 The postverbal negation marker and polarity phrases

It is not the aim of this section to outline an alternative analysis for polarity phrases. The aim is merely to identify some respects in which they interact with the Neg-operator and variable particles and to point out the implications of this interaction for the claim made above that neutral negative sentences involve an operator-variable link.

The examples which include a polarity phrase in the previous section all have in common the fact that they lack the variable particle. The latter is in complementary distribution with polarity phrases in Moroccan Arabic (Benmamoun 1992), as it is in other languages with a similar particle. (25a-c) illustrate further the complementary distribution between polarity phrases and the variable particle:

- (25) a. ma shaft (\*shi) Nadia hetta haja. (Moroccan Arabic)  
 NEG saw VAR Nadia anything  
 ‘Nadia did not see anything.’
- b. ma shaft (\*shi) Nadia l-wld f hetta blasa.  
 NEG saw VAR Nadia the-boy in any place  
 ‘Nadia did not see the boy anywhere.’

<sup>13</sup> See Ladusaw (1996) for a discussion of the question whether the licensing of polarity phrases is dependent only on the notion of semantic scope and whether surface structural relations play a role.

- c.     hetta wahd ma shaf (\*shi) Nadia.  
           anyone NEG saw VAR Nadia  
           ‘No one saw Nadia.’

As in other languages, more than one polarity phrase can appear in the same sentence/clause in Moroccan Arabic:

- (26) a.     ma ‘tat Nadia hetta haja l hetta wahd.           (Moroccan Arabic)  
           NEG gave Nadia anything to anybody  
           ‘Nadia did not give anything to anybody.’
- b.     hetta wahd ma shaf hetta haja (f hetta balasa)  
           anybody NEG saw anything (in any place)  
           ‘Nobody saw anything (anywhere).’

I will take examples (26a&b) to exclude the possibility that the complementary distribution between polarity phrases and the variable particle is due to competition for one and the same position by more than one element. This hypothetical scenario would arise if polarity phrases were claimed to move to the position usually occupied by the variable particle (Spec,NEG) for interpretive reasons.

Pursuing the strategy of taking Moroccan Arabic negative sentences to wear their LF representation on their sleeves, the absence of the variable particle implies the absence of the predicate variable in the LF representation of negative sentences with one or more polarity phrases. This means that there is a fundamental difference between negative sentences which do not include a polarity phrase and negative sentences which do. Given the requirement that natural language operators must bind a variable, negative sentences with one or more polarity phrases must include a variable bound by the Neg-operator. Looking again at the examples in (25a-d) and (26a&b), the only source for such a variable appears to be the polarity phrases themselves, except that the variable they include is presumably an argument variable rather than a predicate variable. When more than one polarity phrase is present, the Neg-operator binds more than one argument variable, as in Reinhart’s (1995) analysis of multiple *wh-in-situ*<sup>14</sup>.

If this reasoning is correct, it also follows that the variable introduced by polarity phrases cannot be said to be bound by an operator other than the Neg-operator, such as an existential quantifier. This would lead to vacuous quantification.

The conclusion that negative sentences without a polarity phrase and the ones with one or more polarity phrases differ fundamentally in that the former include a

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<sup>14</sup> It would be interesting to see whether at least some of the postverbal negation elements in the Romance languages described in Cinque (1997) and Zanuttini (1997), in particular the ones which add semantic content over and above the mere expression of sentence negation, are amenable to an analysis along the same lines as that for polarity. That is, they include a variable which is bound by the Neg-operator. If this is possible, one does not have to assume that their presence necessarily implies a NegP, anymore than the presence of polarity phrases in argument positions.

predicate variable and the latter do not is odd to say the least. The conclusion that neutral negative sentences involve a predicate variable in their LF representation is not without problems either, as pointed out earlier. This conclusion implies that negative sentences have a presupposition with a predicate variable, which is inconsistent with their apparently neutral reading. The same problem arises, perhaps in a more acute form, if the Neg-operator is said to have scope over the whole sentence/proposition. Recall that Moroccan Arabic negative clefts have a different interpretation from neutral negative sentences as well as a different distribution for the negation particles.

Each of the two conclusions seems to raise a separate and rather intractable problem, although both bear on the variable particle one way or the other. Suppose that the particle *sh(i)* is merely a ‘scope marker’ and not necessarily a variable. This would be consistent with its distribution in Moroccan Arabic non-specific indefinites, negative clefts, yes/no-questions and Iraqi Arabic wh-questions. It would also be consistent with its distribution in neutral negative sentences both nominal and verbal. The fact that *sh(i)* appears on the verbal complex NEG+V in verbal sentences would merely be an instance of the general pattern whereby the particle is morphologically linked to the Neg-operator particle. However, it would remain mysterious why, as a scope marker, the particle *sh(i)* cannot co-occur with a polarity phrase. Perhaps in sentences with a polarity phrase the scope of the Neg-operator is indeed limited to the polarity phrase, and that *sh(i)* is incompatible with polarity phrases for some reason. The relationship between the Neg-operator and the polarity phrase would be of the same type found in cases of ‘association focus’ such as *John did not see MARY*, where the scope of the Neg-operator arguably is also restricted to the focused direct object (Jackendoff 1972; see Ouhalla 1997 for a discussion of similar examples in Arabic)<sup>15</sup>. This would arguably explain why *sh(i)* is excluded when a polarity phrase is present.

An analysis based on the idea that *sh(i)* is a ‘scope marker’ rather than a variable arguably also avoids the problem having to do with the fact that neutral negative sentences do not appear to have a presuppositional reading. However, at the same time it leaves us with the persistent problem we started with, namely, if sentence negation involves a Neg-operator, then all sentences with a Neg-operator must include a variable in their representation. Neutral negative sentences without a polarity phrase would not have a variable in their representation on the view that *sh(i)* is a not the spellout of a variable.

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<sup>15</sup> Benmamoun (personal communication) points out that there are grounds for treating the Moroccan Arabic polarity marker *hetta* as the equivalent of the English *even*, and therefore a focus marker. According to Benmamoun, this particular reading for *hetta* is found in non-negative contexts such as (1). The complex *hetta+Nadia* can either have the reading ‘Nadia also/too’ or the focus reading ‘even Nadia’, the latter perhaps associated with stronger stress:

- |     |  |                    |
|-----|--|--------------------|
| (1) | <p>hetta Nadia jat.<br/>         --- Nadia came<br/>         ‘Nadia too came.’<br/>         ‘Even Nadia came.’</p> | (Moroccan Arabic). |
|-----|--|--------------------|

According to this view, polarity phrases are essentially focus phrases which receive a negative reading in negative sentences by association with NEG.

Suppose that ultimately the representation of the meaning of neutral negative sentences without a polarity phrase involves a Neg-operator but not necessarily a variable, as in Formal Logic. Such a representation would not be permissible in the computational system that governs human languages, given the ‘ban against vacuous quantification.’ Suppose now that *sh(i)* in neutral negative sentences without a polarity phrase is a dummy variable, a last resort measure inserted purely for the purpose of getting around the ban against vacuous quantification. The fact that *sh(i)* is obligatorily missing when the sentence includes a polarity phrase, and therefore an (argument) variable, would follow. In other words, the absence of the variable particle in such sentences would be on a par with the absence of other ‘semantically vacuous’ elements affected by the last resort measure, such as expletive subjects and *do*-support, from sentences where they are not needed.

If the idea of a dummy variable is tenable, it may turn out to be the strongest possible piece of direct evidence for the ban against vacuous quantification in human languages. I hope I have succeeded in showing that the distribution of the Moroccan Arabic *sh(i)* in negative and non-negative contexts is consistent with it being the spellout of a variable.

## 7. Conclusion

In this paper I have addressed the question whether the pattern whereby sentence negation is expressed with two distinct elements found in many languages reveals anything about the structure and LF of negative sentences in general. I have pursued the hypothesis that it reveals that negative sentences involve an operator-variable link, with one of the two elements representing the Neg-operator and the other the variable it binds. In a way, this possibility follows from the widely held view that sentence negation involves a negation operator together with the view that human languages disallow vacuous quantification: every operator must bind a variable (Chomsky 1986a). I have shown that the distribution of the Moroccan Arabic postverbal negation element in negative and non-negative contexts is consistent with the view that it is invariably the spellout of a variable, although the nature of the variable it spells out differs from one context to another. I have also pursued the hypothesis that negative sentences derive from a structure where the Neg-operator is located immediately above VP, and have found it consistent with all types of negative sentences in Moroccan Arabic, as well as English. Finally, I have looked at the fact that polarity phrases exclude the variable particle when they occur in a negative sentence, and tentatively concluded that it indicates that the variable particle may be ‘dummy variable’ inserted in negative sentences which do not include a variable for the Neg-operator to bind. Its insertion in such contexts is motivated by the need to get around the ban against vacuous quantification.

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