

# Two representations of negation in LFG: evidence from Polish

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## Introduction

There is no standard representation of negation in LFG f-structures; the issue is not mentioned in the two most popular LFG textbooks/reference books, namely Bresnan 2001 and Dalrymple 2001 (or in October 2014 versions of new editions of these monographs). Recently, this topic has raised some interest within the PARGRAM community (<https://pargram.b.uib.no/>), which aims at the development and uniformisation of XLE (Crouch *et al.* 2011) implementations of LFG grammars for various languages. There, two solutions have been proposed: to represent negation as an appropriate element of the ADJ(UNCT) feature, or to introduce a new binary feature, NEG. The following two simplified f-structures illustrate these two possibilities for the sentence “John doesn’t like Mary”:

$$(1) \left[ \begin{array}{l} \text{PRED 'LIKE'} \langle [1],[2] \rangle \\ \text{SUBJ } [1] \left[ \begin{array}{l} \text{PRED 'JOHN'} \end{array} \right] \\ \text{OBJ } [2] \left[ \begin{array}{l} \text{PRED 'MARY'} \end{array} \right] \\ \text{ADJ } \left\{ \left[ \begin{array}{l} \text{PRED 'NOT'} \\ \text{ADJ-TYPE NEG} \end{array} \right] \right\} \end{array} \right]$$
$$(2) \left[ \begin{array}{l} \text{PRED 'LIKE'} \langle [1],[2] \rangle \\ \text{SUBJ } [1] \left[ \begin{array}{l} \text{PRED 'JOHN'} \end{array} \right] \\ \text{OBJ } [2] \left[ \begin{array}{l} \text{PRED 'MARY'} \end{array} \right] \\ \text{NEG } + \end{array} \right]$$

Within a particular implementation, usually one of these representations is assumed: in the majority of cases this is the former representation, treating occurrences of negation as adjuncts, because it makes it easy to represent multiple negation (via multiple negative elements of the set value of ADJ), as in “John doesn’t not like Mary”. A recent exemplar of this approach is the analysis of Hungarian negation in Laczkó 2014, where all kinds of negation, including constituent negation and verbal negation, are treated this way. In this paper we extend the range of negation facts discussed in the LFG literature and argue, on the basis of data from Polish, that both representations may be needed, even within a single language.

## Eventuality negation

For reasons given below, instead of the usual terms *predicate negation* or *sentential negation*, we will use the term *eventuality negation* (EN), whose denotation is a little broader than that of these more common terms. In Polish, the usual surface realisation of EN is as the verbal prefix *nie*, e.g.:

- (3) Janek        nie lubi Marii.  
Janek.NOM NEG likes Maria.GEN  
'Janek doesn't like Maria.'
- (4) Nikt        nie lubi nikogo.  
nobody.NOM NEG likes nobody.GEN  
'Nobody likes anybody.'

Multiple arguments for the bound morpheme status of *nie* – contradicting Polish orthographic rules that treat it as a separate word delimited by spaces – are given in Kupść and Przepiórkowski 2002 and they involve prosody, valence frames, paradigm gaps, scope in coordination (cf. King 1995 for similar considerations in the context of Russian) and the strong adjacency requirement holding between *nie* and the following verb. In fact, Polish orthography rules are a little inconsistent here (some (de)verbal forms are written together with *nie*), they are unstable (the rules about writing *nie* with participles changed a few years ago) and they differ from the orthography rules for Czech, where the grammatical facts discussed below are similar (with the exception of the Genitive of Negation, now extinct in this language), but the negative marker *ne* is consistently written together with the following verbal form.

Eventuality negation displays a number of grammatical characteristics, two of which are illustrated by the two sentences above. First of all, as seen in (3), EN triggers the Genitive of Negation (GoN), where a normally accusative argument occurs in the genitive case – see Patejuk and Przepiórkowski 2014 and references therein. Second, as may be seen in (4), Polish is a Negative Concord language, where n-words such as *nikt* ‘nobody.NOM’ and *nikogo* ‘nobody.ACC/GEN’ are licensed by EN – see the rich HPSG literature on Polish Negative Concord, including Przepiórkowski and Kupść 1999 and Richter and Sailer 2004, and references therein.

While usually it is only the (pre)verbal negation that is discussed in the context of Negative Concord, there are two other kinds of negative environments that license n-words and, hence, should be included within the denotation of the term *eventuality negation*. One concerns negated adjectives – unlike in the case of verbal negation, adjectival negation is not fully productive and, hence, is usually not treated as a grammatical category appropriate for adjectives. Nevertheless, negated adjectives such as *niepodobny* ‘unsimilar, unlike’ (paired with *podobny* ‘similar, alike’), may license n-words, as the following attested example – involving the n-word *żadnego* ‘none.GEN’ – illustrates:

- (5) Jest to        absolutnie nowy minerał niepodobny do żadnego z dotychczas nam znanych.  
is this.NOM absolutely new mineral unsimilar to none of so-far us.DAT known  
'This is an absolutely new mineral, not similar to any known to us so far.'

Similarly, de-adjectival negated adverbs may also license n-words:

- (6) Smakuje niepodobnie do żadnego innego zboża.  
tastes unsimilarly to none other grain  
'It tastes unlike any other grain.'

The other non-verbal environment licensing n-words is the preposition *bez* ‘without’, a fact already discussed in Przepiórkowski and Kupść 1999. There, it was suggested that *bez* may express a propositional content meaning roughly *to not involve*. We adopt this view here and conclude that the discussed environments justify the broad term *eventuality negation*, alluding to the notion of *eventuality* (Bach 1986), which encompasses both: *events* and *states* (the latter expressed not only by verbs, but also by adjectival elements), as opposed to terms *predicate negation*, *sentential negation* or *verbal negation*.

### Constituent negation

Polish *constituent negation* (CN), while expressed by the same form *nie*, displays markedly different properties than eventuality negation. First, it is not a bound morpheme: it may be separated from the constituent it negates, it may scope over coordination, etc. Second, it does not display the grammatical properties discussed above:

- (7) Nie Janek lubi Marię / \*Marii / \*nikogo (lecz Tomek).  
 NEG Janek.NOM likes Maria.ACC Maria.GEN nobody.ACC/GEN but Tomek.NOM  
 ‘It’s not Janek who likes Maria (but Tomek).’

As (7) shows, CN does not trigger the Genitive of Negation (*Marię* must occur in the accusative) and it does not license n-words. This is true regardless of the category of the negated constituent; for example, the following attested sentence shows that the otherwise obligatory local GoN does not occur when the form *nie* preceding the verb is interpreted as CN (the clear negative judgment ours):

- (8) Ma skakać, a nie pisać wiersze / \*wierszy.  
 has jump.INF and NEG write poems.ACC/\*GEN  
 ‘He is to jump, and not to write poems.’

### Two f-structure representations of negation

The contrast between (8) above and the following attested (slightly simplified, with the clear negative judgment ours) sentence below, involving EN, shows that the two kinds of negation should be distinguished at f-structure, if the analyses of case assignment should be based on f-structure representations (as in Patejuk and Przepiórkowski 2014):

- (9) Poetyckim marzeniem Karpowicza było: nie pisać wierszy / \*wiersze.  
 poetic.INST dream.INST Karpowicz.GEN was NEG write poems.GEN/\*ACC  
 ‘The poetic dream of Karpowicz was not to write poems.’

It is easy to construct similar minimal pairs involving n-words, licensed by EN and not by CN (even in case the negated constituent is verbal, as in (8)). Again, Negative Concord seems to be best handled at the level of f-structure, so the two kinds of negation should have different f-structure representations.

The simplest solution consistent with the above facts would consist in positing a single attribute with three possible values corresponding to no negation, EN and CN. However, CN and EN may co-occur, as the following (slightly simplified) attested example shows:

- (10) Kościół katolicki nie nie potrafi, ale nie chce.  
 church.NOM catholic.NOM NEG NEG can but NEG want  
 ‘It’s not that the Catholic Church cannot, but rather that it doesn’t want to (do something).’

Also in Hungarian, as described in Laczkó 2014, up to three occurrences of negation are attested in a single clause, including 1 EN and up to 2 CNs. This – and other reasons for assuming up to 1 EN per clause – suggests that, given the two possibilities shown at the beginning of this abstract, EN should be represented via the binary NEG attribute, while CN could be represented via ADJ elements.

### Conclusion

Citing Polish facts of the kind apparently not discussed in the LFG literature so far, we have argued that two different f-structure representations are needed to successfully handle the different behaviour of eventuality negation and constituent negation. The two representations have been put to test in a comprehensive implementational grammar of Polish which also includes an exhaustive treatment of case assignment and Negative Concord.

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