Chapter 11

Negation

Oliver Bond
University of Surrey

Negation is one of the few grammatical features observed in all languages. While typically thought of as a property of predicates, it can be manifested in a wide range of structural positions associated with verbs (typically, V, I or Î or as a verbal adjunct, represented as NEG), but is also observed on other parts of speech (e.g. D/ N, C, P and CONJ) and is sometimes expressed across two or more nodes within c-structure (e.g. Butt et al. 1999, Alsharif & Sadler 2009, Laczkó 2014, Bond 2016, Alruwaili & Sadler 2018).

In the most straightforward cases there is one representation of negation at f-structure, with a binary feature indicating the presence or absence of this value. However, distributional differences between superficially similar negators, and evidence from structures with multiple negative forms within a single clause, suggest that more than one feature may be necessary to account for the syntactic and semantic effects observed in negative contexts. For instance, when a negation scopes over a sub-constituent in c-structure (so-called CONSTITUENT NEGATION or CNEG) which is part of a finite syntactic structure which is also negated (known as EVENTUALITY NEGATION or ENEG) two representations of negation appear to be required within the same f-structure (Przepiórkowski & Patejuk 2015). The distribution of Negative Concord Items (NCIs), Negative Polarity Items (NPIs) and case-forms licenced by negation also suggests that multiple features must also play an important role in accounting for restrictions on the occurrence of certain forms in antiveridical contexts (Sells 2000, Camilleri & Sadler 2017).

1 Introduction

No theoretical model of language is complete without a way to represent negation or the range of grammatical effects that it induces in linguistic structures.

Superficially, this is necessary because negation is one of the few grammatical categories that is uncontroversially universal in nature. Yet, as we will see, this does not mean that negation is especially uniform across languages: the cross-linguistic manifestations of negation are diverse and the structural consequences associated with the presence of negation are manifold and varied.[1]

For the purposes of the current chapter, I take negation to be the formal manifestation of a semantic operator ¬ that combines with an argument A to form a complex semantic expression ¬A. In propositional logic, negation combines with a propositional argument P to form ¬P. The presence of negation indicates that the conditions under which the proposition P is true are not satisfied at reference time.

Consider the proposition P given in (1):

(1) P: Eva is an experienced astronaut.

The truth conditions for the proposition P in (1) are not met if Eva is considered to be an inexperienced astronaut, or if she isn't an astronaut at all. In such cases we can say that P is false, and express this using negation.[2] An important logical property of negation, is that if P is false, ¬P must be true. Similarly, if ¬P is true, P must be false. ¬P can also be paraphrased as "it is not the case that P", as shown for (1) in (2). The ability to form this paraphrase has been proposed as a rough semantic test for what Jackendoff (1969) calls *sentential negation*.

(2)   ¬P: It is not the case that Eva is an experienced astronaut.

Jackendoff's concept of sentential negation is associated with a wide-scope reading of negation. Negation is maximally wide-scoping when the whole proposition – including the subject – is in the scope of negation.[3] In practice, in natural languages, the subject is usually an established discourse referent outside the

---

[1]For instance, negation is frequently seen as an important diagnostic tool for discriminating between different lexical categories (e.g. Stassen 1997) or structures (e.g. Brown & Sells 2016), where differential behaviour under negation is used to support linguistic argumentation. At the same time, what we intuitively think of as negation is, itself, commonly subject to diagnostics, which attempt to distinguish negatives from affirmatives, or to distinguish different subtypes of the phenomena (e.g. Jespersen 1917; Klima 1964; Jackendoff 1969; de Haan 1997; Zanuttini 2001; Giannakidou 2006; Przepiórkowski & Patejuk 2015).

[2]In this chapter, I discuss only contradictory negation. See Horn (2020) for a recent discussion.

[3]In strictly semantic terms, the scope of negation describes its operational domain. It is said to be wide, rather than narrow, when other semantic operations occur *before* negation applies. Negation with propositional scope is also commonly referred to as EXTERNAL NEGATION because the negative operation is external to the proposition.

scope of negation (Keenan 1976; Givón 1979). Consequently, the negative structures that are typically reported in grammars and general discussions of negation are examples of PREDICATE NEGATION, where negation is an evaluation of the relationship between the subject and the predicate.[4] What sentential negation and predicate negation share in common is that the *main predicate* is within the scope of negation, and the negative operator scopes over other predicate level operators (see Payne 1985; Acquaviva 1997, De Clercq 2020).

Some examples of clauses in which the predicate is negated can be seen in (3)-(5) from Polish, Modern Standard Arabic and Eleme (Niger Congo, Ogonoid; Nigeria). In the Polish example in (3) negation is marked with a negative particle *nie* (see Section 2.1). In (4), from Modern Standard Arabic, negation is expressed by a negative auxiliary *laysuu* (see Section 2.3). In the Eleme example in (5), negation is signalled through morphological means, and the affirmative verb form is quite distinct from the form employed in the negative (see Section 2.2).

(3) Polish (Przepiórkowski & Patejuk 2015: 324; own data)

    a. Janek   lubi Marię.
       Janek.NOM likes Maria.ACC
       'Janek likes Maria.'

    b. Janek   nie lubi Marii.
       Janek.NOM NEG likes Maria.GEN
       'Janek doesn't like Maria.'

(4) Modern Standard Arabic (Alsharif & Sadler 2009: 23; own data)

    a. al-awlad-u   ya-ktub-uu-n
       the-boys-NOM 3M-study.IPFV-3MP-IND
       The boys write/are writing.

    b. al-awlad-u   lays-uu ya-ktub-uu-n
       the-boys-NOM NEG-3MP 3M-write.IPFV-3MP-IND
       The boys do not write/are not writing.

(5) Eleme (Bond 2016: 283; own data)

    a. òsáro è-dé-a   òfí̵
       Osaro 3[SG]-eat-HAB mango
       'Osaro (usually) eats mango.'

---

[4]cf. Jespersen's (1917) NEXAL NEGATION, Klima's (1964) SENTENCE NEGATION, and Payne's (1985) STANDARD NEGATION.

b. òsáro è-dé~dè   òfí
Osaro 3[sg]-neg~eat[hab] mango
'Osaro doesn't (usually) eat mango.'

As well as having means to negate the main predicate of the clause, languages frequently have negators with distinct behavioural properties that do not have scope over the finite predicate and hence can be said to have low(er) negative scope (De Clercq 2020). Negators of this type are typically bundled together in descriptions as examples of CONSTITUENT NEGATION. The term 'constituent negation' has its origins in the work of Klima (1964), who formulated a range of now famous tests to distinguish it from negation with scope over the predicate (see Payne 1985, de Haan 1997 and De Clercq 2020 for discussion). An example of constituent negation in English can be seen in (6). Here a verbless secondary predication modifying a noun is in the scope of negation, but not the main predicate. Such negators are said to have narrow scope.

(6)   Dora found a job [not far away].
      (cf. Dora found a job that is not far away.)

It is common to find that negators used to negate predicates may also be used in narrow scope negation (De Clercq 2020). The following Hungarian data from Laczkó (2014: 306–7) illustrate predicate negation (7a) and narrow-scope negation over the object referent (7b). Small caps indicate focussed elements. In (7a) negation scopes over the predicate, or put another way, the truth conditions for the relationship between the predicate and its subject are not met. In (7b), narrow scope negation indicates that it is the relationship between the object referent and the rest of the assertion that is relevant.

(7)   Hungarian (Laczkó 2014: 306–307)
      a. Péter   nem hívta fel a   barátjá-t.
         Peter.NOM not called up the friend.his-ACC
         'Peter didn't call up his friend.'
      b. Péter   NEM A BARÁTJÁ-T hívta fel
         Peter.NOM not   the friend.his-ACC called up
         'It wasn't his friend that Peter called up.'

In (8) these two strategies are combined within the same clause, providing evidence for the need to be able to simultaneously distinguish these types of negation within formal models (see Section 3 for discussion).

(8) Hungarian (Laczkó 2014: 306–7)

Péter   NEM A   BARÁTJÁ-T   nem hívta fel.
Peter.NOM not   the friend.his-ACC not   called up
'It wasn't his friend that Peter didn't call up.'

Cross-linguistically, narrow-scope negation is formally distinguished from wider-scoping predicate negation by a variety of means, including differences in syntax, the use of different negators or prosodic alternations, etc.

Other examples that are described as constituent negation involve negative quantifiers modifying a noun, as in (9). In such cases the negation of the predicate is achieved through a more complex process of logical implication:

(9) Dora found no [reason to worry].
(cf. Dora didn't find a reason to worry.)

Informally, we can say of (9) that if Dora found no reason to worry, the reasons to worry equal zero, therefore Dora didn't find any (i.e. > 0) reason to worry. Quantifiers interact with negation in a number of complex ways and the literature on this topic is extensive (see Krifka 1995; de Swart 2009; Penka 2010 amongst others). While negation and quantification have been subject to some discussion in the LFG literature (Fry 1999; Dalrymple 2001: 291–295; 309–311), I will leave this topic aside.

While syntax and semantics often align, the scope of negation should really be considered to be a semantic phenomenon (see Penka 2016 for an overview of negation in formal semantics), and must be analysable within the semantic component of grammar in parallel to considering how this is played out in syntax and prosody. In practice, when authors talk about scope, they often treat it as a syntactic phenomenon because of differences in the syntactic domain in which the effects of negation can be observed (see Reinhart 1979; Szabolcsi 2012). Because of this, the term SCOPE is typically also used to refer to the syntactic domain in which the effects of negation are observed. However, it is useful to untangle these two properties of negative clauses. This is – in theory – easy to do in a model like LFG because syntax and semantics are dealt with in separate, yet parallel modules of grammar. Establishing the extent to which the two are independent is one of the major goals of investigating the syntax-semantics interface.

It should be clear from this brief overview that an adequate discussion of the topic necessitates not only an exploration of the formal devices used to express negation (and the domains in which the effects of negation are observed), but also how this relates to the semantic interpretation of the utterance.

Most analyses of negation in LFG to date have focussed on the syntactic properties of negation constructions by examining the role of negation in c-structure and f-structure, most notably Sells (2000) on Swedish, Alsharif & Sadler (2009) on Arabic, Przepiórkowski & Patejuk (2015) on Polish and Camilleri & Sadler (2017) on Maltese. Despite a growing body of work in this domain (some of which is briefly outlined in Dalrymple et al. 2019: 67–69), negation has remained focussed on the syntactic properties and effects of negation. A rare exception is Dalrymple & Nikolaeva (2011) who briefly discuss the semantic contribution of negation within the context of information structure, while Bond (2016) examines issues related to the morphological expression of negation (Section 2.2).

Negation is manifested using a variety of formal devices which differ according to the extent to which this affects (i) syntactic constituency of negative clauses and (ii) the domains in which operations sensitive to negation occur. In what follows, we first look at the arguments that support possible representations of syntactic components of grammar (Section 2) before exploring the representation of negation in a component of grammar unique to LFG, namely f-structure (Section 3).

2 Representations of negation as a formative

Negation of verbal predicates can be manifested in a wide variety of ways, most commonly by (adverbial) particles (Section 2.1), changes in verbal morphology (Section 2.2) or through the use of a negative auxiliary (Section 2.3). A combination of these strategies is also widely attested (Section 4).

2.1 Negative particles

A large body of cross-linguistic work (Dahl 1979; Dryer 1989; Payne 1985; Miestamo 2005; Dryer 2013) indicates that the most common way in which the world's languages express the negation of propositions about (epistemically unmodified) dynamic events, i.e STANDARD NEGATION (Payne 1985; Miestamo 2005) or 'clausal negation in declarative sentences' (Dryer 2013)) is through the use of a uninflecting negative particle. This is observed in at least 44% (n=502) of Dryer's 2013 sample of 1157 languages. Further languages in his sample including a particle as part of a more complex strategy consisting of multiple formatives (n=119), and others still classified as unclear with respect to whether they are particles or uninflecting negative auxiliary verbs (n=73).[5] Given their isomorphic nature,

---

[5]The numbers from the *World Atlas of Language Structures* reported here are those from Dryer (2013); those presented in the earliest editions were lower due to a programming error.

Bond (2013) takes the expression of negation through the use of particles to be a property of canonical negation.

In typological work on negation, the term PARTICLE is used as a general term for an independent word whose distribution is not better characterised in reference to a larger class of items, and includes negators described as negative adverbs. The syntactic status of negative particles (in this typological sense) has been one of considerable attention within the theoretical syntactic literature (see Pollock 1989; Haegeman 1995; Zanuttini 1997; Rowlett 1998 among others), including LFG (see Butt et al. 1999; Przepiórkowski & Patejuk 2015). This is in part motivated by the fact that the negative particle in English (and similar forms in related languages) are usually described as adverbs. While they frequently share some of the properties of adverbs in the language in which they are found, they also tend to have special syntactic characteristics that make them distinct. These characteristics, such as restrictions on their syntactic position, or the inability to be modified, make them unlike regular phrasal heads (e.g. Butt et al. 1999: 141–142). Crucially, these properties differ even among closely related languages, demonstrating that adopting the category 'particle' in broadscale typological work presents a convenient opportunity to be vague rather than explicit about the syntactic properties of any given negative formative. For instance, taking a minimalist approach, Repp (2009) argues that while both are described as adverbs in their respective descriptive traditions, German *nicht* and English *not* have different syntactic behaviour. The former is proposed to be a simple adverbial adjoining to the verb phrase (VP) while the latter is a functional head projecting a NegP. Butt et al. (1999: 141–142) conclude that *nicht* and *not* both belong to a special category NEG that distinguishes them from other adverbs, with the differences in their distribution encoded in c-structure rules.

In many Chomskian treatments of negation in English, *not* is the specifier of NegP, a separate negative projection (see Pollock 1989; Repp 2009; amongst others). Even if the validity of the NegP approach seems appropriate in some analyses, the existence of such a functional head for all instances of negation would not be consistent with the lexicalist approach to syntax. Negation is commonly expressed through morphological alternations that suggest this is a considerably less useful tool for accounting for negation in languages where the category is expressed through non-concatenative morphology (Section 2.2).

This leads to us to the first problem of determining how negative particles should be represented in the X-bar theory employed to represent c-structure in most LFG work. Given that negation can be associated with almost any part of speech, and a functional projection in LFG is not required for the purposes of movement, is a NegP motivated within a declarative theory of syntax at all?

There are several possibilities with respect to dealing with this issue: first, that a node in constituent structure is required that has the properties of a regular phrasal head (e.g. AdvP), second that a special functional head is required (i.e. NegP), or third that the negative particle occupies a non-projecting phrase (in the sense of Toivonen 2003).

The first major paper dedicated to tackling negation with the LFG framework is Sells (2000), who proposes an account of negation in Swedish. Therein, he considers whether a NegP is required to account for the distribution of the negative adverb *inte*. He reviews the evidence in favour of positioning the Swedish negative adverb *inte* inside or outside the VP, concluding that neither the negation adverb *inte* nor negative quantifiers can appear within the VP. Sells observes that the unmarked position for negation is to the left of VP, though positions higher up in IP and CP are also possible. He concludes that *inte* occupies a special NEG node in c-structure, but argues against the view that a NegP is required to account for its syntactic properties.

As with Swedish *inte*, English *not* is usually described as an adverb, but they have different distributions. Since *not* must be preceded by a tensed auxiliary verb when expressing sentential negation, as in (10), Dalrymple (2001: 61) assumes that it is adjoined to the tensed verb in I, as illustrated in (11). A similar structure is proposed in Bresnan (2001a).

(10) David is not yawning.

(11) English non-projecting negative particle *not* (based on Dalrymple 2001: 61)
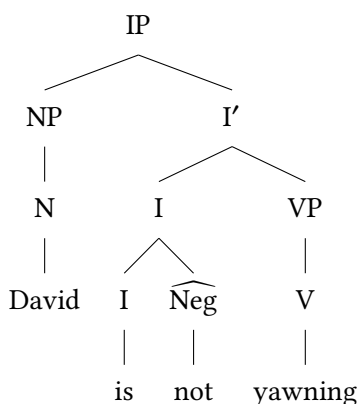
While brief, Dalrymple's (2001: 61) analysis captures an observation that some negative particles are non-projecting categories that are not heads of phrases,

but adjoin to heads. Toivonen (2003) proposes that non-projecting categories have distinct characteristics that make then unlike regular phrases:

- They are independent words which do not project a phrase.

- They must adjoin to X^0 (i.e. at the lexical level).

- They cannot take complements or modifiers.

In (11), *Neg* is not a NegP, but a non-projecting word adjoined to I.

A similar analysis of negative particles is proposed by Alsharif & Sadler (2009) and Alsharif (2014), who examine negation in Modern Standard Arabic (MSA). MSA has three negative particles used with imperfective predicates *laa*, *lam* and *lan.* The particles differ according to the grammatical categories with which they combine. Each occurs with a verbal element as the main predicate: *laa* occurs with the indicative imperfective, *lam* with the jussive imperfective expressing negation in the past, and *lan* with the subjunctive imperfective, expressing negation in the future (Alsharif & Sadler 2009: 8). Regardless of combinatorial potential, their default syntactic distribution is the same – immediately before the auxiliary – as illustrated in (12).[6]
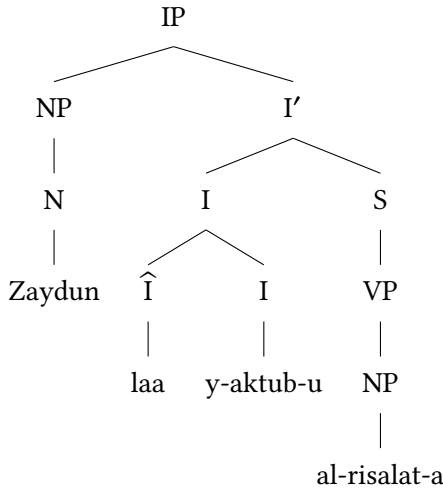
(12)   MSA (Benmamoun 2000: 95 cited in Alsharif & Sadler 2009: 7-8)
    a. t-tullaab-u   laa   ya-drus-uu-n
        the-students-NOM NEG 3M-study.IPFV-3MPL-IND
        'The students do not study/are not studying.'
    b. t-tullaab-u   lan   ya-dhab-u
        the-students-NOM NEG.FUT 3M-go.IPFV-MPL.SBJV
        'The students will not go.'
    c. t-tullaab-u   lam   ya-dhab-uu
        the-students-NOM NEG.PST 3M-go.IPFV-MPL.JUSS
        'The students did not go.'

Given strong adjacency restrictions between the particle and the following auxiliary verb, Alsharif & Sadler (2009) propose they are non-projecting categories adjoined to I. The c-structure representation for (13) (without the time adverbial) is given in (14). Syntactically, the particle *laa* occupies a node $\widehat{\text{I}}$ that is defined according to that on which it is structurally dependent, I.

---

[6]I have adjusted the glosses in these examples to correct segmentation issues in the original examples.

(13) MSA (Alsharif & Sadler 2009: 7)

Zayd-un   laa   y-aktub-u   al-yawm-a   al-risalat-a
Zayd-NOM NEG 3M-write.IPFV-3MS.IND the-day-ACC the-letter-ACC

Zayd is not writing the letter today.

(14) MSA non-projecting negative particle *laa* (Alsharif & Sadler 2009: 14)

```
                        IP
              ┌─────────┴─────────┐
             NP                   I′
              │            ┌───────┴───────┐
              N            I               S
              │        ┌───┴───┐           │
           Zaydun     Î       I          VP
                       │       │           │
                      laa  y-aktub-u      NP
                                           │
                                      al-risalat-a
```

The lexical entry for *laa* is given in (15).

(15) *laa* $\widehat{\text{I}}$ ($\uparrow$ TENSE PAST) $\neq$ +
                    ($\uparrow$ POL) = NEG

(Alsharif & Sadler 2009: 16)

It specifies that its f-structure has the polarity value NEG , but also that it cannot have the tense value PAST. Equations of this type can be used to account for the distribution of different negative forms within the same language, as indicated by the lexical entries in (16) and (17) for *lam* and *lan*.

(16) *lam* $\widehat{\text{I}}$ ($\uparrow$ TENSE PAST) = +
                    ($\uparrow$ POL) = NEG
                    ($\uparrow$ MOOD) $=_c$ JUSS

(Alsharif & Sadler 2009: 16)

(17) *lan* $\widehat{\text{I}}$ ($\uparrow$ TENSE FUT) = +
                    ($\uparrow$ POL) = NEG
                    ($\uparrow$ MOOD) $=_c$ SBJV

(Alsharif & Sadler 2009: 16)

The possibility within LFG to formulate different lexical entries for different negators provides an additional opportunity to account for differences in their behavioural distribution and the features with which they are compatible.

2.2 Negative verbal morphology

Negation is indicated by verbal morphology in at least 36% of the word's languages (Dryer 2013).[7] There is a slight preference for prefixation of negative affixes over suffixation (Dryer 2013), which reflects a general cross-linguistic preference for negators to precede the verb (Dryer 1989).

In a lexicalist approach to syntax like LFG, it is notionally straightforward for negation to be expressed morphologically, but there is little consensus about how morphology itself should be modelled. The main issue is that affixes are often presented as having lexical entries that are distinct from their hosts. This suggests that an incremental model of morphology has been used in which morphosyntactic information gets added incrementally as morphemes are added to a stem (see Camilleri & Sadler (2017: 158) on the lexical entries for Polish *nie* discussed in Section 3.3). However, there are strong arguments for adopting a realizational approach in accounting for morphology, whereby a word's association with certain morphosyntactic properties licenses morphological operations. Under an approach of this kind, having distinct lexical entries for negative morphemes is highly questionable.

The first detailed LFG analysis of negation expressed through morphological means is provided in Bond (2016), who examines the expression of negation through tone and reduplication within Eleme (Niger-Congo, Cross River, Ogonoid) spoken in Rivers State, Nigeria. Like many other languages across Africa, Eleme has a multitude of means for expressing negation, many of which involve negation morphology. Negation in Eleme is distinctive from a cross-linguistic perspective in that in addition to affixation, negation of verbal predicates is also indicated though other morphological means, notably tonal alternations and stem reduplication. Two of the basic alternations, between perfectives and habituals are shown in (18) and (19).

Negation of perfectives is realised using a set of prefixes with the shape *rV́-*. The quality of the vowel is dependent on several factors: (i) the person and number of the subject, (ii) vowel harmony with the initial segment of the verbs stem (Bond 2016: 280).[8] The negative prefix is obligatorily realised on Negative Per-

---

[7]This is a conservative figure calculated from the addition of two categories in Dryer's sample of 1157 languages: *negative affix* (n = 395) and *variation between negative word and affix* (n =21).

[8]There is also intra-speaker variation in the realisation of the initial consonant, which varies between an alveolar nasal and alveolar approximant.

fective verb forms.[9] It is the only clear exponent of negation in (18b). However, in certain discourse contexts, prefixation is accompanied by pre-reduplication of the initial mora of the verb stem – shown in parentheses in (18b). This results in full reduplication of monomoraic stems and partial reduplication of bimoraic stems (see Bond 2016: 281 for examples).

(18) Eleme (Bond 2016: 281)

    a. ǹ-sí
        1SG-go
        'I went.'

    b. rí-(si)~sí
        NEG.1SG-(NEG)~go
        'I didn't go.'

Habitual predicates in Eleme are distinguished by the presence of a Habitual suffix *-a* on the lexical verb stem, as in (19a). Negative Habituals are formed through the obligatory pre-reduplication of the first mora of the verb stem, as in (19b). The presence of the Habitual suffix *-a* is not attested in Negative Habituals, giving rise to an asymmetric pattern of negation in the sense of Miestamo (2005). Negative Habituals do not have a negative prefix. In (19b), negation is expressed though stem reduplication and tone.

(19) Eleme (Bond 2016: 278)

    a. ǹ-sí-a
        1SG-go-HAB
        'I (usually) go.'

    b. ǹ-sí~sì
        1SG-NEG~go
        'I don't (usually) go.'

Some examples of transitive constructions are given in (20).

(20) Eleme (Bond 2016: 283; own data)

    a. òsáro ré-de~dé   òfí
        Osaro NEG.3SG-(NEG)~eat[HAB] mango
        ''Osaro didn't eat (any) mango.'

---

[9]Perfectivity is a default category in Eleme and is not overtly realised on verb stems by segmental morphology.

b. òsáro è-dé~dè   òfĩ́
   Osaro 3[SG]-NEG~eat[PFV] mango
   'Osaro doesn't (usually) eat mango.'

The examples show that there is no single affix that can be picked out for accounting for negation in Eleme, rather a number of different morphological processes are responsible for deriving negative verb stems (and a distinct theory of morphology is required to account for that because LFG does not yet have its own established native approach). In languages like Eleme, the feature responsible for contributing negation to the f-structure for clauses of this type comes directly from the lexical entry for the verb. Lexical entries for these verb forms are given in (21) and (22):

(21)   *rédedé*   V   (↑ PRED) = 'EAT⟨SUBJ,OBJ⟩'
                         (↑ POL) = NEG
                         (↑ ASP) = PFV
                         (↑ SUBJ PERS) = 3
                         (↑ SUBJ NUM) = SG

(22)   *èdédè*   V   (↑ PRED) = 'EAT⟨SUBJ,OBJ⟩'
                         (↑ POL) = NEG
                         (↑ ASP) = HAB
                         (↑ SUBJ PERS) = 3
                         (↑ SUBJ NUM) = SG

The c-structure for (20b) is provided in (23).

(23)   C-structure containing an Eleme Negative Habitual verb *èdédè*
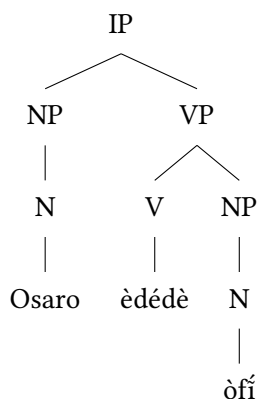
The central claim about negative verbs of this kind, whether negation is expressed by affixation, stem modification, reduplication, tone or any other morphological means, is that morphological negators do not occupy a syntactic node distinct from the element of which they are part, and any morphological exponent that can be identified as marking negation should be understood to be a property of a verb form (i.e. part of a paradigm) rather than having its own distinct lexical entry.

HPSG analyses of the morphological expression of negation (e.g. Borsley & Krer 2012, Kim 2000, Kim 2021) likewise propose that morphological exponence is dealt within the lexical component of grammar and, therefore, individual morphological exponents have no syntactic status distinct from the word of which they are part. Kim (2000) proposes that negation marked by affixation is achieved by a lexical rule (see Kim 2021 for a summary). The view of morphology proposed in Bond (2016) is a more complex one, chosen to deal with non-concatenative exponents as well as more straightforward instances of affixation. However, the basic underlying assumption is the same; morphology is governed by autonomous, non-syntactic principles (Bresnan & Mchombo 1995).

In derivational theories of syntax in which morphology is considered to be a post-syntactic process, there is no divide between the construction of words and sentences. In Distributed Morphology (DM), for instance, words are formed through syntactic operations like Merge and Move. Negative affixes – like other affixes expressing inflectional information – are realisations of abstract morphemes that are merged with roots. No such motivation for morphological operations needs to be justified within a lexicalist theory like LFG. There are two main approaches to accounting for reduplication in DM (see Frampton 2009, Haugen 2011 for discussion). Reduplication is proposed either to result from a readjustment operation on some stem triggered by a (typically null) affix, or through the insertion of a special type of affix which is inserted into a syntactic node in order to discharge some morphosyntactic feature(s), but which receives its own phonological content, distinct from its base. Recent proposals concerning the analysis of tone expressing grammatical categories can be found in Rolle (2018) and Pak (2019). See Chung (2007) on negation and suppletive forms in DM. A combination of these approaches would be required to account for morphologically complex expressions of negation like those seen here.

2.3 Negative auxiliaries

Negative auxiliaries are widely attested in the world's languages. Alongside the negative particles discussed in Section 2.1, MSA also has a negative auxiliary *laysa* employed in negative imperfectives.

Alsharif & Sadler (2009) argue that *laysa* is a fully projecting I, taking a range of complements. Unlike the particles discussed in Section 2.1, it is not subject to verb-adjacency restrictions, as illustrated in (24).[10] If the negative auxiliary verb is preceded by its subject, it agrees with it in gender and number. If the subject follows the auxiliary, number agreement is defective, and a default singular form is used.

(24)   MSA (Alsharif & Sadler 2009: 23)

    a.   al-awlad-u   lays-uu   ya-ktub-uun
        the-boys-NOM NEG-3MP 3M-write.IPFV-3MP-IND
        The boys do not write/are not writing.

    b.   lays-a   al-awlad-u   ya-ktub-uun
        NEG-3MS the-boys-NOM 3M-write.IPFV-3MP-IND
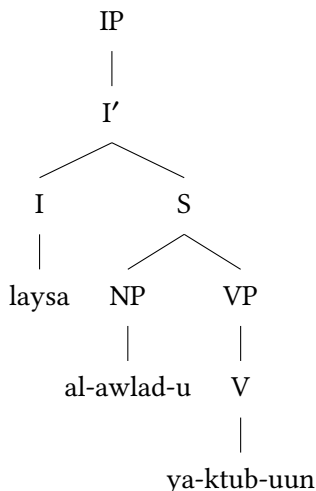   The boys do not write/are not writing.

The corresponding c-structures for the examples in (24) are given in (25) and (26).

(25)   MSA negative auxiliary *laysa* in S-AUX order (Alsharif & Sadler 2009: 23)
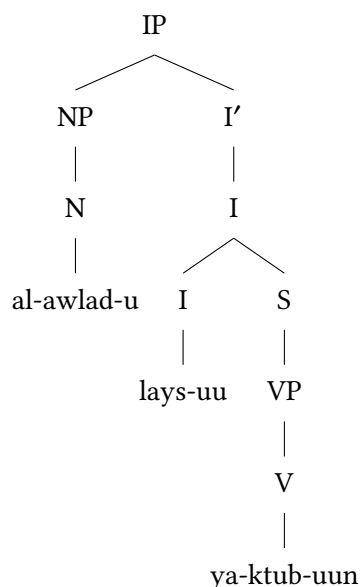
---

(26) MSA negative auxiliary *laysa* in AUX-S order (Alsharif & Sadler 2009: 23)

```
                        IP
                        |
                        I′
                   ┌────┴────┐
                   I         S
                   |       ┌─┴──┐
                 laysa    NP    VP
                          |     |
                     al-awlad-u V
                                |
                            ya-ktub-uun
```

The differences between the behaviour of the negative particles (see discussion in Section 2.1) and the negative auxiliary in MSA are captured by differences in their lexical entries. The lexical entry for *laysa* is provided in (27).

(27) *laysa*   I   (↑ TENSE PAST) = −
                        (↑ TENSE FUT) = −
                        (↑ POL) = NEG
                        (↑ SUBJ PERS) = 3
                        (↑ SUBJ GEND) = MASC
                        V ∈ CAT(↑) ⇒ (↑ ASP) $=_c$ PROG
      (Alsharif & Sadler 2009: 24)

Dalrymple & Nikolaeva (2011: 87) propose that English *didn't* also occupies the I node in c-structure (cf. *not* as a non-projecting head adjoined to I in Section 2.1).

3 Representations of negation as a feature

Negation is usually thought of as a property of a predicate, closely associated with verbal elements within the clause. Within f-structure representations, negation is typically represented in one of three distinct ways: as a feature-value pair (Section 3.1), as an adjunct with a negative value (Section 3.2), or by recognising that negation may be represented by multiple features within the same f-structure (Section 3.3).

3.1 Single feature-value pair

The majority of LFG analyses of negation treat negation as a value of predicate-level feature POL(arity). Like other attributes in the f-structure such as [TENSE] and [ASP], the [POL] specification has more than one possible value, either represented as a binary feature (i.e. = ±POL or ±NEG), or a feature with multiple values, e.g. [AFF] and [NEG]. The former approach is used by King (1995), Niño (1997), Butt et al. (1999), Bresnan (2001b: 183) and Dalrymple & Nikolaeva (2011: 87) , while Alsharif & Sadler (2009) and Bond (2016) employ the multiple value approach (i.e. POL: NEG). Falk (2001: 12, 149) uses NEG+ and POL: NEG within the same book.

In each case, it is always possible to identify an inherently negative element; this element always contributes the specification [POL −], [NEG +] or [POL NEG] to f-structure. They are all used to represent exactly the same thing, using different notation systems. In the lexical entries so far, I have used the attribute POL, with the value NEG, to account for sentential negation.

In the illustrations of the different proposals that follow, I use the representation system proposed in the original analysis.

Let's start by considering the English example in (28) from Dalrymple & Nikolaeva (2011: 87), with the f-structure in (29).

(28) John didn't love Rosa.

(29)
$$
\begin{bmatrix}
\text{POL} & - \\
\text{PRED} & \text{`LOVE}\langle\text{SUBJ, OBJ}\rangle\text{'} \\
\text{SUBJ} & [\text{PRED `JOHN'}] \\
\text{OBJ} & [\text{PRED `ROSA'}]
\end{bmatrix}
$$

Here, the only representation of negation in the f-structure is with the feature POL (Dalrymple & Nikolaeva 2011: 87). The '−' specification indicates that it does not have affirmative polarity.

3.2 Adjunct value

In contrast to introducing negation through a binary feature (e.g. NEG), in some LFG analyses, negation is introduced as an appropriate element of the ADJ(unct) feature, as illustrated in (31) for (30), discussed in Przepiórkowski & Patejuk (2015: 323–324).[11]

---

[11]Przepiórkowski & Patejuk (2015) state that, within PARGRAM, the majority of XLE implementations of negation to date take this approach, but this is not reflected in the LFG literature, in which verbal negation is nearly always represented by a feature in works that predate their paper (e.g. Sells 2000, Alsharif & Sadler 2009).

(30) John doesn't like Mary.

(31)
$$
\begin{bmatrix}
\text{PRED} & \text{`LIKE⟨SUBJ, OBJ⟩'} \\
\text{SUBJ} & [\text{PRED `JOHN'}] \\
\text{OBJ} & [\text{PRED `ROSA'}] \\
\text{ADJ} & \left\{ \begin{bmatrix} \text{PRED} & \text{`NOT'} \\ \text{ADJ-TYPE} & \text{NEG} \end{bmatrix} \right\}
\end{bmatrix}
$$

Here, the ADJ(unct)-TYPE feature enables the syntactic properties of negative adjuncts to be distinguished from other adjuncts.[12] One rationale for adopting this approach is that it makes it easy to represent multiple negation (via multiple negative elements of the ADJ set). This is the approach taken by Laczkó (2014) in his account of negation in Hungarian, where both predicate negation and narrow-scope negation are treated as adjuncts because they can co-occur, as in (32) repeated from (8).

(32) Hungarian (Laczkó 2014: 307)
Péter   NEM A   BARÁTJÁ-T   nem hívta fel.
Peter.NOM not   the friend.his-ACC not   called up

'It wasn't his friend that Peter didn't call up.'

Importantly, both instances of *nem* occur in the same clause, although not in the same f-structure (cf. the bi-clausal translation in English). The simplified f-structure in (33), representing (32), is consistent with the essence of Laczko's (2014) analysis of similar sentences.[13]

(33)
$$
\begin{bmatrix}
\text{PRED} & \text{`CALL.UP⟨SUBJ, OBJ⟩'} \\
\text{SUBJ} & \begin{bmatrix} \text{PRED `PETER'} \\ \text{CASE NOM} \end{bmatrix} \\
\text{OBJ} & \begin{bmatrix} \text{PRED `HIS FRIEND'} \\ \text{CASE ACC} \\ \text{ADJ} \left\{ \begin{bmatrix} \text{PRED} & \text{`NOT'} \\ \text{ADJ-TYPE} & \text{NEG} \end{bmatrix} \right\} \end{bmatrix} \\
\text{ADJ} & \left\{ \begin{bmatrix} \text{PRED} & \text{`NOT'} \\ \text{ADJ-TYPE} & \text{NEG} \end{bmatrix} \right\}
\end{bmatrix}
$$

---

[12]An anonymous reviewer points out that there are added complications associated with this model in accounting for the presence of *do* in English negatives if *not* is added as an adjunct.

[13]Laczko's (2014) formalisations are somewhat idiosyncratic in that his f-structure representations deviate from those typically seen in the LFG literature. While he does not actually provide an f-structure containing two instances of *nem*, there is much more analysis included in the paper than can be discussed here, and readers are directed to his paper for an extensive discussion of negation in Hungarian.

One of the major issues with this approach concerns how to limit the number of instances of the adjunct with clauses. Przepiórkowski & Patejuk (2015) report that in a later presentation, Laczkó (2015) revises his account, suggesting that two binary features may be necessary to account for the negation in Hungarian. He proposes distinguishing between ±POL and ±NEG, where each is a different feature (rather than different ways of notating the same feature).

3.3 Multiple feature-value pairs

Building on the observations made by Laczkó (2015) for Hungarian, Przepiórkowski & Patejuk (2015) propose that two different types of binary-valued attributes are required to account for negation in Polish. This distinction is motivated by (i) the distinctive behaviour of two sets of negative constructions in which the negator *nie* exhibits different degrees of syntactic independence, and (ii) the possibility that two instances of negation can occur within the same clause. This leads them to propose two distinct features known as EVENTUALITY NEGATION (ENEG) and CONSTITUENT NEGATION (CNEG).

While typically represented orthographically as a separate word, manifestations of *nie* can be broadly distinguished as 'bound' and 'independent'. Bound *nie* has a strong adjacency requirement with its host, and is described as a prefix that forms a prosodic unit with the stem to which it attaches (Kupść & Przepiórkowski 2002; Przepiórkowski & Patejuk 2015: 324). Negation expressed by prefixal *nie* cannot scope over co-ordinands, demonstrating that its semantic effects are bounded. It triggers a range of syntactic effects: first, it requires that otherwise accusative arguments of the element that is negated occur in the genitive case (the so-called 'genitive of negation'), seen in (34a), and second, it licences a syntactic domain in which negative indefinites occur, shown in (34b).

(34)   Polish (Przepiórkowski & Patejuk 2015: 324)

    a. Janek   nie lubi Marii.
       Janek.NOM NEG likes Maria.GEN
       'Janek doesn't like Maria.'

    b. Nikt   nie lubi nikogo.
       nobody.NW.NOM NEG likes nobody.NW.GEN
       'Nobody likes anybody.'

Bound *nie* is associated with eventuality negation, so called because it is used to negate eventualities (i.e. events and states). The syntactic properties associated with ENEG are observed when *nie* is realised on verbs, adjectives and deadjectival

adverbs, and it is for this reason that they favour the adoption of the term eventuality negation over sentential negation or predicate negation (Przepiórkowski & Patejuk (2015: 324–326) for discussion of this). Negative indefinite pronouns (see Section 5.2) are also licensed by the preposition *bez* 'without', leading Przepiórkowski & Patejuk (2015: 326) to suggest that this also introduces a value for the ENEG feature.

In contrast to the bound realisation, independent *nie* may be separated from the constituent over which it scopes (Przepiórkowski & Patejuk 2015: 329), indicating that it is not a morphological exponent of negation. This structural difference is reflected in a number of associated effects. Unlike the bound negator, it can scope over co-ordinands, and it does not licence negative case alternations or negative indefinites, as shown by the ungrammaticality either of the genitive object *Marii* or an negative indefinite pronoun object, in (35).

(35) Polish (Przepiórkowski & Patejuk 2015: 326)
      Nie Janek   lubi Marię   \ *Marii   \ *nikogo   (lecz
      NEG Janek.NOM likes Maria.ACC Maria.GEN nobody.NW.ACC/GEN but
      Tomek).
      Tomek.NOM
      'It is not Janek that likes Maria (but Tomek).'

Crucially, the two different types of negation are sometimes attested in superficially similar environments, as seen with infinitival clauses. In (36), in which the infinitival clause, but not the head of the main predicate is within the scope of negation, the genitive of negation is not permitted. This is an example of CNEG. In (37), where the negated infinitival clause functions as the post-verbal subject, only genitive case permitted: this is an example of ENEG. Similar effects are observed with the licensing of negative indefinites (Przepiórkowski & Patejuk 2015: 327).

(36) Polish (Przepiórkowski & Patejuk 2015: 326)
      Ma skakać,   a   nie pisać   wiersze \ *wierszy.
      has jump.INF and NEG write.INF poems.ACC   poems.GEN
      'He is to jump, and not to write poems.' [of a sportsman]

(37) Polish (Przepiórkowski & Patejuk 2015: 327)
      Poetyckim marzeniem Karpowicza   było: nie pisać   wierszy   \
      poetic.INS dream.INS Karpowicz.GEN was   NEG write.INF poems.GEN
      *wiersze.
       poems.ACC
      'The poetic dream of Karpowicz was not to write poems.'

Building on these observations, Camilleri & Sadler (2017: 158) propose the following (basic) lexical entries for the two types of negation, in order to provide an explicit characterisation of their differences:

(38) nie: ENEG (↑ ENEG) = +
      (Camilleri & Sadler 2017: 158)

(39) nie: CNEG (↑ CNEG) = +
      (Camilleri & Sadler 2017: 158)

In their formalisation, the lexical entries are identical other than the feature they introduce. However, since *nie* is a prefix when introducing the ENEG value, and is therefore part of the morphology of the verb, this should not be considered to have a lexical entry that is distinct from that of the verb form of which it is part (cf. Bond's 2016 analysis of negative verbs forms in Eleme, discussed in Section 2.2). A minimal lexical entry for *niepisác* is provided in (40).

(40) *niepisác*   V   (↑ PRED) = 'WRITE⟨SUBJ, OBJ⟩'
                       (↑ ENEG) = +

These two different features are required to account for the fact that both types of negation may occur in the same clause, as shown in (41) (cf. 'The Catholic Church not cannot...'). Przepiórkowski & Patejuk (2015: 327) do not distinguish the two types of negation in their glossing.

(41) Polish (Przepiórkowski & Patejuk 2015: 327)
      Kościół   katolicki   nie nie portrafi, ale nie   chce.
      church.NOM catholic.NOM NEG NEG can   but ENEG want
      'It's not that the Catholic Church cannot, but rather that it doesn't want to.'

Przepiórkowski & Patejuk (2015: 327) propose the following f-structure to account for the first part of (41):

(42) $\begin{bmatrix} \text{ENEG} & + \\ \text{CNEG} & + \\ \text{PRED} & \text{'CAN⟨SUBJ, XCOMP⟩'} \\ \text{SUBJ} & [\text{PRED 'CATHOLIC CHURCH'}] \\ \text{XCOMP} & [...] \end{bmatrix}$

Other scholars have also observed that more than one negation may be required within a clause (e.g. Butt et al. 1999, Sells 2000, Laczkó 2014). We now explore this subject in Section 4 in relation to bipartite negation, and in Section 5 in relation to antiveridical contexts.

4 Multipartite negation

In many languages, negation is reflected in the formal properties of multiple elements with the clause. For instance, Standard (Written) French usually requires the use of preverbal *ne* and post-verbal *pas* in the formation of negative clauses.[14] In a very brief analysis, Butt et al. (1999: 142–143) propose that both elements should be represented in f-structure, with the initial component *ne* contributing a NEG feature, and *pas* contributing a related feature NEG-FORM, as illustrated for (43) in (44) from Dalrymple et al. (2019: 67).

(43)   French (adapted from Butt et al. 1999: 143, following Dalrymple et al. 2019: 67)

David n'   a   pas   mangé de soupe.
David NEG have POSTNEG eaten   of soup

'David did not eat any soup.'

(44)
$$
\begin{bmatrix}
\text{NEG} & + \\
\text{NEG-FORM} & \text{PAS} \\
\text{PRED} & \text{'EAT}\langle\text{SUBJ, OBJ}\rangle\text{'} \\
\text{SUBJ} & [\text{PRED 'DAVID'}] \\
\text{OBJ} & [\text{PRED 'SOUP'}]
\end{bmatrix}
$$

In the analysis of Butt et al. (1999: 142–143), the marker providing the NEG + feature at f-structure may only appear if the NEG-FORM feature, contributed by the other negative particle, is present.

Their proposal aims to capture the view that (i) two distinct manifestations of negation are required to negate a clause, (ii) that there is an asymmetry between the roles of the negators in terms of their featural specification, and (iii) that the presence of *ne* is dependent on the presence of some other negative formative. This helps to account for the distribution of *ne* in clauses like (45), where it co-occurs with the adverb *jamais* 'never'.[15] However, their analysis does not deal with the use of *pas* as the only negator of a clause, as typically found in spoken French varieties. In such cases, *pas* must either be treated as separate negative item that contributes a NEG feature without *ne*, or a more serious revision to this analysis is required.

---

[14]This is not true of colloquial varieties of French, in which *pas* is usually used without *ne*.

[15]However, *jamais* only has this interpretation within the context of negation, meaning 'ever' in non-negative contexts. If their analysis is correct, a separate lexical entry must exist for *jamais* when it is not negative, or this proposal requires revision in some other way.

(45) French (adapted from Butt et al. 1999: 143)
      David ne   mange jamais   de soupe.
      David NEG eat   POSTNEG.NEVER of soup
      'David never eats soup.'

Working with HPSG, Kim (2000, 2021) takes a different approach to analysing the distribution of *ne* and *pas* in spoken French, proposing that *ne-pas* are part of a single lexical entry, and in this sense parallel the type lexical entry for *not* in English.

Expression of negation by multiple negative formatives is extremely common in the Niger-Congo languages of Africa. For instance, this is the case in Ewe (Niger-Congo, Kwa; Ghana), where negation is simultaneously expressed by a negative particle *mé* that precedes the VP and a post-VP particle *o*, that follows objects and adverbial elements within the VP, as illustrated in (46).[16] Both NEG1 and NEG2 are obligatory.[17]

(46) Ewe (Collins et al. 2018: 333–334, 361)

      a. Kofi mé-ɖu   nú   o
          Kofi NEG1-eat thing NEG2
          'Kofi didn't eat.'

      b. nye-mé-ƒo   nu   kplé Kofí o
          1SG-NEG1-hit mouth with Kofi NEG2
          'I didn't speak with Kofi.'

      c. Kofí mé-wɔ-a   é-ƒé   aféme-dɔ   gbeɖé o
          Kofi NEG1-do-HAB 3SG-POSS home-work ever   NEG2
          'Kofi never does his homework.'

When an auxiliary is present, it hosts the negative marker, as in (47) with the future auxiliary *-á* and in (48) with the 'not yet' auxiliary *kpɔ́*:

---

[16]Although Collins et al. (2018) adopt an orthographic convention in which *mé* is written as a prefix, their description, taken together with discussion in Ameka (1991: 64–69) and Aboh (2010: 64–69), suggests that *mé* occupies a node in syntax distinct from its host. Ameka (1991: 64–69) notes that *mé* usually encliticises to the verb.

[17]This is unlike typical examples of negative concord, in which so called *n*-words are licensed only in the presence of sentential negation, and can be the answer to a sentence fragment question (see Section 5.2). Most fragment answers obligatorily require the presence of *o*, but this is because it occurs together with an NPI, not an *n*-word (Collins et al. 2018: 350–354).

(47) Ewe (Collins et al. 2018: 360)
nye-mé-á   yi China gbeɖé o
1SG-NEG1-FUT go China ever   NEG2
'I will never go to China.'

(48) Ewe (Ameka 1991: 50)[18]
nye-mé kpɔ́ wɔ dɔ   lá   o
1SG-NEG MOD do work DEF NEG2
'I have not had the opportunity to do the work'

Collins et al. (2018) analyse sentences such as those in (46) as having a structure in which NEG1 and NEG2 are not part of the same inflectional phrase. In their analysis, NEG2 occupies a syntactic position outside the TP (this would be an IP in a typical LFG analysis), in the specifier position of a C (see Collins et al. 2018: 293 for the structure). The c-structure in (49) reflects the principal aspects of their descriptive analysis, although the NEG1 particle *mé* is analysed as adjoined to I (rather than as the specifier of T), in a similar way to the analysis from Alsharif & Sadler (2009) discussed in Section 2.1. Assuming that *o* takes an IP complement, NEG2 is rendered here as C (rather than in the specifier position of an empty C).

(49) Ewe bipartite negation based on Collins et al. (2018: 293)

---
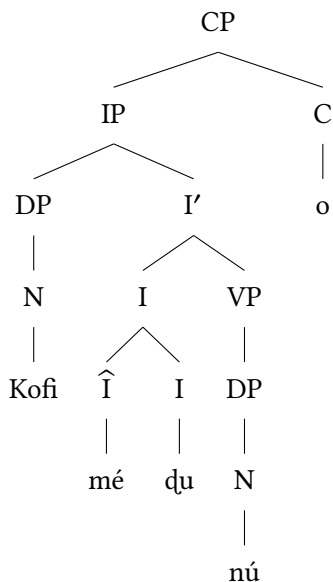
[18]The glosses have been adjusted slightly to reflect the conventions in Collins et al. (2018), but the text line remains unchanged.

As with French, the question arises as to whether these two manifestations of negation should be represented in f-structure by multiple features, or whether a single feature is sufficient. I propose that it is the latter that is true; despite having multiple attestations within the clause, only one f-structural representation of negation is required, as illustrated by the f-structure in (50).[19]

This corresponds to the f-structure in (50).

(50)
$$\begin{bmatrix} \text{ENEG} & + \\ \text{COMPFORM} & \text{NEG} \\ \text{PRED} & \text{`EAT}\langle\text{SUBJ, OBJ}\rangle\text{'} \\ \text{SUBJ} & [\text{PRED `KOFI'}] \\ \text{OBJ} & [\text{PRED `THING'}] \end{bmatrix}$$

Crucially, both negative elements are obligatory, but, in the analysis I propose for Ewe in (50), the negative particles constrain a single attribute-value pair. This type of analysis is commonly encountered when dealing with features in LFG – for instance when featural specifications of a GF (e.g. SUBJ) are specified by both the predicate and its subject noun phrase (see Dalrymple 2001: 100–104 for an introduction). Because it is possible and indeed common for two f-structure descriptions to constrain the same attribute value pairs, it should not be particularly strange that negation can also behave in this way. In other languages, where the value of the POL feature must be contributed by a single form, and where multiple contributions are consequently disallowed, then an instantiated symbol can be used as the value of the POL attribute. See Section 5.2 for an example of the usage of this symbol.

In order to ensure that both elements are present in a well formed negative sentence, a constraining equation needs to be specified to impose an additional requirement on the minimal solution obtained from the defining equations in the f-description. A complete analysis of these structures requires that the presence of *o* is constrained (since it is obligatory here). Without a very detailed examination of the Ewe negation system, it is difficult to say exactly what type of constraint might be most appropriate. However analyses of other languages with bipartite negation have involved the addition of a special feature in f-structure, NEG-FORM, which must be contributed by the second negative formative (see Section 3.1).

---

[19]Cf. the representation of clitic doubling in Dalrymple (2001: 79–81).

5 Negative Sensitive Items

Much of the theoretical literature on the syntax of negation examines the distribution of so-called Negative Sensitive Items (NSIs), that is, words whose distribution is sensitive to the presence of negation within a clause. Here we consider three types of sensitivity. The first, which I will refer to as Polarity Sensitive Cases (PSCs) is discussed in Section 5.1. Two further main types of NSIs are distinguished in the literature: Negative Concord Items (NCIs), introduced in Section 5.2, and Negative Polarity Items (NPIs), discussed in Section 5.3.

5.1 Polarity Sensitive Case

Polarity Sensitive Cases are observed when the case-marking of an argument is sensitive to the polarity of its clause. The most well-known example of this is seen in the genitive of negation in Slavic languages (e.g. Neidle 1988, Brown 1999). The basic contrast in case assignment is illustrated by (51) and (52) from Patejuk & Przepiórkowski (2014) using Polish examples from the Polish National Corpus.

(51)   Polish (Patejuk & Przepiórkowski 2014: 431)
       Poczytam książkę.
       read.1SG   book.ACC
       'I'll read a book.'

(52)   Polish (Patejuk & Przepiórkowski 2014: 431)
       Nie   poczytają książki   czy gazety.
       read.3PL NEG   book.GEN or newspaper.GEN
       'They won't read a book or a newspaper.'

Patejuk & Przepiórkowski (2014) propose that structural case assignment generalisations of this type could be formalised using constraints placed in the lexical entries of verbs that follow this pattern.

The STRCASE constraint in (53) indicates that verbs that follow structural case assignment rules follow different disjunctive constraints, labelled as AFFIRMATIVE and NEGATIVE. Note that in Patejuk and Przepiórkowski's (2014) analysis, negation is assumed to be a binary feature represented by the attribute NEG in f-structure.

(53)   STRCASE ≡ [AFFIRMATIVE ∨ NEGATIVE]

(54)   AFFIRMATIVE ≡ $[\neg(\uparrow \text{NEG}) \land (\uparrow \text{OBJ CASE}) =_c \text{ACC}]$

(55)   NEGATIVE ≡ [(↑ NEG) =$_c$ + ∧ (↑ OBJ CASE) =$_c$ GEN]

The AFFIRMATIVE constraint in (54) ensures that when there is no negation in the f-structure of the head (¬(↑ NEG)) , the object is marked for accusative case: (↑ OBJ CASE) =$_c$ ACC. The NEGATIVE constraint in (55) ensures that when the f-structure of the head is negative ((↑ NEG) =$_c$ +), the object is marked for genitive case: (↑ OBJ CASE) =$_c$ GEN.

Patejuk & Przepiórkowski (2014) demonstrate that while such constraints can account for simple cases of structural case assignment, case assignment in constructions with control or raising verbs combining with (open) infinitival arguments (i.e. XCOMPs) do not follow these constraints. Consider (56). In this example, the verb *chcesz* 'want' takes an infinitival complement whose subject is controlled by the subject of the higher verb.

The verb subcategorising for the object (i.e. the infinitival verb *poczytać* 'read') is not negative, yet the genitive of negation is still required because *chcesz* 'want' is negative. Negation is present in (56), but it is 'non-local' to the infinitival clause of the verb subcategorising for the object.

(56)   Polish (Patejuk & Przepiórkowski 2014: 432)
       Nie chcesz   poczytać Kodeksu.
       NEG want.2SG read.INF Code.GEN
       'You don't want to read the Code.'

While the genitive of negation is possible when negation is non-local, they observe that there appears to be some variation as to whether the lower object should occur in the accusative or in the genitive, citing semantic and structural or linear distance factors as potentially important.

For instance, in (57), the object is marked for accusative case (*książkę* 'book'), even though there is (non-local) verbal negation present higher in the structure of the sentence (at the main verb *chce* 'wants'). This illustrates that the presence of negation in a higher clause is not sufficient to ensure that the genitive of negation occurs.

(57)   Polish (Patejuk & Przepiórkowski 2014: 432)
       Mama nie chce   iść   poczytać książkę.
       mum NEG want.3SG go.INF read.INF book.ACC
       'Mum doesn't want to go and read a book.'

To account for this difference in case-marking, they propose that the constraints in (53)–(55) could be rewritten as (58)–(60).

(58) STRCASE ≡ [AFFIRMATIVE ∨ NEGATIVE]

(59) AFFIRMATIVE ≡ [¬(↑ NEG) ∧ (↑ OBJ CASE) =$_c$ ACC]

(60) NEGATIVE ≡ [((XCOMP* ↑) NEG) =$_c$ + ∧ (↑ OBJ CASE) =$_c$ GEN]

The constraint in (59) states that accusative case is necessary whenever there is no local negation, while (60) indicates that genitive case is possible whenever sentential negation is available somewhere in the verb chain, locally or non-locally. Specifically, this is achieved by using an inside-out path ((XCOMP* ↑) NEG) =$_c$ + which makes it possible to reach into any number of successive higher predicates subcategorising for an infinitival complement (i.e. an XCOMP), and check if any of these predicates is negated.

5.2 Negative Concord Items

In many languages negation may be expressed through the use of negative indefinite pronouns such as English *nothing* and Polish *nikt* 'nobody'. Haspelmath (1997) argues that there are three main subtypes of construction involving negative indefinite pronouns. First, in some languages there are negative indefinites that always co-occur with verbal negation, e.g. the Polish *ni-* series, as in (61).

(61) Polish (Haspelmath 1997: 194)

    a. Nikt   nie przyszedł.
       nobody NEG come.PST.3SG
       'Nobody came.'

    b. Nie widziałam nikogo.
       NEG saw   nobody
       'I saw nobody.'

The second type of negative indefinites do not usually co-occur with verbal negation, e.g. the Standard British English *no*-series: *Nobody came* and *I saw nobody*. If they do co-occur, they are rejected by speakers, or are interpreted as having a 'double negative' reading cf. *Nobody didn't come* (=*Everybody came*).[20]

His third type of negative indefinites sometimes co-occur with verbal negation and sometimes do not, e.g. the Spanish *n*-series, exemplified in (62).[21]

---

[20]Negative indefinites in the *no*-series in some other varieties of English do not behave in this manner, and thus they belong to one of the other types.

[21]The fact that the languages used to exemplify these types all come from European languages indicates the prevalence of indefinite pronouns in this area. It is largely unknown to what extent indefinite pronouns might be restricted by areal or genetic factors.

(62) Spanish (Haspelmath 1997: 201)

    a. Nadie   vino.
       nobody came
       'Nobody came.'

    b. No vi   a   nadie.
       NEG I.saw ACC nobody
       'I saw nobody.'

The role that a negative pronoun plays in negating a clause depends on its ability to appear independently of another negation strategy. Negative pronouns like those in Polish which do not appear without an expression of negation are Negative Concord Items (NCIs), sometimes known as *n*-words. By definition, NCIs never occur outside of negative contexts, and when they combine with other expressions of negation, they contribute to a single semantic negation (Labov 1972). NCIs must combine with sentential negation as in (34b) and (61) with Polish *nikt* 'nobody'. NCIs are important tools for investigating the domains in which negation has structural affects. The following definition, based on Giannakidou (2006: 328), is adopted by Camilleri & Sadler (2017: 150):

(63)   An *n*-word or NCI is understood to be an expression α that can be used in structures containing sentential negation or another α -expression to yield a reading equivalent to one logical negation, and which can provide a negative fragment answer.

Because NCIs in Polish always occur with another negator, the lexical entries for *n*-words such as *nikt* 'nobody.NOM' and *nikogo* 'nobody.ACC/GEN' must include a constraining equation that ensures their f-structure is specified for eventuality negation (Przepiórkowski & Patejuk 2015: 331):

(64)   *nikt*   N   ($\uparrow$ CASE) = NOM
                 ((XCOMP^* GF+ $\uparrow$) ENEG) $=_{\text{C}}$ +

(65)   *nikogo*   N   ($\uparrow$ CASE) $\in$ {ACC, GEN}
                 ((XCOMP^* GF+ $\uparrow$) ENEG) $=_{\text{C}}$ +

There is much more to say about how differences in the distribution of NCIs cross-linguistically could be modelled in LFG, but I leave this aside as a topic for further investigation.

5.3 Negative Polarity Items

Negative Polarity Items (NPIs) are a set of elements that, while not inherently negative, are licensed within a set of restricted contexts including negative ones. Examples from English include the indefinite quantifier *any* and the adverb *yet*, as illustrated in (66).

(66) a. Isaac wouldn't give her any/*Isaac would give her any.
      b. Eva hasn't finished yet/*Eva has finished yet.

Since NPIs are also observed in a range of other syntactic contexts, such as comparatives, modal and conditional contexts and polar interrogatives, as in (67), they are not inherently negative, and the term, attributed to Baker (1970) by Haspelmath (1997), is somewhat misleading.

(67) a. Would Isaac give her any?
      b. Has Eva finished yet?

However, assuming that all items described as NPIs can be minimally licensed in negative contexts, they can be further divided into two main types, that may exist within one and the same language:

- Weak Negative Polarity Items: NPIs that exhibit a range of non-negative contexts of use. These are sometimes referred to as Affected Polarity Items (api) (Giannakidou 1998).

- Strong Negative Polarity Items: NPIs that are only licensed in antiveridical contexts (Giannakidou 1998), i.e. sentential negation and '*without*' clauses (cf. eventuality negation).

For Weak Polarity Items, such as those in (66) and (67), negation is a sufficient, but not necessary condition for the licensing. For Strong Negative Polarity items, the context must be antiveridical (see Zwarts 1995 and Giannakidou 1998).

Consider the technical definition in (68) from Giannakidou (2002), who treats veridicality as a propositional operator:

(68) A propositional operator F is veridical iff Fp entails p: Fp $\rightarrow$ p; otherwise F is nonveridical. Additionally, a nonveridical operator F is antiveridical iff Fp entails not p: Fp $\rightarrow$ ¬p.

A veridical context is one in which the semantic or grammatical assertion about the truth of an utterance is made. The presence of a veridicality entails that the truth conditions for the underlying proposition are met, while non-veridical expressions do not entail that the truth-conditions for the underlying proposition have been met. Though (69a) is veridical, with or without the auxiliary, (69b-69c) are both nonveridical.

(69)   a. I (do) like her.
       b. I might like her.
       c. I don't like her.

Nonveridical operators are antiveridical if (and only if) the truth conditions for the underlying proposition are not met, as in (69c). Strong NPIs are sensitive to such environments.

These differences in behaviour raise important questions about how best to account for the distribution of NSIs and in which structures of grammar – essentially – to what extent can and should the distribution of NCIs and NPIs be accounted for through c-structure and f-structure representations. Problems of this kind have been addressed by Sells (2000) in relation to Swedish, and Camilleri & Sadler (2017) with respect to Maltese.

Camilleri & Sadler (2017) examine the relationship between sentential negation in Maltese and the set of negative sensitive items (NSIs). They demonstrate that the *n*-series of negative indefinites in Maltese exhibit mixed behaviour with respect to the environments in which they occur (Camilleri & Sadler 2017: 154–156). The majority of items can occur in a range of non-veridical contexts, and are not limited to antiveridical ones, exemplifying properties consistent with being classified as weak NPIs. However two NSIs show a more limited distribution: the determiner *ebda* is strictly limited to antiveridical contexts (and thus is a Strong NPI), while *ħadd* is largely restricted outside of antiveridical contexts, showing less categorical behaviour.

In finite verbal predicates in Maltese, negation is expressed through the use of the particle *ma* together with a verbal form inflected with the suffix -*x*, as illustrated in (70) and (71).[22]

(70)   Maltese (Camilleri & Sadler 2017: 147)
       Ma qraj-t-x   il-ktieb.
       NEG read.PFV-1SG-NVM DEF-book
       'I didn't read the book.'

---

[22]I have adjusted the glosses in these examples so that -*x* is glossed as NVM rather than NEG, to reflect the final analysis proposed by Camilleri & Sadler (2017). .

(71) Maltese (Camilleri & Sadler 2017: 147)

Ma n-iekol-x   ħafna.
NEG 1-eat.IPFV.SG-NVM a.lot

'I don't eat a lot.'

Imperfectives can also be negated using a different strategy otherwise associated with non-verbal predicates and non-finite forms. In (72) , *m(a)-* is prefixed to a form identical to a nominative pronominal, which, like the verbs in (70) and (71), is suffixed with *-x*. This pronominal may occur in a default third person singular masculine form, or vary according to the features of the subject, as shown here.

(72) Maltese (Camilleri & Sadler 2017: 148)

Mhux   ~ minix   n-iekol   ħafna.
NEG.3SGM.NVM ~ NEG.1SG.NVM 1-eat.IPFV.SG a.lot

'I am not eating a lot.'

Although the formation of negative indicative clauses of the type in (70) and (71) involves both the particle *ma* and the suffix *-x*, verb forms only inflected with *-x* cannot license a domain in which items from the *n*-series or any NSI are permitted. Rather, such items are in complementary distribution with *-x*. Camilleri & Sadler (2017: 150) consequently propose that *ma* expresses eventuality negation (ENEG), that introduces a syntactic requirement for a further element, which they call a non-veridical marker (NVM). In examples like (70) and (71), the presence of *-x* on the verb satisfies this requirement, while in examples like (73) it is satisfied by the presence of an NCI, such as *xejn* 'nothing'.

(73) Maltese (Camilleri & Sadler 2017: 159)

Ma qraj-t   xejn.
NEG read.PFV-1SG nothing

'I read nothing.'

Examples such as (74) indicated that the NCI satisfying this requirement need not be local, and can be deeply embedded.

(74) Maltese (Camilleri & Sadler 2017: 153)

Ma smaj-t   li   qal-u   li
NEG hear.PFV-1SG COMP say.PFV.3-PL COMP

qal-t-i-l-hom   li   gèand-hom
say.PFV.3SGF-EPENT.VWL-DAT-3PL COMP have-3PL.GEN

j-i-xtr-u xejn.
3-FRM.VWL-buy.IPFV-PL nothing
'I didn't hear that they said she told them they have to buy anything.'

This is prohibited if the embedded clause containing the negative indefinite is itself marked with *ma*. Camilleri & Sadler (2017) propose the following lexical entries to account for this:

(75)   *xejn*   N $(\uparrow \text{NVM}) = +$
          (Camilleri & Sadler 2017: 159)

(76)   *-x* $(\uparrow \text{NVM}) = +$
                      $\neg(\uparrow \{\text{XCOMP}|\text{COMP}|\text{ADJ}\}^* \text{GF}^+ \text{NVM}) = +$
                      $\neg(\rightarrow \text{ENEG})$
          (Camilleri & Sadler 2017: 160)

The entry for *xejn* in (75) ensures that its f-structure has the NVM value +. The entry for *-x* – which should really be understood to be part of the lexical entry for the verb form of which it is part – does a similar thing. It ensures that its f-structure instantiates the NVM feature with the value +. But the second line of (76) further stipulates that this form is incompatible with any XCOMP, COMP, ADJ or grammatical function with NVM+ (e.g. *xejn*), except embedded clauses which are themselves marked for sentential negation.

The entry for *ma* in (77) contributes the ENEG feature with the value +. The underscore following the + marks the feature as 'instantiated'. This means it is required to be uniquely contributed, so expressed only once in the f-structure. It also places the requirement that an element NVM is present, but this may be non-local or local. The path definition for GF is given in (78).

(77)   *ma*   ENEG $(\uparrow \text{ENEG}) = +_{\_}$
                              $\{ (\uparrow \{\text{XCOMP}|\text{COMP}|\text{ADJ}\}^* \text{GF}^+ \text{NVM}) \mid (\uparrow \text{NVM}) \} =_c +$
                                      $\neg(\rightarrow \text{ENEG})$
          (Camilleri & Sadler 2017: 160)

(78) $\text{GF} \equiv \{ \text{SUBJ} \mid \text{OBJ} \mid \text{OBJ}_\theta \mid \text{OBL} \mid \text{POSS} \mid \underset{\neg(\rightarrow \text{TENSE})}{\text{ADJ}} \in \}$

Camilleri & Sadler's (2017) observation that some formal elements that at first sight look like negator (e.g. *-x*) may actually be better described as non-veridical markers is an important development not only in terms of descriptive linguistics, but also in the context of how co-occurrence of different elements in negative construction can be constrained.

6 Conclusion

Negation is found in every language, yet can be manifested in a vast number of ways and forms that can occur in practically every position in c-structure. While Chomskian models of syntax usually adopt an approach in which negators head their own functional projection NegP, with LFG, negators occupy the structural position that most closely accounts for their distribution. This allows for an approach in which cross-linguistic variation in the distribution and category of negative word forms is captured using existing means for determining and modelling constituency. Indeed, in many languages negators exhibit properties of non-projecting heads, indicating that adopting a single functional phrase type fails to capture the variation encountered across languages.

While a range of approaches have been proposed to model the featural properties of negation, recent research into modelling negation with LFG suggests that two different f-structure features are required to account for the distribution of negative forms and the syntactic and semantic domains that they license. These are known as ENEG, or eventuality negation, and CNEG or constituent negation. The presence of ENEG is typically associated with a broader range of syntactic and semantic effects than CNEG. The pragmatic distribution is also different, with CNEG notably employed in cases where there is a negated proposition.

While they typically occur independently of one another, a formal analysis of negation requires the availability of both features for negation, such that both may simultaneously be present in f-structure. The distribution of Negative Concord Items (NCIs), Negative Polarity Items (NPIs) and case-forms licensed by negation also suggests that multiple features must also play an important role in accounting for restrictions on the occurrence of certain forms in antiveridical contexts.

As a lexicalist model of grammar, many facets of the distribution of negative formatives are accounted for by their lexical entry. This is most clearly observed when the presence of one negator places a stipulation on the occurrence of another, or some other marker of non-veridicality.

Acknowledgements

Abbreviations

Besides the abbreviations from the Leipzig Glossing Conventions, this chapter uses the following abbreviations.

AFF	affirmative	NEG2	second negative formative in multipartite expression of negation
API	Affected Polarity Item		
CNEG	constituent negation		
ENEG	eventuality negation	NegP	negation phrase
		NPI	Negative Polarity Item
EPENT.VWL	epenthetic vowel		
FRM.VWL	form vowel	NSI	Negative Sensitive Item
HAB	habitual		
JUSS	jussive	NVM	non-veridical marker
MOD	modal	NW	n-word
MSA	Modern Standard Arabic	POL	polarity
		POSTNEG	post verbal negator
NCI	Negative Concord Item		
NEG1	first negative formative in multipartite expression of negation		

References

Aboh, Enoch O. 2010. C-type negation markers on the right edge. In Enoch O. Aboh & James Essegbey (eds.), *Topics in Kwa syntax*, 109–139. Amsterdam: Springer.

Acquaviva, Paolo. 1997. *The logical form of negation: A study of operator-variable structures in syntax*. New York/London: Garland.

Alruwaili, Shatha & Louisa Sadler. 2018. Negative coordination in (Turaif) Arabic. In Miriam Butt & Tracy Holloway King (eds.), *Proceedings of the LFG '18 conference*, 25–45. Stanford: CSLI Publications.

Alsharif, Ahmad. 2014. *Negation in Arabic*. Colchester, UK: University of Essex. (Doctoral dissertation).

Alsharif, Ahmad & Louisa Sadler. 2009. Negation in Modern Standard Arabic: An LFG approach. In Miriam Butt & Tracy Holloway King (eds.), *Proceedings of the LFG '09 conference*, 5–25. Stanford: CSLI Publications.

Ameka, Felix. 1991. *Ewe: Its grammatical constructions and illocutionary devices.* Canberra: Australian National University. (Doctoral dissertation).

Baker, C. Lee. 1970. Double negatives. *Linguistic Inquiry* 1. 169–186.

Benmamoun, Elabbas. 2000. *The feature structure of functional categories: A comparative study of Arabic dialects.* Oxford: Oxford University Press.

Bond, Oliver. 2013. A base for canonical negation. In Dunstan Brown, Marina Chumakina & Greville G. Corbett (eds.), *Canonical morphology and syntax.* Oxford: Oxford University Press.

Bond, Oliver. 2016. Negation through reduplication and tone: Implications for the lexical functional grammar/paradigm function morphology interface. *Journal of Linguistics* 52. 277–310.

Borsley, Robert D. & Mohamed Krer. 2012. An HPSG approach to negation in Libyan Arabic. *Essex Research Reports in Linguistics* 61(2). 1–24.

Bresnan, Joan. 2001a. Explaining morphosyntactic competition. In Mark Baltin & Chris Collins (eds.), *Handbook of contemporary syntactic theory*, 11–44. Oxford: Blackwell.

Bresnan, Joan. 2001b. *Lexical-Functional Syntax.* Oxford: Blackwell.

Bresnan, Joan & Sam A. Mchombo. 1995. The lexical integrity principle: Evidence from Bantu. *Natural Language & Linguistic Theory* 13(2). 181–254. DOI: 10.1007/bf00992782.

Brown, Dunstan & Peter Sells. 2016. Archi as a basis for comparing different frameworks. In Oliver Bond, Greville G. Corbett, Marina Chumakina & Dunstan Brown (eds.), *Archi: Complexities of agreement in cross-theoretical perspective*, 233–260. Oxford: Oxford University Press. DOI: 10.1093/acprof:oso/9780198747291.003.0008.

Brown, Sue. 1999. *The syntax of negation in Russian: A Minimalist approach.* Stanford: CSLI Publications.

Butt, Miriam, Tracy Holloway King, María-Eugenia Niño & Frédérique Segond. 1999. *A grammar writer's cookbook.* Stanford: CSLI Publications.

Camilleri, Maris & Louisa Sadler. 2017. Negative sensitive indefinites in Maltese. In Miriam Butt & Tracy Holloway King (eds.), *Proceedings of the LFG '17 conference*, 146–166. Stanford: CSLI Publications.

Chung, Inkie. 2007. Suppletive negation in Korean and Distributed Morphology. *Lingua* 117(1). 95–148. DOI: 10.1016/j.lingua.2005.10.002.

Collins, Chris, Paul M. Postal & Elvis Yevudey. 2018. Negative polarity items in Ewe. *Journal of Linguistics* 54. 331–365.

Dahl, Östen. 1979. Typology of sentence negation. *Linguistics* 17. 79–106. DOI: 10.1515/ling.1979.17.1-2.79.

Dalrymple, Mary. 2001. *Lexical Functional Grammar* (Syntax and Semantics 34). New York: Academic Press. DOI: 10.1163/9781849500104.

Dalrymple, Mary, John J. Lowe & Louise Mycock. 2019. *The Oxford reference guide to Lexical Functional Grammar*. Oxford: Oxford University Press. DOI: 10.1093/oso/9780198733300.001.0001.

Dalrymple, Mary & Irina Nikolaeva. 2011. *Objects and information structure* (Cambridge Studies in Linguistics). Cambridge, UK: Cambridge University Press. DOI: 10.1017/cbo9780511993473.

De Clercq, Karen. 2020. Types of negation. In Viviane Déprez & Teresa Espinal (eds.), *The Oxford handbook of negation*, 58–74. Oxford: Oxford University Press. DOI: 10.1093/oxfordhb/9780198830528.013.2.

de Haan, Ferdinand. 1997. *The interaction of negation and modality: A typological study*. New York/London: Garland.

de Swart, Henriette. 2009. *Expression and interpretation of negation: An OT typology*. Dordrecht: Springer.

Dryer, Matthew S. 1989. Universals of negative position. In Michael Hammond, Edith A. Moravcsik & Jessica Wirth (eds.), *Studies in syntactic typology*, 93–124. Amsterdam: John Benjamins.

Dryer, Matthew S. 2013. Negative morphemes. In Matthew S. Dryer & Martin Haspelmath (eds.), *The World Atlas of Language Structures Online*. Chapter 112. Leipzig: Max Planck Institute for Evolutionary Anthropology. DOI: 10.5281/zenodo.7385533.

Falk, Yehuda N. 2001. *Lexical-Functional Grammar: An introduction to parallel constraint-based syntax*. Stanford: CSLI Publications.

Frampton, John. 2009. *Distributed reduplication*. Cambridge, MA: The MIT Press. DOI: 10.7551/mitpress/9780262013260.001.0001.

Fry, John. 1999. Proof nets and negative polarity licensing. In Mary Dalrymple (ed.), *Semantics and syntax in Lexical Functional Grammar: The resource logic approach* (Language, Speech, and Communication), 91–116. Cambridge, MA: The MIT Press.

Giannakidou, Anastasia. 1998. *Polarity sensitivity as (non)veridical dependency*. Amsterdam: John Benjamins. DOI: 10.1075/la.23.

Giannakidou, Anastasia. 2002. Licensing and sensitivity in polarity items: From downward entailment to (non)veridicality. In Mary Andronis, Erin Debenport, Anne Pycha & Keiko Yoshimura (eds.), *Papers from the 38th regional meeting of the Chicago Linguistic Society: Parasession on polarity and negation*, 29–54.

Giannakidou, Anastasia. 2006. N-words and negative concord. In Martin Everaert & Henk van Riemsdijk (eds.), *The Wiley Blackwell companion to syntax*, vol. 3, 327–391. Malden, MA: Blackwell.

Givón, Talmy. 1979. *On understanding grammar*. New York: Academic Press. DOI: 10.1075/z.213.

Haegeman, Liliane. 1995. *The syntax of negation*. Cambridge, UK: Cambridge University Press. DOI: 10.1017/cbo9780511519727.

Haspelmath, Martin. 1997. *Indefinite pronouns*. Oxford: Oxford University Press. DOI: 10.1093/oso/9780198235606.001.0001.

Haugen, Jason D. 2011. Reduplication in Distributed Morphology. In Jessamyn Schertz, Alan Hogue, Dane Bell, Dan Brenner & Samantha Wray (eds.), *Proceedings of the Arizona Linguistics Circle 4. Coyote Papers Working Papers in Linguistics*, vol. 18. Tucson, AZ: University of Arizona Linguistics Circle. http://hdl.handle.net/10150/143067.

Horn, Laurence R. 2020. Negation and opposition: Contradiction and contrariety in logic and language. In Viviane Déprez & Teresa Espinal (eds.), *The Oxford handbook of negation*, 7–25. Oxford: Oxford University Press. DOI: 10.1093/oxfordhb/9780198830528.013.1.

Jackendoff, Ray. 1969. An interpretive theory of negation. *Foundations of Language* 5(2). 218–241.

Jespersen, Otto. 1917. *Negation in English and other languages*. København: A. F. Høst & Søn.

Keenan, Edward L. 1976. Towards a universal definition of subject. In Charles N. Li (ed.), *Subject and topic*, 303–333. New York: Academic Press.

Kim, Jong-Bok. 2000. *The grammar of negation: A constraint-based approach* (Dissertations in Linguistics). Stanford: CSLI Publications.

Kim, Jong-Bok. 2021. Negation. In Stefan Müller, Anne Abeillé, Robert D. Borsley & Jean-Pierre Koenig (eds.), *Head-Driven Phrase Structure Grammar: The handbook* (Empirically Oriented Theoretical Morphology and Syntax), 811–845. Berlin: Language Science Press. DOI: 10.5281/zenodo.5599852.

King, Tracy Holloway. 1995. *Configuring topic and focus in Russian*. Stanford: CSLI Publications.

Klima, Edward S. 1964. Negation in English. In Jerry A. Fodor & Jerrold J. Katz (eds.), *The structure of language: Readings in the philosophy of language*, 246–323. Englewood Cliffs, NJ: Prentice Hall.

Krifka, Manfred. 1995. The semantics and pragmatics of polarity items. *Linguistic Analysis* 25. 209–258.

Kupść, Anna & Adam Przepiórkowski. 2002. Morphological aspects of verbal negation in Polish. In Peter Kosta & Jens Frasek (eds.), *Current approaches to formal Slavic linguistics: Proceedings of the Second European Conference on Formal Description of Slavic Languages, Potsdam, 1997*, 337–346. Frankfut am Main: Peter Lang.

Labov, William. 1972. Negative attraction and negative concord in English grammar. *Language* 48. 773–818. DOI: 10.2307/411989.

Laczkó, Tibor. 2014. Essentials of an LFG analysis of Hungarian finite sentences. In Miriam Butt & Tracy Holloway King (eds.), *Proceedings of the LFG '14 conference*, 325–345. Stanford: CSLI Publications.

Laczkó, Tibor. 2015. On negative particles and negative polarity in Hungarian. In Miriam Butt & Tracy Holloway King (eds.), *Proceedings of the LFG '15 conference*, 166–186. Stanford: CSLI Publications.

Miestamo, Matti. 2005. *Standard negation: The negation of declarative verbal main clauses in a typological perspective.* Berlin: Mouton de Gruyter. DOI: 10.1515/9783110197631.

Neidle, Carol. 1988. *The role of case in Russian syntax.* Dordrecht: Kluwer Academic Publishers. DOI: 10.1007/978-94-009-2703-2.

Niño, María-Eugenia. 1997. The multiple expression of inflectional information and grammatical architecture. In Francis Corblin, Danièle Godard & Jean-Marie Marandin (eds.), *Empirical issues in syntax and semantics 1*, 127–147. Bern: Peter Lang.

Pak, Majorie. 2019. Logoori grammatical tone: A Distributed Morphology analysis. In *Florida linguistics papers* (Proceedings of the Florida Linguistics Yearly Meeting (FLYM) 5 6), 51–62.

Patejuk, Agnieszka & Adam Przepiórkowski. 2014. Structural case assignment to objects in Polish. In Miriam Butt & Tracy Holloway King (eds.), *Proceedings of the LFG '14 conference*, 429–447. Stanford: CSLI Publications.

Payne, John R. 1985. Negation. In Timothy Shopen (ed.), *Language typology and syntactic description*, vol. I: Clause, 197–242. Cambridge, UK: Cambridge University Press.

Penka, Doris. 2010. *Negative indefinites.* Oxford: Oxford University Press. DOI: 10.1093/acprof:oso/9780199567263.001.0001.

Penka, Doris. 2016. Negation and polarity. In Nick Riemer (ed.), *The Routledge handbook of semantics*, 303–319. London: Routledge.

Pollock, Jean-Yves. 1989. Verb movement, Universal Grammar, and the structure of IP. *Linguistic Inquiry* 20. 365–424.

Przepiórkowski, Adam & Agnieszka Patejuk. 2015. Two representations of negation in LFG: Evidence from Polish. In Miriam Butt & Tracy Holloway King (eds.), *Proceedings of the LFG '15 conference*, 322–336. Stanford: CSLI Publications.

Reinhart, Tanya. 1979. Syntactic domains for semantic rules. In Franz Günthner & Siegfried J. Schmidt (eds.), *Formal semantics and pragmatics for natural languages*, 107–130. Dordrecht: Reidel.

Repp, Sophie. 2009. *Negation in gapping*. Oxford: Oxford University Press. DOI: 10.1093/acprof:oso/9780199543601.001.0001.

Rolle, Nicholas. 2018. *Grammatical tone: Typology and theory*. Berkeley: University of California, Berkeley. (Doctoral dissertation). DOI: 10.5070/bf211040767.

Rowlett, Paul. 1998. *Sentential negation in French*. Oxford: Oxford University Press.

Sells, Peter. 2000. Negation in Swedish: Where it's not at. In Miriam Butt & Tracy Holloway King (eds.), *Proceedings of the LFG '00 conference*, 1–19. Stanford: CSLI Publications.

Stassen, Leon. 1997. *Intransitive predication*. Oxford: Clarendon Press.

Szabolcsi, Anna. 2012. Scope and binding. In Claudia Maienborn, Klaus von Heusinger & Paul Portner (eds.), *Semantics: An international handbook of natural language meaning* (Handbücher zur Sprach- und Kommunikationswissenschaft / Handbooks of Linguistics and Communication Science (HSK), 33/2 2), 1605–1641. Berlin: De Gruyter Mouton.

Toivonen, Ida. 2003. *The phrase structure of non-projecting words: A case study of Swedish particles* (Studies in Natural Language and Linguistic Theory 58). Dordrecht: Kluwer Academic Publishers.

Zanuttini, Raffaella. 1997. *Negation and clausal structure*. Oxford: Oxford University Press.

Zanuttini, Raffaella. 2001. Sentential negation. In Mark R. Baltin & Chris Collins (eds.), *The handbook of contemporary syntactic theory*, 511–535. Malden, MA: Blackwell.

Zwarts, Frans. 1995. Nonveridical contexts. *Linguistic Analysis* 25(3–4). 286–312.