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Semantic and distributional patterns of Spanish negation with nouns and adjectives: A Lexical-Realizational Functional Grammar approach

Judith Meinschaefer, Freie Universität Berlin, DE, judith.meinschaefer@fu-berlin.de

This study examines the semantic and distributional characteristics of the Spanish negation *no* when it occurs before nouns and adjectives, specifically, whether these instances diverge from sentential negation, but also from negation via prefixes such as *des-* 'dis-' or *in-* 'in-, un-'. Using data from the Spanish Web 2011 corpus, it is shown that the use of *no* before adjectives aligns with other forms of constituent negation, often resulting in a contradictory interpretation, that is similar to that of sentential negation. However, the interpretation of *no* preceding nouns exhibits a broader range of interpretations, depending on whether the noun refers to an eventuality, quality, or entity. In such instances, *no* shows parallels to negative prefixes, frequently indicating privation rather than contradiction. Consequently, *no* can be analyzed as a building block of phrases, expressing syntactic negation, behaving similarly to other adverbs, as well as a building block of words, expressing lexical negation, resembling Spanish prefix-like elements like *cuasi* 'almost' or *ex* 'ex-'. The analysis is couched within the framework of Lexical-Realizational Functional Grammar (LRFG), integrating aspects of Lexical Functional Grammar and Distributed Morphology. This approach does not treat morphology and syntax as separate modules, thus allowing us to account for the variable distribution and interpretation of *no* by means of a single representation in vocabulary structure, drawing on constituent structure representations which are needed on independent grounds for adverbs and for prefix-like elements.

1 Introduction

In Spanish and other languages, negation can be expressed by independent words or by prefixes. In (1), the Spanish negative formative *no* has the distribution of an adverb, while *des-* in (2) is a prefix.

(1)   No   conozco   las razones.
           NEG know.1SG the reasons
           'I do not know the reasons.'

(2)   Des-conozco   las razones.
           NEG-know.1SG the reasons
           'I do not know the reasons.'

As will be shown in this article, Spanish *no* presents certain parallels to negative prefixes, (3–4a), and it can occur in a prenominal position where most Spanish adverbs are unacceptable, (4b).

(3)   las formas a-simétricas   del   diseño
           the forms NEG-symmetric of.the design
           'the asymmetrical forms of the design'

(4)   a. la forma no   simétrica de la   gráfica
              the form NEG symmetric of the graph
              'the non-symmetric form of the graph'

           b. los no   fumadores
              the NEG smokers
              'the non-smokers'

In previous research on Spanish negation, the negative formative *no* has been studied from different syntactic perspectives, and it has been compared to Spanish negative affixes like *des-* or *in-* (e.g., Gyurko 1971; Montero Curiel 1999; Varela Ortega & Martín García 1999; Curiel 2015; Gibert-Sotelo 2018; 2021; Fábregas 2023). Yet, no attempt has been made so far to integrate a syntactic perspective with a morphological perspective on Spanish *no*. Such an integration is the aim of this study, with a focus on contexts in which *no* competes with negative prefixes, that is, on *no* preceding adjectives and nouns.

The research question pursued here is whether occurrences of Spanish *no* preceding nouns and adjectives have semantic or distributional features that distinguish them from instances of sentential or constituent negation (see Section 2.3 for a discussion of these two terms) and from negative prefixes such as Spanish *des-* or *in-*. The study is based on a semi-systematic collection of data drawn from the Spanish Web 2011 corpus *esTenTen11* (Jakubíček et al. 2013; Kilgarriff & Renau 2013); all corpus examples are given with their token number. The corpus contains

more than 9 billion words, lemmatized and tagged by part of speech; it was searched using the Sketchengine web interface. The method is qualitative rather than quantitative; the corpus data is not subjected to a quantitative analysis.

As the data show, negation of adjectives with *no* is not different from other types of constituent negation. Occurrences of *no* preceding nouns, however, show parallels to negative prefixes (such as *des-* or *a-* in [2–3] above), both in terms of available readings (often expressing privation rather than contradiction) and with respect to the distribution of *no*. As the data considered in this article show, Spanish *no* functions as a building block of phrases, expressing 'syntactic negation', as well as a building block of words, expressing 'lexical negation' (see Section 2.3 for a discussion of these terms). In the first case, Spanish *no* patterns with adverbs, while in the second case it patterns with so-called Spanish "separable prefixes" (such as *pro* 'pro' in [9] below; see Section 2.2 for a discussion of this concept). The analysis put forward here is based on the generalization that Spanish *no* can occur as an adjunct to a syntactic projection or a lexical head, following a proposal made by Laczkó (2014) for Hungarian negation, thus forming both complex phrases and complex words. In the first case, *no* has only one reading, that of contradiction, but in the second case, the meaning of *no* is less constrained. Its interpretation thus seems to be determined by the context in which it is inserted, the negative element itself being underspecified in terms of meaning and distribution. In this respect, it is different from Spanish negative prefixes like *in-* or *des-*. The analysis is cast in Lexical-Realizational Functional Grammar (LRFG, Asudeh & Bögel & Siddiqi 2023), a hybrid formalism combining assumptions about the modular representations of constituency, functional structure and semantics of Lexical-Functional Grammar (LFG, Kaplan & Bresnan 1982) with the realizational, morpheme-based approach of Distributed Morphology (DM). Crucial aspects of LRFG for the analysis developed here are the separation of constituency and function in the representation of negation, modeling the competition between different types of negation expressions, such as Spanish *no* and negative affixes like *des-* 'dis-' or *in-* 'in-, un-' via constraints similar to DM's subset principle (Halle 1997; Embick & Noyer 2007: 298).

The article is structured as follows: Section 2 introduces basic assumptions of LRFG (2.1), followed by a discussion of the concept of prefix (2.2), concluding with a brief overview of current classifications of negation structures (2.3). An outline of the possible readings of negation is given in Section 3, followed by an analysis in Section 4 of the spectrum of interpretations of Spanish *no* preceding adjectives. It is shown that *no* in these contexts corresponds to constituent negation, with a reading that is contradictory in most cases. Section 5 looks more closely at *no* preceding nouns, a context in which a wider variety of readings are attested, including readings characteristic of Spanish affixal negation. This raises the question of whether Spanish *no* should be considered a building block of phrases as well as of words, considered in Section 6. Section 7 briefly sketches how the main observations can be represented in Lexical-Realizational Functional Grammar.

2 Theoretical framework

In this section, I first sketch the basic architecture of the formalism adopted. Next, the terms affix and prefix are considered. Finally, previous classifications of types of negation are briefly discussed.

2.1 Lexical-Realizational Functional Grammar

LFG is a constraint-based grammar framework that seeks to model the linguistic knowledge of the speaker of a given language as well as the way in which this knowledge is put to use in production and perception (Kaplan & Bresnan 1982). The architecture of LFG posits separate levels of linguistic representation which are connected via explicitly formulated mapping relations (Dalrymple & Lowe & Mycock 2019, § 7.2). Levels included in current versions of LFG are not only constituent structure (c-structure) and functional structure (f-structure), but also prosody, semantics (s-structure), information structure and argument structure, as illustrated in Figure 1.
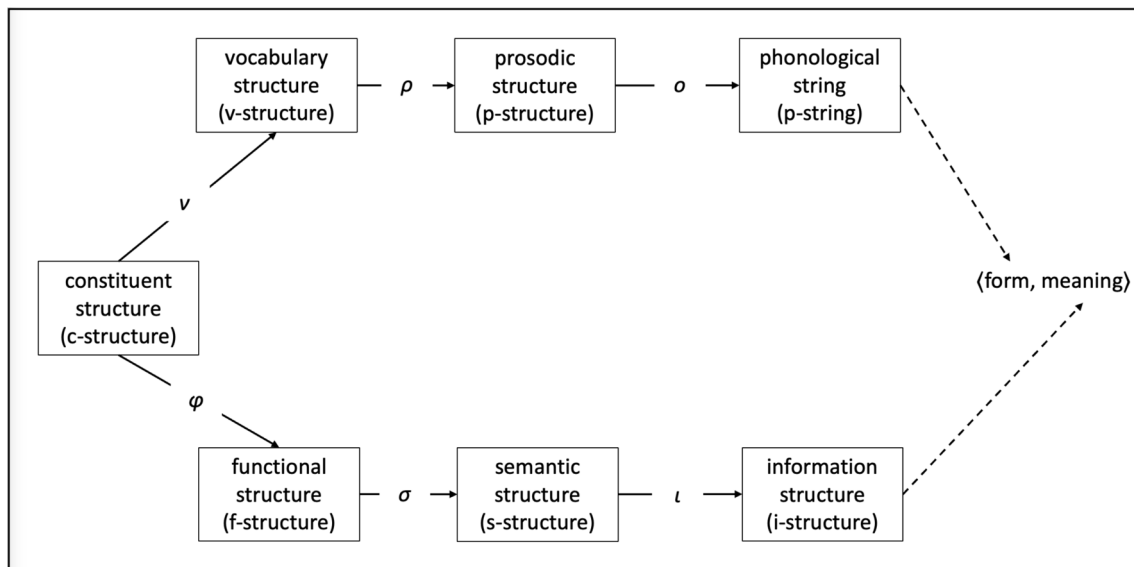
Figure 1: Correspondence architecture of Lexical-Realizational Functional Grammar. Visualization by the author, following Asudeh & Bögel & Siddiqi (2023).

In the present article, relevant modules are, on the syntactic side, constituent structure and functional structure, on the phonological side, prosodic structure and the phonological string, and vocabulary structure as an interface mediating the syntactic and the phonological sides. Relations between modules are described as functions from (parts of) representations in one module to (parts of) representations in another module. In principle, all modules operate in parallel. Accordingly, the arrows in Figure 1 do not entail relations of succession or precedence. Rather, representations in different modules constrain each other in systematic, yet selective

ways, where the exact nature of the constraints governing the relationship between the levels continues to be a matter of ongoing empirical research.

As to morphology or word-internal structure and its interaction with syntax, only few explicit proposals have been made in the past decades (for a review see Dalrymple 2015; Sadler & Nordlinger 2018; Asudeh & Siddiqi 2023). A recent development is Lexical-Realizational Functional Grammar (LRFG), combining the formal explicitness of Lexical-Functional Grammar (LFG) with the realizational, morpheme-based approach of Distributed Morphology (Melchin & Asudeh & Siddiqi 2020; Everdell et al. 2021; Asudeh et al. 2023); cf. Asudeh & Siddiqi (2023) for a brief introduction. Similarly to DM, LRFG assumes that the terminal elements of constituent structure (c-structure) are morphosyntactically relevant features rather than words. c-Structure is mapped onto phonological form and onto functional structure (f-structure) and semantic structure (s-structure), respectively. Key aspects of LRFG for the analysis presented here include the distinction between constituency and grammatical function in the representation of negation, and the capacity to model the competition between various negation expressions, such as Spanish *no* and negative prefixes like *des-* ('dis-') or *in-* ('in-, un-'), through constraints akin to DM's subset principle (Halle 1997; Embick & Noyer 2007: 298), termed in LRFG MostInformative (Asudeh & Siddiqi 2023: 890) and MostSpecific (Asudeh et al. 2023: 32); see Section 7.3.

In the approach adopted here, verbalization of a piece of meaning and structure, i.e., lexical insertion from a procedural point of view, is conceived of as a mapping or function, termed the *v*-function: An exponendum, or something that is to be verbalized, is mapped onto an exponent, i.e., a structure by means of which the exponendum is verbalized (Asudeh et al. 2023; Asudeh & Siddiqi 2023). The *v*-function is of the general form illustrated in (5a) (Asudeh et al. 2023: 23). A partial description of the *v*-function for Spanish *no*, discussed in more detail in Section 7, is given in (5b).

(5)   The exponence function *v*
    a.   ⟨Distribution, Function/Meaning⟩ → exponent
    b.   ⟨ Adv, [(↓ AdjType) = Neg] ⟩ → *no*

The exponendum is thus a pair consisting of a list which specifies the syntactic distribution of the item in question and of a set of descriptions of its function and meaning. Simplifying matters somewhat, one might say that the complex representation in (5), which comprises information about distribution, meaning and phonological form, is what is denoted a lexeme in certain other approaches.

2.2 Spanish prefixes

The present study considers Spanish *no* in contexts where it competes with negative affixes such as Spanish *des-* 'dis-' or *in-* 'in-/un-'. In the descriptive literature *no* has likewise been classified as a prefix in some of its uses. The terms affix and prefix shall therefore briefly be discussed here. By affix, I refer to an element that is functional rather than lexical, and that is bound rather than

free. Following Haspelmath (2021), a third criterion could be added, that of being restricted to a specific class of roots. Let us briefly consider the first two criteria, ignoring the third. With respect to the dichotomy between lexical and functional morphemes (Lyons 1968: 435–438), negation in general and Spanish *no* more particularly appear as a prototypical instance of a functional element. On the semantic side, *no* has a grammatical function rather than a denotation; it is an operator that (at least in some cases) reverses the truth value of its complement. On the formal side, in most, if not all, languages negation is expressed by only a small and closed set of negative exponents (Zeijlstra 2007).

With respect to the second criterion, matters are more complex. A bound element can be defined as an element that is in some way prosodically integrated into the phonological domain of the host to which it is attached. Relevant phonological domains for the definition of boundedness are, e.g., domains of phonological processes such as stress assignment or featural harmony processes (Hildebrandt 2014). A (language-specifically defined) domain onto which various such processes converge is the phonological word (Dixon & Aikhenvald 2020). In Spanish, the phonological word is the domain of stress assignment (Harris 1983), and thus in Spanish the bound nature of a formative is dependent upon whether it is part of this domain – in which case it is bound – or not. In contrast to an affix, a free form is one which is not prosodically integrated into some prosodic host; it forms a separate phonological word. Between affix and free forms there is a third category of clitic. Clitics are forms which are phonologically dependent on a host, e.g. with respect to segmental processes such as vowel deletion or consonant insertion, without being part of the host's domain of stress assignment.

As to Spanish, many suffixes are clearly bound, as they interact with stress assignment. They can be the locus of primary word stress, (6b), or have a prestressing effect, (6c).

(6) a. Base   'género   'gender'
     b. Stress on suffix   gener-ic-i'dad 'property of being generic'
     c. Prestressing suffix ge'nér-ico   'generic'

Spanish prefixes, in contrast, do not tend to have any effect on stress assignment to their base. Based on this observation and on observations about the syllabification of prefixed words, it has been argued that at least some prefixes in Spanish (Elordieta 2014) and other Romance languages (Peperkamp 1995; Nespor & Vogel 2007: 125) lie outside of the phonological domain of the root they precede. Yet it is also clear that with respect to phonological integration not all prefixes pattern alike. First, some Spanish prefixes are phonologically integrated with their bases (RAE-ASALE 2009a: §10.3c). This is the case for the Spanish negative affix *in-* 'un-, in-', which surfaces in different phonological forms, reflected in different orthographic representations, depending on the onset segment of the base, (7).

(7) a. dependiente – independiente   'dependent – independent'
     b. legal – ilegal   'legal – illegal'
     c. real – irreal   'real – unreal'

Other Spanish prefixes, in contrast, are less phonologically coherent. To give an example, the prefix *sub-* 'under' forms its own syllabification domain (RAE-ASALE 2009a: §1.7a), as in (8), blocking resyllabification, and more precisely onset maximization, across the boundary between prefix and root.

(8) subrayar 'underline' [suβ.rraˈɟar], not [su.βraˈɟar]

Spanish *no*, however, shows no phonological integration with a following element. In descriptions of Spanish word structure, a third category of "separable prefixes" has been postulated, and Spanish *no* is sometimes included in this class (Rainer 1993: 350; Montero Curiel 1999; Varela Ortega & Martín García 1999; RAE-ASALE 2009b: § 48.2p; Gibert-Sotelo 2021). Under the term "separable prefix", the *Nueva gramática de la lengua española* (RAE-ASALE 2009a: § 10.2f) mentions forms like *ex* 'ex', *pro* 'pro', *sin* 'without', *medio* 'half' or *cuasi/casi* 'almost' (cf. also Felíu Arquiola 2018; 2019), (9).

(9) RAE-ASALE (2009a: §10.2f)
     a. comité   [pro derechos humanos]
         committee   pro   rights   human
         'human rights committee'

     b. se   [medio inundó]   el   centro
         REFL   half   flooded.3SG.PRF the   centre
         'the centre was half-flooded'

As evident from (9), separable prefixes can be orthographically separated from their base by a space; occasionally they are hyphenated, or written together with the base (RAE-ASALE 2009a: § 10.3i). *no*, in contrast, is always separated by a space. Some separable prefixes are formally identical to adverbs (*casi/cuasi* 'almost') or prepositions (*sin* 'without'), others occur exclusively to the left of a lexical head (*ex-* 'ex', *pro* 'pro'). In this study, I use the term modifier of X°, and more particularly modifier of N°, rather than "separable prefix", see Section 7.2. Note that in contrast to adverbs, preverbal separable prefixes, i.e., modifiers of V°, as in (9b), occur closer to a verbal root than preverbal clitic pronouns. Since here I focus on *no* preceding nouns (and adjectives), this criterion is not applicable.

While the *Nueva gramática de la lengua española* is not explicit with respect to the precise distributional criteria relevant for the distinction between separable prefixes and other prefixes, the possibility of being stranded in ellipsis in coordination structures appears to be one criterion; for a discussion of this and other relevant criteria cf. Felíu Arquiola (2018; 2019). As shown

by Felíu Arquiola (2018; 2019), Spanish separable prefixes can occur as stranded elements in constructions with ellipsis under coordination, in which case the prefixal element bears contrastive stress, (10). Other Spanish prefixes, in contrast, cannot surface as remnants in ellipsis under coordination, (11).

(10)   Felíu Arquiola (2019: 24)
   a.   pre- __ y postelectorales
        'pre-and postelectoral'

   b.   endo- __ y exocentricidad
        'endo- and exocentricity'

(11)   deshacer y rehacer
        'undo and redo'
      *des- __ y rehacer

I will not expand further on this, but it should have become clear that if the definition of affixes as bound elements is to be maintained, Spanish "separable prefixes" cannot be affixes. Furthermore, certain other prefixes, such as *sub-* 'under-', (8), or *post-* 'post', (10a), are likewise not affixes in this sense, as they are not prosodically bound (cf. Fábregas & Krämer 2020 for a critical discussion of the concept of prefix in prosodic and structural respects). In Spanish, at least two types of 'prefixal' formatives need to be distinguished, contrasting with respect to the phonological integration with their base. As shown below, Spanish *no* preceding nouns patterns with certain "separable prefixes" like *sin* 'without' or *ex* 'ex': Like these, it functions as a modifier of a word, i.e., of an N°. Clearly, the precise phonological and morphological properties of different classes of Spanish prefix-like elements remain to be studied more in detail, which goes beyond the scope of this article.

2.3 The typology of negation constructions

As shown in (1) to (4) above, negative markers can differ in their scope as well as in their form. The element over which a negative marker has scope can be smaller or larger, stretching from lexical roots, (2), to finite projections, (1). As to form, different types of formatives are attested in the languages of the world: In Spanish, besides the free form *no*, (1), one finds affixes such as *des-*, (2). In languages like Turkish, negative affixes attach to the verb and have scope over the entire sentence, (12).

(12)   *Turkish* (Miestamo 2017: 420)
        gel-me-yecek
        come-NEG-FUT
        'he/she/it will not come'

In the research literature, types of negation have been described by different terminologies with varying denotations, including terms like "sentential negation" (Jackendoff 1969 and much subsequent work), "syntactic negation" (Dahl 1979), "lexical negation" (e.g., Andreou 2015). In the typological literature the terms "morphological negation" and "affixal negation" are often used to refer to morphologically dependent negative markers (i.e., affixes) that have scope over the finite verb (e.g., Dahl 2010), (12). Other researchers use "morphological" and "affixal" negation (e.g., Zimmer 1964; Gyurko 1971; Joshi 2020) as synonymous with "derivational negation" (Miestamo 2017: 427), exemplified by Spanish prefixal negation as in in (2) above.

Given the inconsistent use of the terms morphological negation and affixal negation in the research literature, this study tries to avoid them and employs the terms syntactic negation and lexical negation. Both will be used as mainly descriptive concepts, denoting two categories which are based on (partly overlapping) properties – to be studied here for Spanish *no* – and thus not strictly distinct. In what follows, the term syntactic negation is used to refer to instances of clausal or sentential negation (Miestamo 2017), in which the negative expression has scope over the sentence, as in (1) or (12) above, as well as to instances of constituent negation (Klima 1964), where negation has scope over a maximal projection such as an AP, as in (21a) below, or a DP or PP; following the terminology in Bond (2023). The term lexical negation, in contrast, is used to refer to expressions in which negation has scope over a word, such as *no* in (4b) above, or over a part of a word, cf. (2) above or (17) below, as in the case of Spanish prefixes like *des-* or *in-* or English *un-*.

The point of departure of the present study is the observation that Spanish *no* occurs in instances of syntactic negation as well as of lexical negation. Unlike Spanish, English does not allow this syncretism; cf. De Clercq (2020: 35) on English *not* vs. *non-*. In English, one exponent of syntactic negation is *not*, whereas one exponent of lexical negation is *non-*, separated from its base by a hyphen.

As shown by De Clercq (2020), who develops a systematic typology of the expression of negation that goes beyond the dichotomy between syntactic and lexical negation, languages differ as to whether they use the same or different negative markers to lexicalize instances of syntactic and lexical negation. De Clercq (2020) distinguishes four types of negating structures, which are all verbalized differently in English, i.e., by the negative markers *n't, not, non-* and *un-/in-/dis-*, respectively (De Clercq 2020: 59). Adopting a typological approach, De Clercq shows different patterns of syncretism that languages present in the lexicalization of the four types of negation structures, but Spanish is not part of the sample considered by that study.

The analysis presented here is compatible with the fourfold typology of De Clerq (cf. De Clercq 2020, Chapter 3), who distinguishes between T^{Neg}-markers (English *n't*), corresponding roughly to what is termed sentential negation here, Foc^{Neg}-markers (English *not*), corresponding roughly to what is considered here as (certain kinds of) constituent negation, $Class^{Neg}$-markers (English

non-), taking scope over a classifier phrase, and Q^(Neg)-markers (English prefixes *un-* and *dis-*), taking scope over a projection that hosts quantifiers, where the latter two types correspond roughly to what is termed lexical negation here. I will not dive into de Clercq's precise characterization of Class^(Neg)-markers and Q^(Neg)-markers, but rather focus on the descriptive question of whether Spanish *no*, besides expressing constituent negation with nouns and adjectives (thus functioning as a Foc^(Neg)-marker), can express lexical negation of the two types corresponding to, on the one hand, the English affix *non-*, a Class^(Neg)-marker in De Clercq's typology, and, on the other hand, to Spanish affixes like *des-* and *in-*, which arguably correspond to Q^(Neg)-markers in that typology; cf. Fábregas (2023: 53) for a more nuanced view with respect to Spanish *in-*.

3 Interpretations of negative expressions

In propositional logic negation is sometimes represented by a single, unitary negation operator ¬, signifying that when p is true, its negation ¬p is false, and when p is false, its negation ¬p is true, (13). Hence, ¬p and p stand in a relation of contradiction. Instances of sentential negation often have, in this sense, a contradictory interpretation.

(13) Juan no es fumador. ↔ ¬ [Juan es fumador.]
      Juan NEG is smoker   Juan is smoker
      'Juan is not a smoker.'   'Juan is a smoker.'

The semantics of negation in natural languages is, however, far more complex and requires a more finely differentiated terminology. According to Aristotle's theory of categories (Horn 1989: 6–7; 2005), four types of opposition in a broad sense can be distinguished: (i) contradiction, (ii) contrariety, (iii) privation, (iv) correlation or converse antonymy. Correlation or converse antonymy (e.g., *sell* and *buy*) is not relevant to Spanish *no*, thus not further considered here. With respect to negative prefixes like English *anti-* (e.g., *anti-war*) *or counter-* (e.g., *counter-coloured*), a fifth category, that of opposition, might be added, but this is likewise irrelevant to the semantics of Spanish *no*. In the following paragraphs, I will briefly discuss the first three types.

Contradiction is the prototypical meaning of sentential negation. If contradictory negation is applied to an expression of type t that has a truth value, the negative operator reverses that truth value, (13). In the case of predicates, however, if a base and its antonym stand in a relation of contradiction, they denote opposite extremes of a scale denoted by that predicate, ignoring any intermediate range between the two extremes. Thus, from the negation of the base follows that its opposite holds, and vice versa, (14–15).

(14) even ↔ odd

(15) Five is not an even number. ↔ Five is an odd number.

Contradictory negation is often found with non-gradable adjectives and their antonyms, i.e., with adjectives that do not accept degree modifiers such as *very ADJ* and do not occur in comparative constructions such as *less ADJ than,* (14a). It is also found in verbs, (14b) and (15), and – as shown below – in cases of negation with *no* preceding nouns.

In contrariety, a base and its antonym denote – again – two opposite extremes of a scale, but these are not complementary, i.e., the negation of one expression does not imply that its antonym holds true, (16). In other words, there is an intermediate range between the two extremes in which neither the one nor the other extreme applies.

(16)   The smell is neither pleasant nor unpleasant.

Contrary negation is found frequently with gradable adjectives and their antonyms, sometimes derived in Spanish by negative affixes like *des-* 'dis-' or *in-* 'in-, un-', (17).

(17)   feliz 'happy' ↔ in-feliz 'unhappy'
         honesto 'honest' ↔ des-honesto 'dishonest'
         seguro 'secure' ↔ in-seguro 'insecure'

Given that the connection between gradability of adjectives (and deadjectival nouns) on the one hand and complementary and contrary negation on the other will recur in subsequent paragraphs, a note on the semantics of gradable and non-gradable adjectives is in order here. I assume that gradability is a distributional feature defined with respect to the compatibility with degree modifiers and comparative constructions. The terms scalar and non-scalar adjectives, in contrast, are defined with respect to semantics. More precisely, following Kennedy (2007) and other studies (Rotstein & Winter 2004; Kennedy & McNally 2005), it is assumed here that scalar adjectives, such as *tall*, map their argument onto a scale consisting of a set of degrees which are ordered according to some dimension, such as height. Since the property referred to by a scalar adjective is such that it holds to a given degree, the adjective is (typically) compatible with degree modifiers (*A is very tall*) and can occur in comparatives (*A is taller than B*) – hence, it is gradable. With respect to negation, the relation between two scalar adjectival antonyms (e.g., *tall* and *short*) – referring to the opposite ends of the same scale (e.g., height) constituted by the ordered set of degrees referred to by these antonyms – is one of contrary, not contradictory, antonymy, for the following reason: If a given property (such as tallness) does not hold to the maximal degree relative to a given individual, it can still hold to a less than maximal degree and it therefore does not follow that it holds to the minimal degree, (16b) above. Non-scalar adjectives, in contrast, are semantically diverse, but they are (typically) not gradable because they do not refer to a set of ordered degrees, i.e., a scale. Given their non-scalar semantics, they stand in a relation of contradictory rather than of contrary antonymy, as contrariety may be said to presuppose a scale with intermediate values between the two opposite extremes.

In the case of privative negation, the positive member of the pair of antonyms denotes an object or property whose absence is expressed by the negative member of the pair, (18). Privative negation can be lexicalized by negative affixes of nominal or adjectival bases.

(18)   color 'color' – in-coloro, des-colorido, a-cromático 'colorless'
         vergüenza 'shame' – sin-vergüenza, des-vergonzado 'shameless'

In summary, contradiction is the typical interpretation of sentential negation, i.e., syntactic negation, while contrariety is commonly observed with derived or underived gradable adjectives, i.e., with lexical negation. Privative negation is encountered in cases involving affixal negation, especially with nominal bases (Horn & Wansing 2022), i.e., again with lexical negation.

4 *no* preceding adjectives

This section examines *no* preceding adjectives, asking whether – from a semantic perspective – such cases look like instances of constituent negation, i.e., syntactic negation, or whether they should be considered differently. In many of the examples considered below the corresponding English expression of negation is prefixal *non-*, rather than *not*. Yet, as shown below, occurrences of *no* preceding adjectives qualify as instances of constituent, hence 'syntactic', negation.

4.1 *no* with intersective adjectives

A common case of negation with *no* preceding adjectives is that of contradictory negation. This can be illustrated particularly clearly with adjectives that express class membership, i.e., adjectives that have an intersective interpretation, (19).

(19)   a.   un artista no   británico
             an artist NEG British
             'a non-British artist'

        b.   la   mejor película de habla   no   inglesa
             the   best film   of language NEG English
             'the best non-English language film'

Here, the negated adjective restricts the denotation of the nominal predicate: A negated adjective predicated over a noun specifies the intersection of the sets of referents that fall under the nominal and that do not also fall under the adjectival terms.

Among the intersective adjectives that are attested with *no* in the corpus (*esTenTen11*, see Section 1) are many derived adjectives, (20). Denominal adjectives such as *anual* 'yearly' express set membership with respect to a set determined (in some way) by the meaning of the base noun *año* 'year', and their negation express non-membership in that set.

(20) a. de forma mensual y no   anual
          of form monthly and NEG yearly
          'on a monthly and not annual basis'

      b. un sistema de comunicación alfabético o no   alfabético
          a   system of communication alphabetic or NEG alphabetic
          'an alphabetical or non-alphabetical communication system'

Deverbal adjectives with a passive interpretation are derived by the suffix *-able/-ible*, (21a), or from past participles, (21b). Since the interpretation of such derived adjectives is – in the aspects relevant here – identical to that of a finite verb, negation with *no* has, much like sentential negation taking scope over the finite verb, a contradictory interpretation, (21a'–21b'). The same holds for deverbal adjectives in *-ivo* with an active dispositional meaning, as in (21c–21c').

(21) a. esta creación no   controlable por la parte consciente
          this creation NEG controllable by the conscious part
          'this creation not controllable by the conscious part'
          [782748427]

      a'. esta creación no puede ser controlada por la parte consciente
          'this creation cannot be controlled by the conscious part'

      b. otro fenómeno   no   contemplado por la ciencia
          other phenomenon NEG contemplated by the science
          'another phenomenon not contemplated by science'
          [281735]

      b.' ese fenómeno no es contemplado por la ciencia
          'this phenomenon is not contemplated by science'

      c. un método no   invasivo
          a   method NEG invasive
          'a non-invasive method'
          [9367881]

      c'. este método no invade el tubo digestivo
          'this method does not invade the digestive tract'
          [3735880228]

4.2 *no* with qualifying adjectives

Most occurrences of *no* preceding attributive adjectives are with relational adjectives, as illustrated in the preceding section. With qualifying and scalar adjectives such as *bueno* 'good', *malo* 'bad', *bello* 'beautiful', *feo* 'ugly', negation with *no* is little used in the *esTenTen11* corpus. In the few relevant cases, the positive and the negated adjectives are contradictory, not contrary

antonyms. To give an example, in (22a) the phrase *metales no preciosos* denotes the set of metals that do not fall within the range of the predicate *metales preciosos*, i.e., those metals that are not precious metals in the technical sense. While the adjective *precioso* 'valuable' is scalar in some of its readings, cf. (22b), in which *precioso* refers to a scale of (beach) quality, and more particularly to a very high value on such a scale, the only sense attested in the corpus with the negated form *no precioso* appears to be the technical sense, referring to metals that are highly resistant to chemical influences, such as gold or palladium. The negated adjective term *no precioso* 'not precious' thus is genuinely intersective, referring to a technically defined class of metals.

(22) a. el cobre es el metal no precioso
DET copper is DET metal NEG precious
'copper is the non-precious metal'
que da una mayor conductividad eléctrica
'that gives the highest electrical conductivity'
[7683991931]

b. una de las playas más preciosas de España
one of the beaches most precious of Spain
'one of the most precious beaches in Spain'
[5906608]

Other examples for *no* preceding relevant adjectives are given in (23). In both examples, the reading of the negated adjective appears to be intersective rather than genuinely qualifying, expressing non-membership in the set referred to by the adjective: In (23a), *una zona no buena* 'a not good area' refers to an area which does not belong to the set of good neighbourhoods, while (23b) states that the set of places in Costa Rica which do not also belong to the set of beautiful places is very small.

(23) a. en una zona no buena de Manhattan
in a area NEG good of Manhattan
'in a not good part of Manhattan'
[esTenTen18, 534034447]

b. Hay pocos lugares no bellos en Costa Rica.
have.3SG few places NEG beautiful in Costa Rica
'There are few places in Costa Rica that are not beautiful.'
[esTenTen18, 7361377913]

A similar observation is made for English *non-* by Lieber (2004: 121), and French *non-* by Dugas (2017: Chapter 2); both elements tend to have contradictory readings, as opposed to the prefix *in-* with adjectives. Fábregas (2023) points out that Spanish *in-*, in contrast to *no*, combines only

with gradable adjectives. English *non-*, tending towards a contradictory reading, contrasts with English *un-*, which does not show such a preference (Jespersen 1917; Horn 2005).

In the few cases in which *no* precedes adjectives with a genuinely qualifying semantics, the interpretation is one of contrariety (cf. also Varela Ortega & Martín García 1999: 5021), (24), implying neither one nor the other extreme of the scale denoted by a pair of adjectives holds true.

(24)   un recuerdo no   bueno, no   malo
      a   memory NEG good   NEG bad
      'a memory not good, not bad'
      [esTenTen18, 1032844705]

4.3 Summary

On the semantic side, adjectives negated by *no* commonly exhibit contradictory negation, whereas a contrary interpretation is seldom attested, aligning with the interpretation found for sentential, i.e., syntactic, negation; cf. De Clercq (2020: 54–56) for English *not, non-* and *un-*. On the syntactic side, there is likewise no reason to consider *no* preceding adjectives as different from constituent negation. Regarding its syntactic placement within the adjective phrase, *no* has the same distribution as other (negative) adverbs and quantifiers, as in (25).

(25)   cosas {también + hoy + muy + más + menos + súmamente + poco + no}
      importantes
      things {also + today + very + more + less + highly + little + NEG} important
      '{also + today + very + more + less + highly + not very + un-} important things'

In sum, *no* preceding adjectives can be analyzed as a negative adverb, both with respect to its interpretation and its distribution. In the following discussion, Spanish *no* preceding adjectives will thus play only a minor role.

5 *no* preceding nouns

In occurrences of *no* preceding nouns a larger array of interpretations is attested than for *no* preceding adjectives. The majority of relevant occurrences are with derived nouns (Gibert-Sotelo 2021: 245) in the *spTenTen11* corpus. Few non-derived abstract or – even fewer – concrete nouns combine with *no*. Note that here we are concerned exclusively with occurrences of *no* adjacent to the noun, where a determiner precedes *no*. Occurrences of *no* preceding indefinite noun phrases in the plural, which in Spanish lack an overt determiner, are not considered.

5.1 Nouns with intersective interpretation

Expressions with *no* preceding a noun often have an intersective interpretation, in which *no* expresses contradiction, (26), similar to sentential negation or negation of adjectival constituents.

(26) Los no   miembros   pueden ... participar en las reuniones.
     the NEG members   can ... participate in the meetings
     'Non-members may ... participate in the meetings.'
     [137255183]

(26) is an instance of contradiction: The negated noun and its base stand in a relation of complementary antonymy, in that an object either is a member of an association or is a member of the disjoint set of non-members. Other nouns with a contradictory interpretation under negation are nouns – often deadjectival – denoting membership in a group, such as a nation or religion (e.g., *los no católicos* 'the non-catholics', *los no indígenas* 'the non-indigenous') or function (*los no propietarios* 'the non-owners', *los no huéspedes* 'the non-guests'). In a study on French, Dugas (2014) therefore calls this type 'complementary negation', and Andreou (2017) subsumes the corresponding English forms under the term 'general negative reading'.

Other nouns for which an intersective interpretation is commonly observed are deverbal agent nouns, (27). Deverbal agent nouns, like deverbal adjectives, are similar to verbs in those respects which are relevant to the interpretation of negation. In (27), the deverbal agent noun *fumador* 'smoker', derived from the base verb *fumar* 'smoke', refers to the set of entities with respect to which a proposition 'x smokes' containing the base verb either holds ('those who smoke') or does not hold true ('those who do not smoke'). The interpretation of the noun can, just like that of the verb, either be episodic or dispositional.

(27) ¡Fumadores, respeten a   los no   fumadores!
     smokers   respect PREP the NEG smokers
     'Smokers, respect the non-smokers!'
     [1069501415]

5.2 Deverbal event nouns

Non-intersective nouns that combine freely with *no* can be classified into three types: first, derived nouns with event interpretation, discussed in this section, second, derived nouns that denote states or properties, and third, nouns referring to concrete or abstract objects; see the next two sections. The corpus contains many occurrences of derived nouns with an event interpretation, (28–29).

(28) la condena de Hernández fue el resultado de
     'Hernandez's conviction was the result of'
     la no   revelación   por parte del gobierno   de importantes evidencias
     the NEG disclosure   by the government   of important evidences
     'the non-disclosure by the government of important evidence'
     [1320268685]

(29) el   no   cumplimiento de estas normas   podrá suponer
      the   NEG   compliance   of these rules   can.FUT result.in
      'the non-compliance with these rules may result in'
      la expulsión de la concentración por parte del comité organizador
      'the expulsion from the group by the organizing committee'
      [549350337]

In these examples, the NP containing the negated noun refers to a situation in which an event of the kind denoted by the base does not occur. The DP may have episodic reference, as in (28), where it refers to the fact that the government did not disclose important evidence, or it may be non-episodic, as in (29), where it refers generically to a set of situations which is not instantiated (here, a potential occurrence of an event of someone not complying with the rules). A similar interpretation of *no* is found with nominalized infinitives, (30).

(30) es importante el   no   generalizar
      is important   the NEG   generalize.INF
      'it is important not to generalize'
      [15601944828]

I will not address the question of how to formally account for the interpretation of negation with event-denoting expressions; cf. Fábregas & González Rodríguez (2020) for a recent proposal. What is relevant here is that, in the case of *no* preceding deverbal nouns with eventive reading, negation has scope over the predication – which in sentential negation corresponds to a finite verb; whereas in the above examples it is lexicalized by a nominalization – and the interpretation is one of contradiction, (31).

(31) a.   uno de los objetivos primordiales será ...   el no [$_N$ cese] de la actividad.
           'One of the main objectives will be ...   the non-cessation of the activity.'
           [1204413401]
      a'. ...   que la actividad no [$_V$ cese]
           ...   that the activity do not stop'

Should *no* preceding deverbal nominalizations thus be classified as contradictory negation, just like sentential negation, as proposed by Varela Ortega et al. (1999: 5021), or is it of a different nature? In work on the French negative prefix *non*, corresponding in some respects to the Spanish form *no* under consideration here, Dugas (2014; 2017) refers to this interpretation of non-occurrence as the 'ontological' reading, in which case the negated form denotes the non-occurrence of the denoted event or absence of an entity (Dugas 2017: 112). This interpretation is in line with the proposal made by Fábregas & González Rodríguez (2020), who claim that expressions interpreted as an event that does not occur refer to inhibited eventualities. According

to Dugas, this interpretation is different from that of prototypical sentential negation, which is contradictory, and comparable to a reading of non-existence (hence, "ontological" negation), absence or privation, which I consider in the following section.

5.3 Derived nouns that denote a state or property

When *no* precedes a derived – deverbal or deadjectival – noun that denotes a state or property, the interpretation is that of a situation in which the state or property does not hold. In the corpus, *no* occurs frequently with derived nouns ending in *-ancia/-encia*, (32), derived from stative verbs and adjectives (RAE-ASALE 2009a: §5.11a), and *-idad/-edad*, (33), derived from adjectives (RAE-ASALE 2009a: §6.1a).

(32)   la asistencia es obligatoria
        'attendance is mandatory'
        la   no   asistencia   imposibilita   el aprobar   el curso
        the NEG attendance   makes.impossible   the pass.INF the course
        'non-attendance makes it impossible to pass the course'
        [65828887]

(33)   podemos confirmar la   no   necesidad de formación didáctica
        can.1PL confirm   the NEG   necessity   of didactic training
        'we can confirm the non-necessariness of didactic training'
        [931745210]

In these examples, the negated noun *no asistencia* 'non-attendance' denotes the absence of the state of attendance on the part of the participants in the course, and the negated noun *no necesidad* 'non-necessariness' denotes the absence of the property of being necessary with respect to didactic training. Thus, the interpretation is one of privation, denoting a condition of something lacking a state or property. For such expressions the term 'ontological reading', i.e., a reading of negation that relates to the existence of an entity – which is negated – as introduced by Dugas (2017: 112), appears indeed appropriate. Even clearer cases of a privative reading can be seen in combinations of *no* with concrete or abstract non-derived nouns, as shown in the following section.

5.4 Nouns referring to concrete or abstract objects

In the corpus under study here, *no* appears in few examples with object-denoting nouns. Expressions of this kind often have a rhetorical effect and a particular stylistic markedness. In most cases the interpretation is privative: The object denoted by the noun is absent. An example is given in (34), where the apposition of *no lugar* 'non-space' and *falta de lugar* 'lack of a space' clearly suggests that the intended interpretation is privative.

(34)   el espejo caracteriza la falta de lugar,   el   no   lugar   físico
                                                    the NEG   space   physical
       'the mirror characterises the lack of space, the physical non-space'
       [12613562039]

The occurrence of *no* with abstract nouns like *espacio* 'space' or *tiempo* 'time' is much more frequent than with concrete nouns. Space or time are attributes that are inherent to many things, which makes it easy to assign a privative interpretation to the combination of such nouns with *no*, as in (35).

(35)   describe   ese no   tiempo y   ese no   espacio que   es   el   infierno
       describe.3SG this NEG time   and this NEG space   which be.3SG the hell
       'he/she describes that non-time and non-space that is hell'
       [361705846]

The presence of most concrete objects, in contrast, is accidental: They can be present or absent, hence the marked effect which arises if such nouns are combined with *no*. Two examples are given in (36–37). Again, what is denoted by the negated noun appears absent, despite being expected by convention to be present.

(36)   el   no   make up
       the NEG   make up
       'the non-make-up'
       que busca un maquillaje que casi ni se note
       'which looks for a make up that is almost unnoticeable'
       [9624756350]

(37)   Steve Jobs ...   ha   hecho de la   no   corbata
       Steve Jobs ...   has made   of the NEG   tie
       'Steve Jobs ...   has made not wearing a tie'
       uno de los preceptos más importantes de una religión
       'one of the most important precepts of a religion'
       [51824986]

These examples are similar to a famous example discussed by Horn (2005), "un-hit of the week" (Horn 2005: 340), referring to a situation in which a hit almost happens; it is expected to occur, but then does not. According to Horn, an "unX is not structurally a member of the category X, but it shares a significant functional status with Xs" (Horn 2005: 340).

5.5 Stereotype negation

In the literature on lexical negation in English, and more recently in French, another interpretation is discussed, illustrated with an English example in (38).

(38) Andreou (2017: 4)
      people who are writing what I term 'coffee-break books,' simpleminded nonbooks that
      they turn out in short order

Andreou (2017) labels this interpretation as "stereotype negation", a term credited to work by Bauer & Lieber & Plag (2013). In stereotype negation, the referent of the negated noun lacks some of the qualities which stereotypical referents of that noun usually have (Andreou 2017: 1). The term "stereotype" is used here in the sense of Putnam (1975: 150) as the "idea of the characteristics of a normal member of the kind" denoted by a term. This idea is not new, though. Horn (2005: 343), in his analysis of the 1970s *Seven Up Uncola* advertising campaign, describes this reading as referring to "a bad example of the category, lacking a functionally significant property" of the referents of the base noun. As to French, this reading is also mentioned by Dugas (2015), (39).

(39) *French* (Dugas 2015: 63)
      Jean-Pierre Pernod est un non journaliste, dans un non journal.
      'Jean-Pierre Pernod is a non-journalist, in a non-journal.'

In Spanish, this qualifying interpretation appears marginal at best with *no* and is not easy to find in the corpus. To be sure, it is not possible to gain negative evidence from a corpus study, but it is however notable that the Spanish negated noun *no cola*, in some respects comparable to the English expression *uncola* cited by Horn as an example for this reading, is indeed attested a couple of times in the *spTenTen11* corpus, but not with an interpretation of stereotype negation, but with an intersective interpretation, expressing non-membership in the class of colas, (40), i.e., with a contradictory interpretation.

(40) las bebidas carbonatadas tradicionales como las colas y las no colas
      'traditional carbonated soft drinks such as colas and non-colas'
      [9115685044]

According to (40), the class of carbonated soft drinks consists of two subclasses: the class of colas and the class of those drinks which are not colas. The expression *no cola* presupposes the class of colas in some way as the stereotypical exemplar of the class in its entirety, since all other exemplars are referred to as those which are not instances of the stereotype. However, the negative connotation found with English or French negated nouns, as in (38–39), appears to be absent here.

Rare are examples in which a negative connotation is clearly visible, and where the interpretation seems to be that of a bad example of a category, (41–43).

(41)   El nuevo hombre es todo menos hombre.
       'The new man is anything but a man.'
       Es   un inhumano: el   no   hombre nuevo.
       be.3SG a inhuman   the NEG man   new
       'He is an inhuman: the new non-man.'
       [12882220823]

(42)   No es novedad que, a la cabeza del componente arqueológico del FONSAL, en Quito
       'It is not new that, at the head of the archaeological component of FONSAL in Quito'
       esté   un no   arqueólogo   metropolitano
       be.3SG.SBJV a NEG archaeologist metropolitan
       'there is a metropolitan non-archaeologist'
       [14698786095]

(43)   estoy   viviendo una no   vida
       be.1SG living   a   NEG life
       'I am living a non-life'
       [1478353182]

One can only speculate why the interpretation of stereotype negation appears to be less frequently attested with Spanish *no* than with English and French *non-*. If we take it that syntax is the realm of compositional semantics, while non-transparent or context-dependent meanings are found more often for lexical items than for syntactic phrases – possibly because shorter expressions have a higher probability of acquiring some sort of stable mental representation, i.e., of being stored –, this fact may indeed be taken as an indication that Spanish *no*, even when occurring within the noun phrase, is more closely tied to syntactic negation than its French and English prefixal counterpart *non-*.

5.6 Summary

The preceding discussion has shown that negation of nouns with intersective meaning tends to be contradictory, expressing that the referent of the DP is not a member of the set denoted by the noun. Conversely, when dealing with nouns referring to events, states, properties, or objects, the interpretation leans towards privation: the denoted eventuality, property, or object is absent, or its existence is negated. Lastly, stereotype negation – a non-compositional and non-transparent kind of interpretation – is relatively rare, though attested in Spanish. Assuming that contradiction is the interpretation of sentential negation, whereas privation is more characteristic of lexical negation (Horn & Wansing 2022), Spanish *no* preceding nouns shares semantic similarities with syntactic negation, since a contradictory interpretation predominates in these contexts. Yet, as it entails a sense of privation in many other cases, it also shares similarities with lexical negation.

6 *No* preceding nouns as a building block of words and phrases

The preceding discussion has demonstrated that with some nouns Spanish *no* exhibits semantic similarities to negative prefixes, aligning with lexical negation. Should *no* preceding nouns thus be considered a building block of words, similar to negative prefixes like Spanish *in-* or *des-?* This is a choice that descriptive approaches to Spanish morphology have made: The *Nueva gramática de la lengua española* (RAE-ASALE 2009b: § 48.2p) considers *no* a "separable prefix", see Section 2.2, in line with other studies (Rainer 1993: 350; Montero Curiel 1999; Varela Ortega & Martín García 1999; Gibert-Sotelo 2021), along with forms like *ex* 'ex', *pro* 'pro', *sin* 'without', *medio* 'half' or *cuasi/casi* 'almost' and others, (44)

(44) RAE-ASALE (2009a: §10.2f)
   a. su [ex marido]
      'their ex-husband'

   b. con [sin   igual] entusiasmo
      with without equal enthusiams
      'with unequalled enthusiasm'

   c. la   [casi   totalidad] de este material
      the almost totality   of this material
      'almost all of this material'

As argued in Section 2.2, the status of Spanish "separable prefixes" and other prefixes more generally, with respect to a definition of affix as a bound element, is not settled yet. In the following, distributional evidence for the status of Spanish *no* preceding nouns as a building block words or phrases will therefore be weighed.

6.1 Spanish *no* as a building block of words

Let us first consider the position of *no* with respect to "separable prefixes", termed modifiers of N° here (Section 2.2). In general, prepositional N° modifiers like *sin* 'without' or *pro* 'pro' tend to be closer to the base than adverbial N° modifiers, such as *casi/cuasi* 'almost' (Varela Ortega & Martín García 1999: 5005), but sequences of two adjacent adverbial N° modifiers are attested in Spanish (Varela Ortega & Martín García 1999: 5005). Two relevant forms which are listed in the *Diccionario de la lengua española* (Real Academia Española 2014) as "prefixes" are *ex* ('ex') and *cuasi* ('almost'), and expressions in which they precede *no* are sporadically attested in the *esTenTen11* corpus, (45–46). More occurrences were found with *cuasi* than *ex* preceding *no*, despite the latter having a higher absolute number of occurrences.

(45) la libertad de expresion que fomentan
      'the freedom of expression they encourage'
      con la cuasi no censura   a nuestros locos comentarios
      with the almost NEG censorship of our crazy comments
      'with the quasi non-censorship of our crazy comments'
      [4440908646]

(46) Claro que hay gurues y gurús.
      'Of course there are gurus and gurus.'
      Hay   ex gurús conversos
      have.3SG ex gurus converted
      'There are ex-gurus converts'

      y   hay   ex no   gurus convertidos en gurus.
      and have.3SG ex NEG gurus turned into gurus
      'and there are ex-non-gurus turned gurus.'
      [4437819908]

With respect to its distribution, *no* thus appears to pattern with other modifiers of N°, many of which – but not all – are homonymous with adverbs or prepositions. In the same position certain other adverbs can occur, such as *también* 'also', *entonces* 'then' and a few others, (47). According to the *Nueva gramática de la lengua española* (RAE-ASALE 2009b: § 13.8i), even certain morphologically derived adverbs like *actualmente* 'currently' are acceptable in this position, at least with a small class of rôle-denoting nouns like *presidenta* 'president'.

(47) la   {también + ahora + todavía + aún}   presidenta del partido
      the {also + now + still + still}   president of the party
      'the person who is {also + currently + still + still} president of the party'

Let us briefly note that *no* can also occur internal to sequences that are considered compounds by some scholars, such as [N N] expressions, which have compound status according to Varela Ortega (2012), (48), or [N *de* N] expressions, treated as compounds by Kornfeld (2011), (49). In (48), the non-head nouns have an intersective reading and the reading of *no* is that of contradiction. The structure in (49), a type which is often found with eventive nouns, in contrast, has a reading of non-occurrence, which above was classified as privation.

(48) [N *no* N]
      a. cáncer no   melanoma
          cancer NEG melanoma
          'non-melanoma cancer'

b. hora no pico
   hour NEG peak
   'off-peak time'

(49)   [N *de no* N]

a. pacto de no agresión
   pact of NEG agression
   'non-aggression pact'

b. política de no proliferación
   policy of NEG proliferation
   'non-proliferation policy'

In this respect, the distribution of *no* is again the same as that of other modifiers, as shown in (50–51).

(50)   [N *ex/anti* N]

a. el jugador ex estrella
   the player ex star
   'the ex star player'

b. un control anti drogas
   a control anti drugs
   'an anti-drug control'

(51)   [N *de sin/cuasi* N]

a. una sensación de sin sentido
   a feeling of without meaning
   'a feeling of meaninglessness'

b. la experiencia de cuasi muerte
   the experience of nearly death
   'the near-death experience'

Finally, in some expressions *no* and the base noun form a unit which, as a whole, serves as the semantic base for suffixation (RAE-ASALE 2009b: § 48.2s), (52). In other words, the derivational suffix that is attached to the word that follows *no* has scope over the complex expression built by *no* and the root, as in (52b) and as in the English gloss of (52a), rather than the other way around, as in (52c).

(52)   a. Muchos apoyaron las campañas no intervencionistas del gobierno.
       'Many supported the government's non-interventionist campaigns.'

b. *no* is in the scope of the suffix
   campaña [[no intervencion]-ista]
   'campaign against the intervention'

    c.   *no* has scope over the suffix
       campaña [no [intervencion-ista]]
       'campaign that does not intervene'

Hence, as the data in this section show, *no* can be closer to a base than a "separable prefix" or N° modifier, it can occur within compound words and it can be in the scope of a derivational affix, indicating that *no* interacts with other building blocks of words.

6.2 The interaction with negative polarity items

At the same time, even when *no* occurs as what can arguably be considered a building block of words, it also interacts with phrasal syntax, as is visible in the fact that *it* can license negative polarity items (NPI). In this respect, *no* contrasts with Spanish negative prefixes, (53).

(53)   RAE-ASALE (2009b: § 48.2t)
    a. la   no   asistencia a ningún acto   público
       the NEG attendance to any   event public
       'the non-attendance at any public event'

    b. *la in-asistencia   a ningún acto   público
       the NEG-attendance to any   event public
       'the non-attendance at any public event'

As pointed out for English by Williams (2007: 19), negative elements which are parts of words, such as *un-* in *unhappy*, have scope over their hosts as well as over constituents that are part of the argument structure of their host, while negative elements which are parts of constituents larger than a word, such as sentential negation, can have scope over larger stretches of a sentence. In (53), the NPI *ningún* occurs in a constituent which is an argument of the noun *asistencia*, and hence *no* adheres to Williams' constraint on the scope of negative elements that are parts of words. More interesting with respect to the question of whether *no* is a building block of words or of phrases are therefore structures in which the NPI is not contained in the argument structure of the host of *no*. Such expressions can indeed be found in the corpus, (54–55).

(54)   el objetivo era difundir
       'the aim was to disseminate'
       el mensaje de la no   violencia contra las mujeres en ninguna de sus
       the message of the NEG violence against the women in any   of its
       manifestaciones
       manifestations
       'the message of non-violence against women in any of its manifestations'
       [7814171858]

(55)   Perú también se une en noviembre de 2012 a
       'Peru also joins in November 2012 to'

       la   no   comercialización bajo ninguna circunstancia de producto con
       the   NEG commercialisation under any   circumstance of product with
       Bisfenol-A
       Bisfenol-A
       'the non-commercialisation of products with Bisphenol-A under any circumstances'
       [*esTenTen* 2018, 9736618686]

In (54), the PP containing the NPI *en ningua de sus manifestaciones* is (arguably) not an argument of the negated noun, but an adjunct to that noun, (55 has a similar structure). While further and more systematic research appears to be called for on negative concord with different types of negative prefixes and prefix-like elements, in Spanish it seems clear that *no* contrasts with negative prefixes in this respect. Crucially, Spanish *no* can license NPIs within a larger syntactic domain than negative prefixes, with its scope extending beyond the arguments of its host.

6.3 Semantic transparency and compositionality

In studies on the demarcation between morphology and syntax, certain differences between the objects of morphology and of syntax have been claimed to exist: Syntactic constructions tend to be semantically transparent and their semantics tends to be compositional, in contrast to the objects of morphology, i.e., complex words, which are said to be sometimes semantically intransparent and tend to have a non-compositional semantic interpretation (cf. Haspelmath 2011: 35–36; Siddiqi 2014 for overviews on previous studies on the topic). To be sure, this does not mean that all objects of morphology are listed and no object of syntax is listed (Williams & Sciullo 1987). In the literature on negation in English or other languages, it has likewise been claimed that sentential negation shows greater semantic transparency than affixal negation (e.g., Horn 1989: 280; Varela Ortega & Martín García 1999: 5021; De Clercq 2020: 52). This is illustrated for Spanish in (56).

(56) a. ordenado 'ordered'   no ordenado 'not ordered'   des-ordenado 'messy'
      b. humano 'human'   no humano 'not human'   in-humano 'atrocious'
      c. mortal 'deadly'   no mortal 'not deadly'   in-mortal 'immortal'

As argued in Section 4, the interpretation of *no* preceding adjectives is contradictory, and only in few cases – if at all – is it one of contrariety; other interpretations of negation seem unattested with adjectives. Accordingly, *no* with adjectives in (56a–b) tends towards compositional, contradictory interpretations, in contrast to the forms with negative prefixes in (56a–b). Likewise, under negation with *no*, all readings of the base tend to be preserved, while under

affixal negation certain readings of the base may be unavailable, (56c). Under negation by *no* the base *mortal* continues to allow both of its readings, as *no mortal* can mean both 'not mortal, not destined to die' and 'not deadly, not having the potential to cause dead', but under negation by *in-* as in *inmortal,* only the first meaning is available.

It should however be noted that the domains of *in-* and *no* are complementary, as *in-* attaches only to adjectival bases that denote a scale (Fábregas 2023), in contrast to *no*, which occurs more often with relational adjectives than with gradable adjectives (Section 4). This fact alone may explain, at least to some extent, the differences in semantic transparency found for the two types of negative expressions.

Section 5 has shown that the interpretation of *no* preceding nouns is often contradictory, but it can also be privative. In this respect, *no* competes with *des-*, which – when combined with a nominal base – can likewise have a privative interpretation. As shown by (57), the degree of semantic transparency is comparable for both types of expression.

(57) a. ese des-control, esa ausencia de censura
           this dis-control this absence of censorship
           'this lack of control, this absence of censorship'
           [4401642229]

      b. ese no   control y   aquella anarquía implícita
          this NEG control and that   anarchy   implicit
          'this non-control and that implicit anarchy'
          [2636535024]

Hence, with respect to semantic compositionality, a certain contrast between negative prefixes on the one hand and constituent and sentential negation on the other hand, with *no* preceding nouns somewhere in between, appears to be discernible, but this contrast might be an epiphenomenon of other factors (such as the specific semantic constraints imposed by prefixes like *in-* and *des-* on their bases) rather than being indicative of a clear difference between lexical and syntactic negation.

6.4 Summary

In summary, Spanish *no* preceding nouns exhibits semantic differences from other negative prefixes such as *des-* or *in-*, so that expressions with *no* tend to be semantically more transparent than expressions containing negative prefixes. Likewise, *no* can occur closer to the base than "separable prefixes", within what may be construed as complex words, and *no* is found internal to compound words. Furthermore, *no* sometimes belongs semantically closer to the root than a derivational suffix. At the same time, the interaction between negation and negative polarity items extends over a larger domain of the phrase for *no* than for negative prefixes. Spanish *no*

preceding nouns thus demonstrates properties characteristic of both building blocks of words and building blocks of phrases.

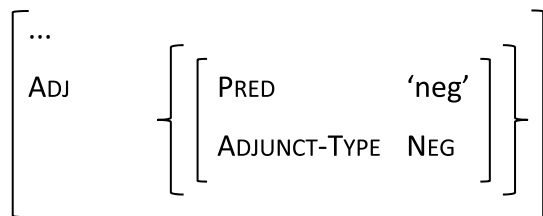# 7 Analysis in the framework of Lexical–Realizational Functional Grammar

This section aims at developing a formal analysis of the distribution of Spanish *no*, described in previous sections, in the framework of Lexical-Realizational Functional Grammar (LRFG).

7.1 The representation of negation in functional structure

Lexical-Functional Grammar approaches to the representation of negation in f-structure are, according to Przepiórkowski & Patejuk (2015), of two types: Negation can be represented by means of a feature NEG of the ADJ(unct) function (e.g., Laczkó 2014; 2015; 2021; Dalrymple et al. 2019: 68; Bögel & Raach 2020), or by means of a binary feature such as ±NEG(ation) or ±POL(arity) (e.g., Przepiórkowski & Patejuk 2015; Bond 2016). Under the first option, the occurrence of more than one instance of negation with different scopal properties within a phrase can better be accounted for, whereas the second option is better suited for analyzing phenomena of negative concord and of negation expressed by non-concatenative means such as tone (Bond 2023).

Negative prefixes in general as well as negation in Spanish have so far not been analyzed in the framework of LFG or LRFG. In what follows, I sketch a preliminary analysis of Spanish *no* preceding nouns and adjectives; negative prefixes like *des-* or *in-* are not considered in detail. Since Spanish *no* can co-occur with negative prefixes, giving rise to multiple instances of negation in a phrase, *no* seems best represented in f-structure as a feature NEG(ATION) of the function ADJ(UNCT), corresponding to a constituent which is an adjunct to another head or phrase, (58).

(58)   f-description corresponding to Spanish *no*

$$
\begin{bmatrix}
\dots & \\
\text{ADJ} & \left\{ \begin{bmatrix} \text{PRED} & \text{'neg'} \\ \text{ADJUNCT-TYPE} & \text{NEG} \end{bmatrix} \right\}
\end{bmatrix}
$$

The meaning of *no*, represented here – for the sake of simplicity – as the PRED feature of the f-description in (45), is that of negation, with the value 'neg'. Its precise interpretation is computed on the level of semantic structure with reference to other f-structure constituents. Thus, the

f-description in (58) holds for all instances of negation considered here, regardless of the formal expression by *no* or by negative prefixes like *in-* 'in-, un-' or *des-* 'dis-'. A partial lexical entry for Spanish *no*, without any distributional information, though, is given in (59), corresponding to the f-description in (58) above.

(59)   Partial lexical entry for Spanish *no*
       no   (↑ PRED) = 'neg'
              (↓ ADJTYPE) = NEG

What (59) means is that Spanish *no* spells out the semantic PRED feature 'neg', which on the level of semantic structure (s-structure) corresponds to the operator of negation. Its precise interpretation is computed in s-structure, not in c-structure or f-structure, depending, among other factors, on the semantic type of its complement, which can be, e.g., an eventuality, a scalar property, or an entity. Whether negation in a phrase containing *no* is interpreted as contradictory, contrary or privative is thus a matter for semantics. This analytical choice obviates the assumption of different c-structure or f-structure representations for different interpretations of negation. I postulate but a single representation of Spanish *no* in vocabulary structure, in contrast to De Clercq (2020), who assumes different interpretations for different positions of negation in constituent structure. The next two sections discuss how to represent the distribution of *no*.

7.2 Constituent structure

Previous sections have shown that *no* preceding adjectives has a distribution which is similar to that of an adverb, (25). The distribution of *no* preceding nouns, in contrast, is different from that of most adverbs, but analogous to "separable prefixes", termed N° modifiers here. As noted in (47) above, in the same position a small number of adverbs can likewise occur. A description of the distribution of *no* thus requires (at least) two different c-structure rules, one in which *no* is – like most other adverbs – adjoined to a maximal projection, and another one in which it is – like "separable prefixes" – adjoined to a lexical head.

Complex expressions of the first type, in which *no* is adjoined to a maximal projection over which it has scope, as in instances of constituent negation, such as (60c), can be generated by the (annotated) c-structure rule in (60a), corresponding to a c-structure tree as exemplified in (60b). The annotation ↓∈(↑ADJ) expresses that the constituent of type ADV (referred to by "↓") has the function of an adjunct of the node to which it is adjoined; this adjunct is part of ("∈") the set of adjuncts of the nodes by which the node in question ("↓") is dominated (referred to by "↑"), and XP (here: AP) is the head (hence the annotation "↑=↓") of the complex expression containing the ADV adjunct.

(60) a. XP → ADV   XP
                 ↓∈(↑ ADJ) ↑=↓

b.

```
          XP
         /  \
      ADV    XP
       |      |
  ↓∈(↑ADJ)  ↑=↓
```

c. (forma) [no [simétrica]$_{AP}$]$_{AP}$
    (form)   NEG symmetric
    'non-symmetric (form)'

The c-structure rule in (60a) is a general rule introducing adverbial adjuncts. For the second type of structure considered here, in which *no* immediately precedes a noun, a different c-structure rule is required. Note that this is also a rule needed on independent grounds, as the same kind of rule will generate structures containing "separable prefixes", such as *cuasi* 'almost', and adverbs immediately preceding a function noun within the DP, as in (47) above. The relevant c-structure rule is given in (61a), corresponding to the c-structure tree in (61b). This rule generates expressions with *no*, "separable prefixes" and adverbs like *también* 'also' preceding a noun. The symbol 'X' stands for the category of these three types of expressions.

(61) a. N° → X   N°
                 ↓∈(↑ ADJ)   ↑=↓

b.

```
          N°
         /  \
       X     N°
       |      |
  ↓∈(↑ADJ)  ↑=↓
```

Let us term the category of formatives like *cuasi* or *ex*, 'modifier of N°' rather than "separable prefix", as proposed in Section 2.2. Like *no*, they function as adjuncts. With respect to f-structure, let us further assume that the function of *cuasi* 'almost' is that of a quantificational N° modifier, denoted here by the abbreviation QUANT, while *ex* 'ex' is a temporal N° modifier, referred to here by the type TEMP in the (partial) lexical entries given in (62a). *cuasi* or *ex*, expressing functions like QUANT or TEMP, are thus analyzed as modifiers that are adjoined to words, i.e., to constituents of the category N°, by the c-structure rule in (62b), which is the revised version of (61a) above.

(62)   a.   Partial lexical entries for some Spanish modifiers of N°

        cuasi   N°-Mod   (↑ Pred) = 'cuasi'
                                  (↓ AdjType) = Quant
        ex   N°-Mod   (↑ Pred) = 'ex'
                                    (↓ AdjType) = Temp

      b.   c- structure rule for Spanish modifiers of N° (revised version of 61a)

        N° → N°-Mod   N°
                  ↓∈(↑ Adj)   ↑=↓

Since there is no evidence that elements like *cuasi*, *ex* or *no* change the morphosyntactic features of the expression with which they combine, we can assume here that they are adjoined to words rather than to roots. In this respect, they contrast with certain other Spanish prefixes, such as Spanish *sobre-* 'over' in *sobre-volar* 'to overfly', where the derived form differs from the base with respect to argument structure (Gibert-Sotelo 2021: 248). The analysis proposed here for *cuasi* and *ex* as modifiers of N° is in line with the approach to analyzing certain prefixes as adjuncts – but others as head or specifiers – developed by Fábregas & Krämer (Fábregas & Krämer 2020; Fábregas 2024), going back to ideas by Di Sciullo (2005); cf. also the discussion in Gibert-Sotelo (2021, §6). Spanish *no* preceding nouns can be analyzed in the same way: It is a modifier of N°.
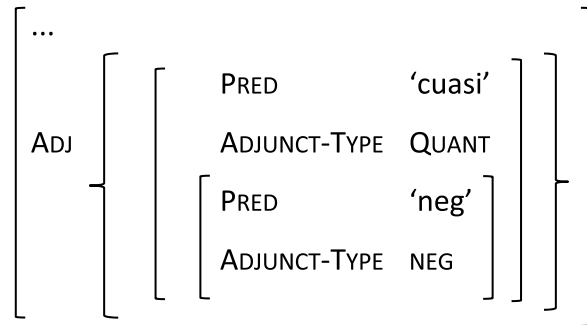
If formatives like *no*, *cuasi* or *ex* are adjuncts, they are expected to allow for iteration, restricted only by conditions on interpretation. An expression like *la cuasi no censura* 'the almost non-censorship' can thus be represented by the c-structure given in (63). Note that while Lexical-Functional Grammar subscribes to the basic tenets of X'-structure, admissible c-structures are less restricted than in certain other formalisms, allowing, e.g., immediate domination of X° by XP (cf., e.g., Dalrymple et al. 2019: 97–99 for discussion).

(63)   la cuasi no censura 'the almost non-censorship'
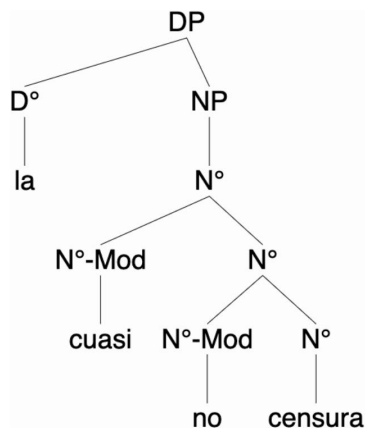
In (63) the Quant-modifier *cuasi* has scope over the Neg-modifier *no*, which is reflected in the relative embeddings in the (partial) f-description in (64).

(64)   Partial f-description for *cuasi no* 'nearly not'

$$
\begin{bmatrix}
\dots \\
\text{ADJ} \begin{bmatrix}
\begin{bmatrix}
\text{PRED} & \text{'cuasi'} \\
\text{ADJUNCT-TYPE} & \text{QUANT} \\
\begin{bmatrix}
\text{PRED} & \text{'neg'} \\
\text{ADJUNCT-TYPE} & \text{NEG}
\end{bmatrix}
\end{bmatrix}
\end{bmatrix}
\end{bmatrix}
$$

Note that the c-structure in (62b), adjoining the modifier to the lexical head, is also compatible with the observation that nouns modified by *no* can occur within compound structures, as in (48–49) above.

To summarize the discussion in this section, expressions containing Spanish *no* preceding phrases (syntactic negation) and expressions containing Spanish *no* preceding lexical heads (lexical negation), are generated by two different c-structure rules, given in (60a) and (62b), respectively. Both rules are required on independent grounds in the Spanish grammar, the first to account for modification of phrases by adjuncts like adverbs, the second to account for modification of N° by "separable prefixes" and a restricted set of adverbs, like *también* 'also' in (47).

7.3 Vocabulary structure

Is it possible to account for this bipartite distribution of Spanish *no* in instances of syntactic and lexical negation by postulating only a single lexical representation? This would require that *no* is assigned to a distributional category which allows insertion in both the rule in (60a), in which *no* functions as an adverb, i.e., as a building block of phrases, and (62b), in which *no* functions as a building block of complex words, classified as a prefix by some scholars, and termed 'modifier of N°' here.

Alternatively, two lexical entries could be assumed for *no*, one for *no* as an adverb – a building block of phrases – and one for *no* as a modifier of N° – a building block of words. It might then be said that the first element belongs to phrasal syntax, while the second pertains to word syntax or morphology. Both elements are homonymous, i.e., spelled out by the same form *no* in Spanish – in contrast to languages like French or English, where different forms are used. Two arguments can be put forward against such an approach: First, the contrast between *no*

and other negative prefixes with respect to negative concord, see Section 6.2, shows that a clear separation between *no* as a building block of words and of phrases is not appropriate. Second, the same question – one or two lexical entries – arises with respect to other modifiers of N° considered here, such as *cuasi* 'almost', but also for adverbs like *también* 'also' and others that can immediately precede a noun, (47). If two lexical entries are assumed for *no*, then one should also assume two representations for *cuasi* 'almost', *también* 'also' and many other formatives.

In what follows, another possibility is therefore explored, that of leaving the c-structure category of *no* unspecified. The claim made here is that a single lexical entry is sufficient to account for the bipartite distribution of *no*. The representation proposed for *no* in (59) above postulates that the Spanish lexicon contains a formative which is verbalized as *no*, expresses the negation operator and has the function of an adjunct of the type Neg. Crucially, in (59) no information on syntactic distribution is associated with this element.

But if there is no information on distribution contained in the lexical representation, how is it possible to prevent overgeneration, i.e., insertion of *no* in positions where it is not found in Spanish? Two aspects of the formalism adopted here, i.e., LRFG, are crucial for such an approach to be feasible: First, lexical insertion – conceived of as verbalization of a piece of structure and meaning – is constrained not only by distributional information, but also by information on the function and meaning of a vocabulary item, see Section 2.1. Second, if stored items with overlapping specifications compete for lexical insertion, the most specific item compatible with a given context is chosen (Asudeh et al. 2023: 32; Asudeh & Siddiqi 2023: 890), by a mechanism which is similar to DM's subset principle (Halle 1997; Embick & Noyer 2007: 298).

Let us first replace the lexical representation proposed for Spanish *no* in (59) above, given as a list of phonological and functional information, by a (partial) description of the exponence function ν (Asudeh et al. 2023) for Spanish negation, (65).

(65)   The exponence function ν
    a.   ⟨Distribution, Function/Meaning⟩ → exponent
    b.   ⟨ [(↓ AdjType) = Neg] ⟩ → *no*

(65) means that the exponendum ⟨ [(↓ AdjType) = Neg] ⟩, i.e., a (partial) functional description which contains an adjunct of the type Neg, is mapped onto the exponent *no*. To be sure, not all instances of negation are lexicalized by *no* in Spanish. As discussed in this article, alternative exponents are negative prefixes like *des-* 'dis-' or *in-* 'in-, un-' or the negative modifier *sin* 'without', as in (18) and (44b). Negative pronouns (*nadie* 'no one'), determiners (*ninguno* as in *ninguna cosa* 'no thing') or adverbs (*nunca* 'never') are to be mentioned, as well. In spelling out the exponendum in (65a), these forms are in competition with each other. The analysis proposed here rests on the intuition that *no* is the default expression for negation, used only if competing expressions are not compatible with a given context. LRFG provides a formal mechanism for representing this

intuition. More precisely, in LRFG, the mapping of an exponendum to an exponent is governed by two constraints: MostInformative and MostSpecific. For the phenomena under study here, the following informal characterizations of the two constraints shall be adopted; see Asudeh & Siddiqi (2023: 890) for a formal representation of MostInformative$_c$ and Asudeh et al. (2023: 32) for MostSpecific. From a set of competing vocabulary items, MostInformative$_c$ choses the item with the longest list of c-structure categories on the input side, i.e., the item that has the most restricted distribution. As to MostSpecific, it choses, again from a set of competing items, the item whose output vocabulary structure, or exponent, contains more features, meaning that, e.g., an exponent which contains more features has a more specific phonological or morphological structure or imposes more specific (e.g., phonological) conditions on its context of insertion than a competing exponent.

Assuming the exponence function for Spanish *no* in (65) above, it is easy to see that on the input side, the exponendum is maximally uninformative, lacking any distributional information, in contrast to, e.g., the negative prefix *in-* 'in-, un-', combining primarily with adjectival bases (Fábregas 2023) or *des-* 'dis-', preferring verbal bases (Gibert-Sotelo 2018). On the output side, the exponent *no* also carries fewer specifications than competing exponents, in that it does not show any kind of phonological or morphological alternation, in contrast to, e.g., the prefix *in-*, see (7) above. Furthermore, unlike negative affixes like *des-* and *in-*, *no* is not bound, so that the output side of its *v*-function does not contain any information about a host (in the morphological sense), in contrast to negative affixes which, being affixes, attach to a host of a specific kind, defined with respect to syntactic, semantic or prosodic features, where this information is represented by means of appropriate values for the attribute HOST represented in the output of the *v*-function corresponding to a given affix (cf. Asudeh et al. 2023 for details). Hence, MostSpecific will assure that *no* is inserted if and only if *in-* cannot be inserted – or, for that matter, any other negative exponent which is more specific than *no*.

A comprehensive analysis of all negative exponents of Spanish is beyond the scope of this study. It should nevertheless have become clear that exponents for negation competing with *no* have more restricted syntactic distributions (such as negative pronouns like *nadie* 'no one') or impose additional constraints on their host (such as negative affixes like *in-* 'in-, un-'). The exponent *no* is the default exponent of negation in Spanish, used only in contexts with which none of the more specific negative exponents is compatible. The distribution of *no* is not lexically specified, which is why it can be used in more than one context. In instances of syntactic negation, it patterns with adverbs, in instances of lexical negation, it patterns with other modifiers of N°, such as *ex* 'ex'.

8 Conclusion

The study described here has investigated the semantic and distributional features of the Spanish negative formative *no* in two different types of contexts: First, it was shown that negation of

adjectives with *no* is not different from other types of constituent negation. In contrast, in some occurrences of *no* negating nouns, *no* appears to be a building block of words, as in noun-noun compounds and in sequences with "separable prefixes", termed modifiers of N° here. While the interpretation of constituent negation tends to be contradictory, like that of sentential negation, occurrences of *no* negating nouns present a greater variety of readings, depending on whether the noun refers to an eventuality, to a quality or to an entity. The analysis is cast in Lexical-Realizational Functional Grammar, a hybrid theory combining insights from standard LFG and Distributed Morphology, which, due to a formal mechanism similar to DM's subset principle, makes it possible to account for the variable distribution and interpretation of *no* by means of a single representation in vocabulary structure. On the level of c-structure Spanish *no* functions as an adjunct to either a maximal projection or to a lexical head, thus forming complex phrases or complex words. When adjoined to a nominal lexical head, *no* patterns with other N° modifiers like *cuasi* 'almost' or *ex* 'ex'; when adjoined to a maximal projection, in contrast, it patterns with adverbs.

Abbreviations

1 = first person, 3 = third person, FUT = future, NEG = negation, REFL = reflexive, SG = singular, PRF = perfect, SBJV = subjunctive.

Acknowledgements

I would like to thank the anonymous reviewers for their helpful comments and suggestions. All errors are my own.

Competing interests

The author has no competing interests to declare.

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