

# Expletive Negation in English, French, and Mandarin: A Semantic and Language Production Model

Yanwei Jin • Jean-Pierre Koenig

**Abstract** Expletive negation has been documented in many languages, but what explains the similarities in the contexts where expletive negation occurs remains unclear. This paper examines the contexts where expletive negation is found in three languages, English, French, and Mandarin and shows that the contexts where expletive negation is found are the same. A semantic account of the cross-linguistic similarities in expletive negation triggers is provided and a language production mechanism that accounts for the occurrence of expletive negation is outlined: expletive negation arises when the activation of the negation of the trigger's argument proposition is strong enough to be lexicalized.

**Keywords** expletive negation · language production · French · Mandarin

Y. Jin, University at Buffalo, yanwei.ji@buffalo.edu

J.-P. Koenig, University at Buffalo, jpkoenig@buffalo.edu

In Christopher Pinon (Ed.), *Empirical Issues in Syntax and Semantics 12*, 157–186. Paris: CSSP.

<http://www.cssp.cnrs.fr/eiss12/>

© 2019 Yanwei Jin & Jean-Pierre Koenig

## 1 Introduction

Romance languages are famous for their use of what is called in the French linguistic tradition *expletive negation* (henceforth, EN), that is, grammatically licensed uses of a negative marker that does not contribute to the polarity of the proposition which contains it. EN is exemplified in the French sentence in (1) (abbreviations in all our examples follow the Leipzig glossing rules).

- (1) J'ai peur qu'il ne pleuve demain.  
 I.have fear that.it NEG rain.SBJV tomorrow  
 'I fear that it will rain tomorrow.'

Sentence (1) consists of a matrix clause and a complement clause. From a logical point of view, what is feared by the speaker is the proposition that it will rain tomorrow, despite the fact that it contains the negative marker *ne* in the complement clause. The optional presence of *ne* does not seem to matter: whether or not *ne* occurs in the complement clause, what is feared by the speaker is that it will rain tomorrow. *Ne* appears to be semantically empty, or at least not to change the polarity of the proposition denoted by the complement clause. EN is attested in other Romance languages (e.g., Del Prete 2008 on Italian, Dindelegan 2013 on Romanian, Espinal 1992 on Spanish and Catalan, Vázquez Molina 2006 on Spanish, Italian and Portuguese) as well as non-Romance languages (e.g., Rubinstein, Sichel & Tsirkin-Sadan 2015 on Hebrew, Inkova 2006 on Russian). A cursory look at the literature suggests many similarities in the contexts where EN occurs. For instance, the predicate FEAR illustrated in (1) (we use small capitals for semantic predicates denoted by words or collocations) triggers EN in many languages, including languages that do not belong to the Indo-European language family (e.g., Shupamem, Niger-Congo, Nchare 2012; Daakaka, Austronesian, von Prince 2012; Basque, Etxepare 2003).

Despite EN uses having been documented in many languages, what explains similarities in the contexts where EN occurs has not received much attention. The French linguistic tradition has provided a near-exhaustive list of contexts where EN occurs in modern and classical French (see Muller 1991 among others) and has provided several semantic accounts of these contexts of occurrence (see Martin 1984 or Muller 2001, among others). But it remains unclear whether the analysis of EN they provide is French-specific. This is particularly so as French is rather unique in having a distinct form for EN, *ne*, rather than the standard negation (*ne*)...*pas* (although *pas* also has EN uses, see Larrivée 1996, and the overwhelming use of *ne* (rather than *pas*) to mark EN is most likely an instance of blocking). In fact, the special form EN typically takes in French may have obscured some cross-linguistic (and possibly universal) tendencies in both the

contexts where EN occurs and the semantic causes of its occurrence.

This paper has two goals: first, establish that the range of contexts where EN is found in French is not unique to French; second, provide an account of the cross-linguistic similarity of EN-triggering contexts. Because of space considerations, we complement existing French data with data from only Mandarin and English, but research we have independently done on Arabic and Zarma-Sorai and consultation of work on dozens of languages suggest our conclusions extend far beyond these three languages. The similarities in the contexts of occurrence of EN across the languages we have looked at suggest that a semantic licensing of EN, as proposed in Martin 1984 or Muller 1991 for French, is on the right track. We propose a model of EN that expands on their work and combines a language production model and a semantic approach to EN whereby triggers are characterized by the fact that they entail that the argumentation proposition and its dual are evoked by the meaning of EN-triggers.

## 2 Definition and Previous Studies of Expletive Negation

Many linguists use the term *expletive negation* to cover all cases where the presence of a negative marker does not change the polarity of the proposition that contains it (see, among others, Abels 2005, Espinal 2000, Harves 2002, Makri 2013, Portner & Zanuttini 2000, Yoon 2011). Such a view of expletive negation covers biased and rhetorical questions, negative concord, exclamatives, concessives, and polite requests. The definition of EN we assume in this paper covers a more restricted, but semantically more coherent subset of those contexts, namely, contexts where the occurrence of the semantically redundant negation is triggered by the lexical meaning of an operator. Consider (1) again: if we substitute *hais* '(I) hate' for *ai peur* '(I) fear', EN cannot occur. EN in (1) thus seems licensed by the meaning of the collocation *avoir peur*, an hypothesis we pursue in this paper. More specifically, we use the term *expletive negation* to refer to the occurrence of a logically vacuous negative marker that is licensed by the meaning of a verb (or verbal collocation), an adposition, or an adverb that take

a proposition as semantic argument. It is because of the “negative” meaning of triggers, we argue, that a redundant EN marker occurs. We will speak of a triggering (propositional) operator and an argument proposition and will refer to the argument proposition and its dual as  $p$  and  $\neg p$ , respectively. The argument proposition might be syntactically expressed as a non-reduced finite clause, an infinitival clause, a nominalized clause, or a participial clause. (Note that our use of the term *expletive negation* accords with the traditional definition of EN by French grammarians; see Grevisse 1936.)

There are two major approaches to EN in the literature: one focuses on the formal representation of EN at the syntax-semantics interface while the other focuses on what licenses EN. Some authors (e.g., Espinal 1992, van der Wouden 1994) claim that EN is semantically vacuous and explain the occurrence of EN from the fact that certain syntactic structures have negative implicatures (EN is similar in this respect to negative polarity items or negative concord). Other authors (e.g., Abels 2005, Zvoko Dinković & Ilc 2017) treat EN as a real negation but assume it occurs in some unusual clausal position. These authors argue that having EN high up in a syntactic tree also licenses other types of negation, for example, the so-called genitive of negation in Slavic languages. In contrast to these two kinds of syntactic approaches to EN, some authors have focused on the meaning of EN-triggers and try to explain why their meaning leads to the occurrence of EN. Yoon (2011) argues that the occurrence of EN depends on the mood of the embedded proposition while Makri (2013) argues that EN is only licensed in tensed clauses. (A detailed critique of these last two approaches can be found in Zvoko Dinković & Ilc 2017.) Whatever putative pros and cons the approaches we just alluded to may have, they cover only a subset of the possible EN-triggers. In this paper, we discuss triggers not mentioned in any of the extant literature and are hard for them to explain, for example, FORGET. The predicate FORGET can regularly trigger EN in Mandarin and sometimes in French and English (see sections 4 and 5). Since FORGET does not include mood or tense specifications in its comple-

ment clause and is not an NPI or negative concord trigger either, it is hard to see how previous analyses could account for the EN-licensing ability of FORGET.

Muller (1991) provides one of the most comprehensive accounts of EN in French. He argues that French EN-triggers are what he calls *opérateurs négatifs inverses*. These triggers have positive semantic cores but can nevertheless be paraphrased with a dependent negation, that is, we have the equivalence  $X = Y$  (NEG) or  $X$  can be paraphrased “de façon naturelle par  $Y$  (NEG).” For instance, the EN-trigger *craindre* ‘fear’ is not a negative verb and does not mean ‘not wish’ but can be paraphrased as ‘wish (that) NEG.’ Likewise, *déconseiller* ‘advise against’ can be paraphrased as ‘advise (that) NEG.’ According to Muller, all of the French EN-triggers can be paraphrased in a similar manner. It is the negation that can appear in the paraphrase of the lexical trigger (itself motivated by the trigger’s meaning) that surfaces in the complement clause.

We agree with Muller’s intuition that the key to explaining the occurrence of EN lies in the meaning of triggers (which Muller’s *négatif inverse* paraphrases is based on). But there are a few difficulties with Muller’s approach. First, Muller’s approach fails to pay attention to the modality of complement clauses. Some languages (i.e., Mandarin, Zarma-Sorai) employ different expletive negative markers when different triggers are used. Overlooking the modality of the complement clauses caused, we think, the extant literature to fail to realize that French predicates like REGRET or COMPLAIN can trigger EN (see section 4). Second, for several triggers there is no strict equivalence between  $X$  and  $Y$  (NEG). Muller in those cases uses the symbol  $\simeq$ . But what does this near semantic equivalence amount to? The weaker notion of lexical entailment (or strong invited inference) of  $\neg p$  in a restricted set of worlds or temporal intervals, as we argue below, is the answer. Finally, Muller’s approach is incomplete as it does not explain why EN occurs, why it occurs in very similar contexts in languages that do not use a special negative marker to express EN, or why it is rather rare for a language to have as

broad a range of (grammatically licensed) EN-triggers as French. A semantic account of EN is not enough, as it would predict identical EN uses across languages. This is why our model of EN combines a semantic analysis with a language production model and a distinction between grammatically licensed EN uses and other EN uses. These additions, we believe, explain both the similarity of triggers and differences in grammaticalization of EN across languages.

### 3 A Near-Exhaustive List of EN-Triggers in French and Mandarin

In the current linguistic literature, only a few studies have tried to present a list of EN-triggering contexts from several languages (e.g., Zvoko Dinković & Ilc 2017 on Slavic languages, Makri 2013 on Hebrew, Greek, Romance, and Slavic languages, Vázquez Molina 2006 on Romance languages, Yoon 2011 on Japanese, Korean, Romance and Slavic languages) or within a single non-Romance language (e.g., Rubinstein, Sichel & Tsirkin-Sadan 2015 on Hebrew, Inkova 2006 on Russian). In order to have a better understanding of the range of EN-triggers and to determine whether the range of triggers found in French is idiosyncratic or may have a deeper semantic explanation, we conducted a near-exhaustive investigation of EN-triggering contexts in several languages, Arabic, French, Mandarin, and Zarma-Sorai. We focus on French and Mandarin in this paper.

Aside from space considerations, the rationale behind our choice of French and Mandarin is that EN has already received quite a bit of attention in both languages. French EN has been studied for a long time and there is a vast literature (e.g., Damourette & Pichon 1911, Le Bidois & Le Bidois 1935, Gaatone 1971, Grevisse 1936). Furthermore, several monographs on French negation (e.g., Muller 1991, Larrivée 2004, Vázquez Molina 2006) have been published which not only provide a comprehensive list of EN-triggers but also provide a historical context for the use of EN. Because of this extensive previous work, we already have a near-exhaustive list of EN-triggers in French that provides a point of comparison. Within Chinese lin-

guistics, researchers have started to notice the existence of EN since the publication of Zhu's (1959) paper on the EN-trigger *chà-diǎnr* ('almost, miss a bit'), which is the most frequently cited EN-trigger in the English literature. Over the ensuing years, scholars have discussed more and more triggers. For instance, Lü (1980/1985) showed that *yǐqián* 'before', *xiǎoxīn* 'watch out', and *nánmiǎn* 'inevitable' trigger EN; Zhang (2004) showed that *hòuhuǐ* 'regret' and *zébèi* 'blame' also trigger EN. In the last ten years, Jiang (2008), Yuan (2012), and a few Master's/Ph.D. theses (Cao 2007, Song 2012, Wang 2008, Wang 2012) discuss various kinds of redundant negations in Mandarin including what we call EN in this paper. For the purposes of the research we report on, we added to all the triggers listed in previous studies verbs retrieved from the Mandarin Verbal Usage Dictionary that we found in corpora to license EN. Our study almost doubles the list of Mandarin EN-triggers and suggests that the contexts that trigger EN in Mandarin are basically the same as those found in French.

## 4 Our Account of EN

We detail in this section the three components of our account of EN. The first component is concerned with the mechanism responsible for the occurrence of EN. Properties of language production explain, we believe, why on certain occasions EN occurs. Simply put, EN-triggers semantically entail (or strongly imply) the negation of their argument proposition and it is this inference that explains the occurrence of EN. According to Dell's (1986) spreading-activation theory of production, what is entailed or can be inferred from the meaning of a sentence may be activated during speech-production planning and lead to speech errors that lexicalize what is being entailed or inferred. The following quote summarizes the critical component of this model for our purposes:

[...] in the planning of an utterance many concepts would legitimately become activated that would not actually appear in the utterance. This background activation might include activation from concepts that were either presuppositions or infer-

ences that were necessary in the semantic and pragmatic planning of the utterance. (Dell 1986:290–291)

The particulars of Dell’s model or the many competing models proposed since are not critical. What matters is the idea that semantic features associated with inferences from what is said can interfere with the planning of an utterance and lead speakers to produce something different from what they intended. We suggest that something like what Dell is proposing is the mechanism that underlies the production of EN: a speaker intends to say  $p$ , but because  $\neg p$  is strongly activated by the meaning of a trigger,  $\neg p$  is produced. Furthermore, because  $p$  and  $\neg p$  are typically entailed (but relative to distinct sets of worlds or time intervals, see below) by the meaning of EN-triggers, the likelihood of occurrence of EN is higher than for other kinds of inferences. It is because the production of EN is more frequent than typical speech errors that EN may become grammatical in some languages. Note that Dell’s model accounts for the fact that, although the overwhelming majority of triggers entail  $\neg p$  (in a restricted set of worlds or time intervals), that proposition seems only strongly implied by a couple of triggers (see the next section for details).

Second, we distinguish between what we call *highly entrenched* EN uses (in the sense of Langacker 1987, i.e., EN uses which have become “virtually automatic” through repetition) and *low-entrenchment* EN uses. Previous discussions of EN have focused on “standard” language uses. This is particularly true of the discussion of French *ne* and the contexts where it can and cannot occur. This is also true of the absence of EN in English reference grammars or of the mention of EN examples in Horn 2010. But to get to what causes the occurrence of EN, it is critical, we believe, to realize that EN occurs quite often in non-standard language uses and in a wider set of contexts than grammarians recognize. This is particularly true in English, as we discuss in section 5: there are attested examples of EN in English corpora in all the contexts where it occurs in French or Mandarin.



But, it is also true in French: EN is said not to occur in some of the contexts where we found it to occur despite the fact that attested examples can be found in French corpora. To give an example, both Martin (1984) and Muller (1991) state that EN cannot occur in the complement clause of the verb *regretter*. But, as (2) shows, EN *does* occur in this context, although it is relatively rare and thus has a low degree of entrenchment in Langacker's (1987) sense. We call the use of EN in (2) *low-entrenchment* EN.

- (2) Je regrette qu'il **ne** faille souvent attendre des  
 I regret that.it NEG should.SBJV often wait INDEF.PL  
 années avant que l'histoire **ne** juge les tyrans.  
 years before that DEF.history NEG judge.SBJV the tyrants  
 'I regret that it should often take years before history judges tyrants.'  
 (<https://tinyurl.com/2m9r6l>, accessed on 2018-05-05, article from  
 2017-12-12)

The reason it is important to consider both highly entrenched and low-entrenchment EN when investigating the semantic conditions under which EN occurs is that what may look idiosyncratic if one only considers a language's highly entrenched EN uses may not look so when both highly entrenched and low-entrenchment EN are examined. When talking about cross-linguistic tendencies in the semantic licensing of EN we thus must be careful to distinguish between highly entrenched EN and EN *simpliciter*, as more general cross-linguistic tendencies emerge when both kinds of EN uses are included. There seem to be many more idiosyncrasies in the relative entrenchment of EN-triggers than in the occurrence of EN. As an anonymous reviewer points out, our distinction between highly entrenched and low-entrenchment EN raises important issues about the gradient nature of grammaticality and is reminiscent of the work of Lau et al. (2017). We cannot discuss the issue in detail in this paper. Suffice it to say that we view EN in the complement clause of a trigger as starting out as a speech error that may become a more stable property of native speakers' internal grammars in some languages for some

triggers. The language production component of our model of EN explains why such speech errors occur with some frequency across languages. But, as of now, we have nothing of interest to say about why this stabilization (entrenchment) is higher in some languages than others.

The third, semantic, component of our account is inspired by Heim's (1992) work on the semantics of attitude verbs (based on Hintikka 1969 and Kratzer 1981). Simply put, the meaning of attitude verbs entails that their propositional argument is true in a particular set of worlds (e.g., for *believe*, the set of worlds compatible with the attitude holder's beliefs). The semantic part of our model of EN makes precise the notion of *négatif inverse* paraphrase or near paraphrase discussed in Muller 1991 or the possible worlds approach of Martin 1984 and extends its coverage to the EN-triggers found in Mandarin but not in standard French. We argue that all the contexts that license EN obey one of the following four necessary conditions. We do not attempt to subsume these four conditions under a single condition, as the sentence-production cause of EN means there is no a priori reason to expect triggers to obey a single semantic condition, aside from the fact that the meaning of all EN triggers must entail or strongly imply a negative proposition. (3) should thus be seen as mere generalizations over individual triggers, not as necessary or sufficient licensing conditions in the traditional sense: it is the meaning of each individual trigger that activates the dual of its argument proposition and the production of EN.

- (3) a. **Propositional attitude and speech report triggers:** An operator can trigger the occurrence of an expletive negation in its argument proposition if its meaning entails (or strongly implies) the existence of two distinct propositions of the form  $Op_1(p)$  and  $Op_2(\neg p)$ , where  $p$  and  $\neg p$  are true in different sets of worlds, as determined by the meaning of  $Op_1$  and  $Op_2$ .
- b. **Temporal operators triggers:** A temporal operator of the form  $Op_1(q, p)$  can trigger the occurrence of an expletive negation in its argument proposition if its meaning entails (or strongly implies)

that  $\neg p$  is true at reference time.

- c. **Logical operators triggers:** A modal operator (*impossible*) or propositional functor (*unless*) that includes in its meaning  $\neg$  can trigger the occurrence of an expletive negation in its argument proposition.
- d. **Comparative triggers:** An operator can trigger the occurrence of an expletive negation in its argument proposition if its meaning entails the existence of two propositions of the form  $Q(Y, D)$  and  $\neg Q(Y, D')$  ( $Y$  possesses property  $Q$  to degree  $D$  and  $D'$  respectively).

We detail how these four generalizations apply to individual triggers in the next section and merely illustrate the first generalization here. French *avoir peur* 'be afraid' in (1) is a propositional attitude trigger that entails both the positive proposition that it will rain tomorrow, which is true in all possible worlds consistent with the speaker's fears ( $Op_1$ ), and the negative proposition that it will not rain, which is true in all worlds consistent with the speaker's desires or hopes ( $Op_2$ ).

To summarize, our hypothesis is that EN arises when the meaning of an operator leads to the strong activation of both  $p$  (the operator's argument proposition) and its dual  $\neg p$  (this formulation must be altered for the complement of comparatives, see (3d)). The strong activation of both propositions stems from the fact that the meaning of triggering operators entails (or strongly imply), to take (3a) as an example, both  $Op_1(p)$  and  $Op_2(\neg p)$ . The semantically conditioned activation of  $\neg p$  alongside  $p$  is what sometimes leads speakers to produce a logically vacuous negation.

Our model predicts that even in those languages where EN has not been claimed to exist, it can still occur in the form of the unintended expression of an entailed negation during the process of language planning. It also predicts that the meaning of EN-triggers need not be the sole cause of the occurrence of EN, since there can be multiple factors that influence the activation of  $\neg p$ . For example, as is well-known in the French literature, some triggers must be

negated or questioned for an EN to occur; as we suggest somewhat speculatively in section 7, the occurrence of a negation (or a question) in the matrix clause may boost the activation of  $\neg p$  and thus increase the likelihood of the expression of  $\neg p$ . Similarly, since degree of activation is a continuous measure, some triggers might be stronger than others, potentially explaining differences in triggering potential across languages or among triggers with somewhat similar meanings within a language. Although we will not have much to say about this issue in this paper, our model has the ability to account for the graded aspects of EN occurrence.

Finally, a consequence of our three-pronged model of EN is that we need to distinguish between a universal component and a language-specific component of EN. The universal component is the fact that, in the planning of an utterance, if the semantically conditioned activation of  $\neg p$  is sufficiently strong (for a certain trigger), EN may be selected when the speaker lexicalizes her message. The language-specific component is the degree of entrenchment or grammaticalization of EN after some triggers. The universal potential for the occurrence of EN is caused by the meaning of the triggering contexts and general planning processes of speech production. As long as both  $\neg p$  and  $p$  are evoked by a context, EN should be attested (modulo syntactic idiosyncrasies, for example, the syntactic expression of the operator's argument). But how frequently EN is attested after a particular trigger in a particular language is a matter of entrenchment and something that is language specific and for which we do not provide an explanation in this paper. Whether EN has a special form and normally only occurs in the context of EN-triggers, for example, the special negative marker *ne* in French or the negative complementizer *ne/quin* in Latin, is also language specific (and quite rare, as far as we can see) and depends on whether the expression of the semantically conditioned activation of  $\neg p$  has grammaticalized: generally, lexical items that realize the activation of  $\neg p$  are ordinary clausal negative markers in the target language, for example, Mandarin *bù* (imperfective negative marker)/*méi* (perfective negative marker)/*bié*

(imperative negative marker)/*bù-gāi* ('shouldn't').

## 5 A Semantic Analysis of EN-Triggers in French and Mandarin

In this section, we offer a detailed semantic analysis of each kind of EN-triggers we found in French and Mandarin. We group triggers by the hypothesized entailments that license the occurrence of EN. As in any classification, some triggers can be part of multiple classes and nothing substantial hinges on our particular choice of classificatory scheme. Most of the French examples in this section, unless otherwise specified, were constructed; but they follow the frequently cited examples found in the French literature. The Mandarin examples, with only one exception, are all taken from either CCL (Corpus for Chinese Linguistics, <http://ccl.pku.edu.cn>) or other web sources. This is because Mandarin EN remains unfamiliar to most non-Chinese linguists and the extant English literature only documents ALMOST and BEFORE as EN-triggers.

**Want(X,  $\neg p$ )** Triggering verbs in this class entail that the attitude holder (abbreviated as X hereafter) wants or hopes the negation of the argument proposition to be true. (4) and (5) are partial lists of such verbs in French and Mandarin ( $^{\circ}$  below and throughout this section indicates that the verb strongly prefers to be negated, or questioned, for EN to occur in its complement clause). The meaning of verbs like French *fear* or Mandarin *pà* 'fear' entails that  $\neg p$  is true in all worlds corresponding to the attitude holder's desires. When one uses these predicates, two sets of worlds are thus activated. One set contains all the worlds where X's fears are true and  $p$  denotes what X fears or is apprehensive about; the other set contains all worlds which correspond to X's desires, where  $\neg p$  is true. Given the meaning of these verbs, both  $p$  and  $\neg p$  are activated during sentence production. If the activation of  $\neg p$  is too strong or  $\neg p$  is not inhibited enough, a redundant negative marker will occur. It is the entailed existence of two sets of worlds evoked by these verbs

that explains, we hypothesize, why EN is found in their complement clause.

- (4) craindre ‘fear’; l’angoisse que ‘the anxiety that’; l’anxiété que ‘the anxiety that’; appréhender ‘apprehend’; un/le danger que ‘a/the danger that’; l’écueil que ‘the danger that’; être effrayé que ‘be frightened that’; s’inquiéter que ‘worry that’; obsession que ‘obsession that’; de peur que ‘of fear that’; redouter ‘fear’
- (5) pà ‘fear’; hàipà ‘fear’; kǒngjù ‘fear’; dānxīn ‘worry’; yōulǜ ‘worry’; chóu ‘worry’; jiāolǜ ‘be anxious’; zháojí ‘be anxious, worry’

(6) and (7) are typical French and Mandarin examples, respectively. In (7), the negative marker must be *bié*, the imperative negative marker in Mandarin. *Bié* is the only expletive negative marker allowed when FEAR predicates are involved. We suspect that this restriction is due to the fact that the meaning of verbs that denote FEAR involves an evaluation of the argument proposition (its undesirability).

- (6) J’ai peur qu’il ne pleuve demain. (= (1))  
I.have fear that.it NEG rain.SBJV tomorrow  
‘I fear that it will rain tomorrow.’
- (7) dài bǎ sǎn ba! wǒ pà míngtiān duōlúnduō bié xià-yǔ.  
take CLF umbrella BA I fear tomorrow Toronto NEG fall-rain.  
‘Take an umbrella! I fear that it might rain in Toronto tomorrow.’ (Produced by the first author’s mother)

**Ought.to**( $\neg p$ ) Triggers in this class have to do with behavioral standards. We take the predicate REGRET as an example. REGRET entails that  $\neg p$  is true in all worlds that correspond to X’s behavioral standards. In all worlds where X’s regrets are true,  $p$  is true and denotes the content X regrets; but in all the worlds consistent with X’s behavioral standards,  $\neg p$  is true. It is again the concurrent activation of both  $p$  and  $\neg p$  (via inference) that leads to the occurrence of EN.

(8) is a Mandarin example; a partial list of Mandarin verbs in this class is provided in (9). The Mandarin expletive negative marker in (8) means something like *shouldn't*.

- (8) chéngmò yǐjīng shǐ Chén Yìpíng lěngjìng le xǔduō, tā  
 silence already make PN calm.down PFV a.lot he  
 shènzhì hòuhuǐ zìjǐ bù-gāi zhèyàng cāngcù, zuìqǐmǎ yīnggāi  
 even regret self NEG-should like.this hasty at.least should  
 zài gěi Xuē Fēi yìdiǎn shíjiān.  
 again give PN a.little.bit time  
 'Silence had made Yiping Chen calm down a lot. He even regretted  
 that he had been so hasty. At the very least, he should have given Fei  
 Xue a little time.' (CCL)

- (9) huǐ 'regret'; hòuhuǐ 'regret'; bàoyuan 'complain'; zébèi 'blame'; zéguài  
 'blame'; guài 'blame'; mányuàn 'blame'; pīping 'criticize'; nánguò 'be  
 sad'; bàoqiàn 'be sorry'; bù-gāi 'shouldn't'

In all of the studies on French EN to date, no verb in this class has been listed as a possible EN-trigger. Muller (1991) even used *regretter* as a counterexample to Martin's (1984) worlds analysis of EN. But, (2) above showed that REGRET can trigger EN in French.

**Believe(X,  $\neg p$ ) or say(X,  $\neg p$ )** The meaning of triggers in this class entails that  $\neg p$  is true in all worlds corresponding to X's beliefs. Many of the triggers in this class are verbs of speech reports, so  $\neg p$  is true according to X's belief, if X is sincere or the felicity conditions on the speech act denoted by the trigger are satisfied (see Searle 1969). One verb, French *catcher*, is a verb of speaking and  $\neg p$  is not entailed but strongly implicated. In a sentence such as (10) (cited by Muller 1991:373), there is no entailment that the speaker will say  $\neg p$ , but there is a strong invited inference that he would like to say  $\neg p$ .

- (10) Nous ne pourrons cacher que Madame Guyon **ne** soit  
 We NEG can.FUT hide that Madam Guyon NEG be.SBJV  
 trop protégée.  
 too.much protected  
 ‘We will not be able to hide that Madame Guyon is protected too much.’

Two sets of worlds are again activated by the meaning of triggers in this class. One set only contains worlds that do not conform to *X*'s beliefs, but conforms to somebody else's beliefs and in this set, *p* holds; the other set contains worlds compatible with *X*'s beliefs and it is in this set that  $\neg p$  is true. (11) and (12) provide partial lists of triggers in French and Mandarin, respectively. Many verbs can only trigger EN in the complement clause when negated. It is worth mentioning that the trigger DESPAIR (in its use as a propositional attitude verb) entails not only that *X* believes that  $\neg p$ , but also that  $\neg p$  is true in the real world (or  $w_0$ ) and that *X* wants *p*.

- (11) °contester ‘question’; °désavouer ‘repudiate’; °nier ‘deny’; °disconvenir ‘deny’; °s’oppose à ‘oppose’; °douter ‘doubt’; °douteux que ‘doubtful that’; °doute que ‘doubt that’; °cacher ‘conceal, hide a fact’, °désespérer ‘despair’
- (12) huáiyí ‘doubt, suspect’; zhìyí ‘question’; dǐlài ‘deny’; fǒurèn ‘deny’; yǐnmán ‘hide a fact’; °fǎnduì ‘oppose’; °bù-chéngrèn ‘not admit’; °bù-xiāngxìn ‘disbelieve’, °bù-bào-xī-wàng ‘despair’
- (13) Niez-vous qu’il **ne** soit un grand artiste?  
 deny-you that.he NEG be.SBJV a great artist  
 ‘Do you deny that he is a great artist?’



- (14) duìyú yuángào zhǐchū zìjǐ céng shōushòu Zhāng Jīnfèng  
 faced.with prosecutor point.out self once receive PN  
 8000 yuán hǎochùfèi suǒyǐ cái bāngzhù Zhāng Jīnfèng  
 8000 yuan commission so only.then help PN  
 chǎofáng yìshuō, Zhào Yì fǒurèn zìjǐ méi jiēshòu  
 real.estate.speculation claim PN deny self NEG receive  
 Zhāng Jīnfèng yìfēnqián.  
 PN a.single.cent

'Faced with the prosecutor's (Jinfeng Zhang) claim that he (the defendant) once accepted 8000 yuan from Zhang as commission and then helped him with real estate speculation, Yi Zhao (the defendant) denied that he accepted money from Zhang.' (*Beijing Times*, 2013-09-17)

$\neg p$  in  $w_0$  Triggers in this class all entail that  $\neg p$  is true in the real world (or  $w_0$ ). Consider the predicate FORGET (in the sense of *Barbara forgot to get coffee*). It entails that  $p$  is true in all worlds where X did what (s)he was supposed to do, but  $\neg p$  is true in the real world X is in. It is the fact that  $\neg p$  is true in the real world and  $p$  in some other worlds that motivates the appearance of an expletive negative marker. The occurrence of EN in the complement clause of some of the triggers (corresponding to English *forget*, *delay*, *stop*) have not yet been mentioned in the extant French or Mandarin literature. For brevity, we provide one example from French and one example from Mandarin. We provide a partial list of Mandarin triggers, as the range of triggers seems wider in Mandarin. Note that in the case of Mandarin *yánhòu* 'delay' or *tuīchí* 'postpone',  $\neg p$  is true at  $w_0$  at reference time, but may be false later on.

- (15) Vous avez oublié de ne pas nommer Jacques Stephen Alexis,  
 you have forgotten of NEG NEG nominate PN  
 un grand des grands savants.  
 one great of.DEF.PL great savants  
 'You have forgotten to nominate Jacques Stephen Alexis, one of the greatest savants.' (<https://tinyurl.com/yxucz2u1>, accessed on 2018-05-05)

- (16) “Dǐ lǎoshī” chēng xiànzài chūmén qù gěi lǐngdǎo bàn diǎn  
 PN teacher say now go.out go for leader do a.bit  
 shì, bú zài bàngōngshì, dàn chūmén shí wàngjì méi  
 affair NEG exist office but go.out when forget NEG  
 dài qiánbāo.  
 bring wallet  
 ‘Teacher Di (the swindler) said he was out doing something for the  
 leader, and he was not in the office, but he forgot to bring his wallet  
 when going out.’ (*Gansu Daily*, 2018-03-23)
- (17) wàng ‘forget’; wàngjì ‘forget’; yánqī ‘delay’; yánhòu ‘delay’; yánhòu  
 ‘delay’; tuīchí ‘postpone’; tuīhòu ‘postpone’; tíngzhǐ ‘stop’; tíngxià  
 ‘stop’; fàngqì ‘give up’; jùjué ‘refuse’

An interesting subclass of triggers is listed in (18) and (19).

- (18) il s’en faut que ‘almost’ (lit. ‘it is necessary from it’); peu s’en faut  
 que ‘almost’ (lit. ‘little is necessary from it’); pour peu que ‘almost’  
 (lit. ‘for little that’)
- (19) chà-diǎnr ‘miss-a-bit, almost’; jīhū ‘almost’; xiǎnxiē ‘almost’; chà ‘to  
 be short of’; shǎo ‘to be short of’

Triggers in this subclass denote predicates that entail not only that  $\neg p$  is true in the real world  $w_0$  but that  $p$  is true in worlds minimally different from  $w_0$ .

**$\neg p$  at Reference Time** Triggers in this class are temporal operators. The meaning of *before* (as in *q before p*) entails that when  $q$  is true at reference time,  $\neg p$  is also true. The fact that both  $q$  and  $\neg p$  are true at reference time gives rise to logically vacuous EN markers in many languages, including French and Mandarin. Similarly, the meaning of *since* (as in *it’s been some time since p*) entails that at reference time,  $\neg p$  is true. One might wonder if *after* (in *q after p*) should not also be a trigger, as it seems to be the mirror image of *before*. The answer is *No*, as the meaning of *after* does not entail that  $\neg p$  is true at reference time (*Bob left after I arrived* does not entail that I had not arrived at reference time). This class of triggers in French also includes a few

verbs of mental attitude that carry a temporal entailment such as *en attendant (que)* ‘waiting (for)’, *s’attendre à* ‘expect’, *tarder à quelqu’un (que)* ‘cannot wait (for)’.

- (20) Agissons avant qu’il **ne** soit trop tard.  
 we.act.IMP before that.it NEG be.SBJV too late  
 ‘Let’s take action before it is too late.’
- (21) **méi** jiéhūn qián, wǒ wàichū bǐsài zǒngshì xiǎng  
 NEG get.married before I be.out match always miss  
 nǚpéngyou. xiànzai yǒu le háizi, zhǔyào xiǎng háizi.  
 girlfriend now have PFV child mainly miss child  
 ‘Before I was married, I always missed my girlfriend when I was out playing matches; now I have kids, and I mainly miss them.’ (CCL)

None of the Mandarin literature on EN mentions that SINCE can trigger EN. We found several examples in corpora and provide one below.

- (22) nàtiān tā shuō xiàbān yǒu yìngchou, kěshì jùlǐ wǒmen  
 that.day he say off.work have social.activity but since we  
**méi** jiànmiàn yí gè lǐbài le, wǒ nǎo le.  
 NEG meet one CLSFR week PFV I annoy PFV  
 ‘That day he said he had a social activity after work, but it had already been a week since we met and I got annoyed.’ (<https://tinyurl.com/ajkumog>, accessed on 2018-05-05)

*q* WITHOUT *p* (as in *he left without me knowing it*) also entails *q* and  $\neg p$  at reference time and EN occurs in French in the complement of this trigger, as expected and shown in (23). The concept WITHOUT is not lexicalized in Mandarin, therefore no EN example is forthcoming.

- (23) Je l’ai fait sans qu’il **ne** le sache.  
 I it.have done without that.it NEG it know.SBJV  
 ‘I did it without knowing it.’

$\square\neg p$  The lexical items *°être exclu (que)* ‘it is excluded (that)’ and *°impossible (que)* ‘impossible (that)’ in French and *páichú* ‘exclude’; *°bù-kěnéng* ‘be impossible’ in Mandarin can trigger EN, at least when they are negated. These triggers denote necessity modal operators and  $\neg p$  is thus true in all (accessible) worlds. (24) is an example from French and (25) from Mandarin.

- (24) Et il n’est pas impossible que Leopold n’ait lassé  
 And it NEG-is NEG impossible that Leopold NEG-have.SUBJV tired  
 Grimm ...  
 Grimm ...

‘And it is not impossible that Leopold tired Grim ...’ (J. et B. Massin, *Mozart*, Fayard, 1970, p. 241; cited in Muller 1991:375)

- (25) zhè běn shū tāolùn le rénlèi duì dìqiú de yǐngxiǎng ...  
 This CLF book discuss PFV human to earth POSS influence  
 wǒ juéde běn shū lǐ suǒ miáoshù de zhuàngkuàng  
 I think this book in pass describe POSS situation  
 búshì bùkěnéng bú huì fāshēng, érqǐě fāshēng  
 be.not.the.case impossible NEG will occur and occurrence  
 jīlǜ huì suízhe shíjiān ér zēngjiā.  
 probability will with time then increase

‘This book discussed human influence on earth ... I think it is not impossible for the scenarios described in this book to arise; the possibility of their occurrence will increase with time.’ (<https://tinyurl.com/y26tmzqa>, accessed on 2018-05-05)

$\neg p$  in **Suppositive Worlds** This class of triggers involves conditional operators. The meaning of UNLESS entails that if  $\neg p$  then  $q$ .  $\neg p$  is thus true in worlds that are consistent with the hypothesis (what we call *suppositive worlds*).

- (26) Nous n'interviendrons pas dans cette affaire à moins qu'on  
 we NEG.interfere NEG in this affair to less that.INDEF  
**ne** nous le demande.  
 NEG us it demand.SBJV  
 'We won't interfere in this affair unless they ask us to do so.'
- (27) qíshí chùle rúguǒ **bú** zhuàng-jìn jiàshǐcāng wēixié jīzhǎng  
 in.fact except if NEG hit-into cabin threaten pilot  
 de ānquán zhīwài, niǎo jī yībān zàochéng fēijī jiégòuxìng  
 POSS safety outside bird hit normally cause plane structural  
 de sǔnshāng kěnéngxìng **bú** dà.  
 POSS damage probability NEG big  
 'In fact, unless a bird hits the cabin and threatens the pilot's safety,  
 the probability that a bird's hit causes structural damage to a plane is  
 normally not high.' (<https://tinyurl.com/y6267pzh>, accessed  
 on 2018-05-05)

$\neg A(Y, d')$  at  $w_0$  Comparatives differ from all previous triggers in that the two propositions that are activated are not duals of each other ( $p$  and  $\neg p$ ). The meaning of comparatives ( $X$  is  $Q$ -er) than ( $Y$  is  $Q$ ) involves a comparison of degrees: there are degrees  $D$  such that  $X$  and  $Y$  are both  $Q$  to degree  $D$  and there are also (higher) degrees  $D'$  such that only  $X$ , but not  $Y$ , is  $Q$  to degree  $D'$ . Both [ $Q(X)$  to degree  $D'$ ] and [not [ $Q(Y)$  to degree  $D'$ ]] are therefore true. Comparatives are the only EN-triggering context in which the two activated propositions of opposite polarity involve predications over distinct entities (in (28), the addressee and speaker, respectively) and where the two propositions of opposite polarity are true in the same world(s) or at the same time interval(s).

- (28) Tu es plus grand que je **ne** suis.  
 you are more tall than I NEG am  
 'You are taller than I am.'

Comparatives trigger EN in their complement clause in quite a few

languages aside from French. But Mandarin comparatives do not, as only NPs are allowed after the marker of comparison *bǐ*.

Table 1 summarizes the different classes of triggers and the negative proposition whose activation leads to the occurrence of EN, using one predicate as a representative of the class.

<i>Predicate</i>	<i>Negative proposition</i>
FEAR	$\neg p$ in worlds consistent with $X$ 's desires
REGRET	$\neg p$ in worlds consistent with $X$ 's behavioral standards
DENY	$\neg p$ in worlds consistent with $X$ 's belief
FORGET	$\neg p$ in $w_0$
BEFORE	$\neg p$ at reference time
IMPOSSIBLE	$\neg p$ in all accessible worlds
UNLESS	$\neg p$ in suppositive worlds
COMPARATIVE	$\neg A(Y, d')$

**Table 1** Classes of EN-Triggers and the Corresponding Negated Argument Proposition

## 6 Low-Entrenchment EN in English

Our model of EN predicts that EN occurs more often than typically recognized because grammarians and scholars overlook low-entrenchment EN. In fact, we predict that the same contexts should favor EN across languages. In this section, we test this prediction with data from English. English descriptive grammars (e.g., Quirk et al. 1985 or Huddleston and Pullum 2002) make no mention of EN, and prescriptive grammars do not allow sentences that include phrases like *refuse not to surrender* (meaning the same as *refuse to surrender*). However, some of Horn's (2010) examples suggest that (low-entrenchment) EN occurs in English. His examples include what would be EN-triggers in French and Mandarin such as *keep from*, *avoid*, *miss*, *hold back*, and *since*. There is, it seems, a parallel between the contexts that allow low-entrenchment EN in English and the contexts that allow the grammatically licensed negative marker *ne* in French. In this section, we provide examples that show that EN can occur in English in all of

the same contexts listed in table 1, thus confirming the prediction of our model that the causes of EN are of general applicability.

#### FEAR

- (29) “It was a bit painful but the shock, once that wore out I really felt it. I was just worried that hopefully there **wasn’t** a break in there and lucky enough there was no fracture, just a dislocation,” Moa said. (<https://tinyurl.com/y3y6d7ro>, accessed on 2018-05-25)

#### REGRET

- (30) I don’t know why on earth he said that as I was the only person who stood by him when all others blamed him for not having a decent job. I always thought he was the one for me and at this point of time I really regret that I **shouldn’t** have gone for him. I cried like anything for months and eventually got over the past only because of my few best friends. (<https://tinyurl.com/y4f8a7gl>, accessed on 2018-06-25)

#### DENY

- (31) He also denied that he **didn’t** mock a disabled reporter.. there is proof of him doing this. He’s such a liar. (<https://tinyurl.com/y4btqskr>, accessed on 2018-05-04)

#### FORGET

- (32) Then the worst happened. He forgot **not** to pick up after placing a pizza order, and there, on the other end of the line, was the whisky-voice of the sister, H, down in Palo Alto. (*Corpus of Contemporary American English*, example from Lois Taylor ‘Are you there?’ in *Southwest Review*, volume 92, 2007, pp. 82–88)

#### BEFORE

- (33) When we realized we had time for one more song (backstage), we decided it had to be “Human Stain”. Then at the end of the night we found out that we didn’t play Karma and that felt so weird. It has been such a long time since we **didn’t** play that song. (<https://tinyurl.com/y4apw7>, accessed on 2018-05-25)

## IMPOSSIBLE

- (34) It is not impossible that some aspect of sound-making efficiency might **not** have played into the mechanism of natural selection during the history of the species (E. Lenneberg, *Biological Foundations of Language*, 1967; cited in Horn 2010:127)

## UNLESS

- (35) He escorted the girls nearly everywhere they went, except when he was **not** busy with his own friends, who were quite fond of gambling and horses, like most young men-except perhaps Nathaniel Sheridan, who was too concerned with managing his father's many estates ever to stop for a game of whist or bagatelle. (<https://tinyurl.com/y47ywx4>, accessed on 2018-05-25)

## COMPARATIVE

- (36) This facilitated my work more than you will **never** know. (J. C. Smith, *Black Firsts: 4,000 Ground-Breaking and Pioneering Historical Events*, 2012)

Interestingly, we did not find an example where the expletive negative marker is simply *not* with either FEAR or REGRET. Additional words were present: in the case of FEAR, *hopefully* and in the case of REGRET, *should*. The use of these additional words echoes the use of specialized negations in Mandarin, the imperative negative marker *bié* in the case of FEAR and the modal negative marker *bù-gāi* 'shouldn't' in the case of REGRET. We surmise that the presence of words that evoke the modal contexts where  $\neg p$  is true facilitates the occurrence of low-entrenchment EN in both cases.

## 7 Discussion

At the heart of the model of EN we have proposed in this paper is the hypothesis that the meaning of some words leads to a strong enough activation of  $\neg p$  alongside its dual  $p$  that an EN marker surfaces. Because our model relies on language-general production mechanisms, it predicts EN to show up in roughly the same range of contexts across languages, provided near translation equivalents are considered and the syntax of those near translation equivalents does not ex-



clude (or strongly disfavors) the occurrence of EN. More specifically, since licensing of EN is conditioned on two language-independent factors, activation of inferred concepts in language production and the meaning of certain verbs, adverbs, and adpositions, our model predicts that the occurrence of EN should be universally possible for the eight classes of triggers listed in table 1.

Now, as we stressed in section 4, our prediction does not pertain to *highly entrenched* EN, but to all EN uses found in a language, low-entrenchment as well as highly entrenched EN. Only when low-entrenchment EN is included in the mix does the broad range of EN-triggers discussed in, say, Muller 1991 cease to seem an idiosyncrasy of French. We tested the cross-linguistically validity of our hypothesis by comparing the range of semantic contexts that license EN in French and Mandarin, on the one hand – two languages that are known for their relatively broad use of highly entrenched EN – and English – a language that purportedly does not include highly entrenched EN uses. We found the range of triggers to be almost identical across all three languages. French, Mandarin, and English all include EN of some sort (highly entrenched or low-entrenchment EN) for all eight classes of triggers and exceptions can be explained by language-internal factors (e.g., the syntax of the relevant potential triggers). In a follow-up study (Jin & Koenig 2019), we corroborated this finding by a comprehensive survey of two more genealogically unrelated languages, Arabic and Zarma-Sorai. Almost all the same predicates can trigger some form of EN in these languages too. Again, exceptions are the result of language internal, mostly syntactic, factors. The uniformity of the range of triggers across the languages we looked at (65 are listed in Jin & Koenig 2019) further validates our methodology to include in the purview of our survey not only highly entrenched EN uses, but also low-entrenchment EN uses. English is then not the odd man out anymore and additional triggers, which would be expected from a semantic point of view, can be recognized in both French and Mandarin. As we mentioned, about half of the triggers we list and we found attested examples of were not listed as

EN-triggers in the previous Mandarin literature, most probably, we surmise, because grammarians tend to focus on highly entrenched EN uses.

We end this paper with a discussion of the fact that it is much easier to find EN with some triggers when the matrix clause is negated or questioned (indicated with  $\circ$  in section 5). This observation has already been made in French grammars (e.g., Grevisse 1936) and studies of negation and EN (e.g., Muller 1991, Larrivéé 2004). In fact, when we were investigating low-entrenchment EN in English, strings like ‘not despair of not’, ‘not deny that he didn’t’, or ‘not advise against not’ yielded more examples of EN than the corresponding non-negated verbs. In some cases, the required presence of a negation in the matrix clause is somewhat puzzling semantically. Consider the need to negate the adjective *impossible* ‘impossible’ in French or the verb *bù-kěnéng* ‘be impossible’ in Mandarin. Since  $\neg \square \neg p \Leftrightarrow \diamond p$ , it is odd that negating the predicate IMPOSSIBLE boosts the likelihood of occurrence of an EN, since, semantically,  $\diamond p$  should activate  $\neg p$  less than  $\square \neg p$ . Our production model of EN provides, we believe, a possible explanation for this otherwise puzzling fact.

The critical property of both questioned ( $?p$ ) and negated ( $\neg p$ ) propositions for our purposes is that they evoke  $p$  as well as  $\neg p$  (see Hamblin 1973 for questions and Ducrot 1980 for negation). Neither Hamblin’s approach to the meaning of questions (that it denotes the set of its answers) nor Ducrot’s approach to the meaning of negation (that it evokes the assertion of  $p$  and  $\neg p$  by two distinct enunciators) is uncontroversial. For our purposes it suffices that questions and negations have been argued to evoke (to use a minimally committing term) both the trigger and its negation. The concurrent activation of the trigger and its negation is, we suggest, what leads to a stronger activation of  $\neg p$  and thus increases the likelihood of the occurrence of EN. For space considerations, we only discuss one case here.

Consider French *nier* and *impossible* where the negation is not just entailed by the meaning of the predicates, it is part of the mean-

ing of the predicates. So, the lexicalization of ‘not’ in  $\neg p$  is already achieved by the lexical selection of *nier* and *impossible* and blocks the occurrence of a separate negative marker in the complement clause. But when DENY or IMPOSSIBLE are negated, we have a clash between the lexical meaning of each predicate (which lexicalizes the ‘not’ of  $\neg p$ ) and the compositional meaning of *ne pas nier* or *n’être pas impossible* which is semantically incompatible with negating the argument proposition (again,  $\neg \Box \neg p \Leftrightarrow \Diamond p$ ). The competition between the lexical meaning of the trigger that activates  $\neg p$  and the compositional meaning, which does not, is what leads to EN. Our account of the occurrence of EN when *nier* and *impossible* are negated is similar to what Horn (2010) describes as *triplex negatio confundit*, that is, instances where a triple negation conveys a positive.

Clearly, our explanation of why some triggers strongly favor or require the presence of a matrix negation or question for EN to occur in the complement clause is quite speculative at this point. But it points to an interesting consequence of embedding our semantic account of the contexts where EN is found in a language production model: EN triggers can vary in strength, that is, in terms of the degree to which  $\neg p$  is activated (e.g., because speakers are more or less likely to infer  $\neg p$ ). When the activation of  $\neg p$  is relatively weak, a boost might be needed for the activation of  $\neg p$  to be strong enough to lead to the occurrence of an EN marker. Negating or questioning the trigger may be one such boost.

**Acknowledgments** We thank members of the Psycholinguistics Laboratory at the University at Buffalo, the audience of the Colloque de Syntaxe et Sémantique de Paris, Jürgen Bohnemeyer, Matthew Dryer, Karin Michelson, Robert Van Valin, and an anonymous reviewer for their invaluable comments. We would also like to extend our heartfelt thanks to Chris Piñón for his invaluable help.

## References

- Abels, K. (2005). “Expletive negation” in Russian: A conspiracy theory. *Journal of Slavic linguistics*, 13, 5–74.

- Cao, J. (2007). *Xiànyú fǒudìng de yǔyòng rènzhī fēnxī*. Master's thesis, Capital Normal University, Beijing.
- Damourette, J., & Pichon, E. (1911–1933). *Des mots à la pensée: Essai de grammaire de la langue française*. Paris: d'Artrey.
- Del Prete, F. (2008). A non-uniform semantic analysis of the Italian temporal connectives *prima* and *dopo*. *Natural Language Semantics*, 16, 157–203.
- Dell, G. (1986). A spreading-activation theory of retrieval in sentence production. *Psychological Review*, 93, 283–321.
- Dindelegan, G. (2013). *A Grammar of Romanian*. Oxford University Press.
- Ducrot, O. (1980). *Les mots du discours*. Paris: Les Editions de Minuit.
- Espinal, M. T. (1992). Expletive negation and logical absorption. *The Linguistic Review*, 9, 333–358.
- Espinal, M. T. (2000). Expletive negation, negative concord and feature checking. *Catalan Working Papers in Linguistics*, 8, 47–69.
- Etxepare, R. (2003). Negation. In J. I. H. et al. (Ed.) *A Grammar of Basque*, (pp. 387–421). Berlin: Walter de Gruyter.
- Gaetone, D. (1971). *Etude descriptive du système de la négation en français contemporain*. Geneva: Librairie Droz.
- Grevisse, M. (1936). *Le bon usage*. Gembloux: Editions J. Duculot.
- Hamblin, C. L. (1973). Questions in Montague English. *Foundations of Language*, 10, 41–53.
- Harves, S. (2002). Genitive of negation and syntax of scope. In *Proceedings of ConSOLE IX*, (pp. 66–110). Leiden: Kluwer.
- Heim, I. (1992). Presupposition projection and the semantics of attitude verbs. *Journal of Semantics*, 9, 183–221.
- Hintikka, J. (1969). Semantics for propositional attitudes. In J. W. Davis, J. Hockney, & W. K. Wilson (Eds.) *Philosophical Logic*, (pp. 21–45). Dordrecht: D. Reidel Publishing Company.
- Horn, L. (2010). Multiple negation in English and other languages. In L. Horn (Ed.) *The Expression of Negation*, (pp. 111–148). Berlin: Mouton de Gruyter.
- Hualde, J. I., & de Urbina, J. O. (2003). *A Grammar of Basque*. Berlin: Mouton de Gruyter.
- Huddleston, R., & Pullum, G. (2002). *The Cambridge Grammar of the English Language*. Cambridge University Press.
- Inkova, O. (2006). La négation explétive: Un regard d'ailleurs. *Cahiers*

- Ferdinand de Saussure*, 59, 107–129.
- Jiang, L. (2008). Gàiniàn diéjiā yǔ gòushì zhěng hé—kěndìng fǒudìng bú-duìchèn g de jiěshì. *Zhōngguó yǔwén*, 327, 5–19.
- Jin, Y., & Koenig, J.-P. (2019). A cross-linguistic study of expletive negation. Manuscript.
- Kratzer, A. (1981). The notional category of modality. In H.-J. Eikmeyer, & H. Rieser (Eds.) *Words, Worlds, and Contexts*, (pp. 38–74). Berlin: Walter de Gruyter.
- Langacker, R. (1987). *Foundations of Cognitive Grammar*, vol. 1. Stanford, CA: Stanford University Press.
- Larrivée, P. (1996). *Pas explétif*. *Revue romane*, 31, 19–28.
- Larrivée, P. (2004). *L'association négative: Depuis la syntaxe jusqu'à l'interprétation*. Geneva: Librairie Droz.
- Lau, J. H., Clark, A., & Lappin, S. (2017). Grammaticality, acceptability, and probability: A probabilistic view of linguistic knowledge. *Cognitive Science*, 41, 1202–1241.
- Le Bidois, G., & Le Bidois, R. (1935–1938). *Syntaxe du français moderne*. Paris: A. Picard.
- Lü, S. (1980). *Xiàndài hànyǔ bābǎi cí*. Beijing: The Commercial Press.
- Makri, M.-M. (2013). *Expletive Negation beyond Romance*. Master's thesis, University of York, York.
- Martin, R. (1984). Pour une approche sémantico-logique du *ne dit* explétif. *Revue de linguistique romane*, 48, 99–121.
- Muller, C. (1991). *La négation en français*. Geneva: Librairie Droz.
- Nchare, A. L. (2012). *The Grammar of Shupamem*. Ph.D. thesis, New York University, New York.
- Portner, P., & Zanuttini, R. (2000). The force of negation in *wh*-exclamatives and interrogatives. In I. Martinez, L. Horn, & Y. Kato (Eds.) *Negation and Polarity: Syntactic and Semantic Perspectives*, (pp. 201–239). New York: John Benjamins Publishing Company.
- Quirk, R., Greenbaum, S., Leech, G., & Svartvik, J. (1985). *A Comprehensive Grammar of the English Language*. London: Longman.
- Rubinstein, A., Sichel, I., & Tsirkin-Sadan, A. (2015). Superfluous negation in Modern Hebrew and its origins. *Journal of Jewish Languages*, 3, 165–182.
- Searle, J. (1969). *Speech Acts*. Cambridge University Press.

- Song, H. (2012). *Zébèi lèi xiànyú fǒudìng de duōjiǎodù fēnxī*. Master's thesis, Central China Normal University, Wuhan.
- van der Wouden, T. (1994). Polarity and 'illogical negation'. In M. Kazanawa, & C. J. Piñón (Eds.) *Dynamics, Polarity and Quantification*, (pp. 16–45). Stanford: CSLI Publications.
- Vázquez Molina, J. (2006). *La negación expletive en francés*. Ph.D. thesis, University of La Rioja, Logroño.
- von Prince, K. (2012). *A Grammar of Daakaka*. Ph.D. thesis, Humboldt-Universität zu Berlin, Berlin.
- Wang, J. (2008). *Xiàndài hànǔ xiànyú fǒudìng jí qí géshì yánjiū*. Master's thesis, Yangzhou University, Yangzhou.
- Wang, Z. (2012). *Xiàndài hànǔ tèsū fǒudìng xiànxàng rènzhī yánjiū*. Ph.D. thesis, Shanghai Normal University, Shanghai.
- Yoon, S. (2011). Rhetorical comparatives: Polarity items, expletive negation, and subjunctive mood. *Journal of Pragmatics*, 22, 133–166.
- Yuan, Y. (2012). Dòngcí nèi yǐnxìng fǒudìng de yǔyì céngcì hé yìchū tiáojiàn. *Zhōngguó yǔwén*, 437, 99–113.
- Zhang, Y. (2004). *Xiàndài hànǔ fúci tànsuǒ*. Shanghai: Xuelin Press.
- Zhu, D. (1959). Shuō chà-yìdiǎn. *Zhōngguó yǔwén*, 87, 435–437.
- Zovko Dinković, I., & Ilc, G. (2017). Pleonastic negation from a cross-linguistic perspective. *Jezikoslovlje*, 18, 159–180.