

The grammatical representation of expletive negation

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Sentence (1) illustrates expletive negation, a construction where a negator (*no*) appears in the complement clause of a verb, adjective, preposition, or adverb, but does not correspond to a negation semantically (the content of the speaker's fear in the Catalan example in (1) is that a new director will be elected).

- (1) Em temo que no escullin nou director.
me.CL am.afraid that NEG elect.SBJV.3PL new director
'I'm afraid that a new director would be elected.' (Espinal, 2000, 54)

Although expletive negation is often mentioned in the context of Romance languages, Jin & Koenig (2021) and Jin (2021) show that it occurs widely across languages. In Jin's 1,140 language sample it occurred in 125 languages, on all continents, and in 61 genera. Moreover, expletive negation is grossly underreported in reference grammars (out of the 37 languages discussed in both research papers and grammars that Jin consulted, expletive negation was mentioned in research papers but not grammars in 21 languages). Jin & Koenig (2019, 2021) also show that expletive negation occurs in very similar environments across languages (e.g., BEFORE, FEAR, ...; henceforth EN triggers). In fact, in Jin & Koenig's (2021) study of Januubi Arabic, French, Mandarin, and Zarma-Sorai, expletive negation occurs in basically the same environments. A corpus study of English also showed it occurs in the same set of environments in unrehearsed English *parole* (Horn, 2010), although with different frequencies for different triggers (from close to 0% to close to 100% using restricted search patterns; the mean was 28.34%).

To explain why expletive negation occurs in similar contexts and in so many languages, but is often deemed a performance error, Jin & Koenig (2019, 2021) propose a language production model based on Dell (1986) of the emergence of expletive negation. Because EN triggers entail (in some cases strongly contextually imply) a proposition that contains the trigger's argument proposition's dual, the negation that is part of this entailment is strongly activated and is, as a result, sometimes erroneously expressed. For example, because $\text{fear}(a, p)$ entails $\text{want}(a, \neg p)$, $\neg p$ becomes activated and sometimes \neg is lexicalized as a negator (e.g., *no* in (1)). We call the entailment (strong contextual implication) that includes the dual of the lexical item's argument proposition the *negative inference*. Jin & Koenig's account of expletive negation models both the variability of expletive negation across triggers and languages and its systematic optionality

(aside from a couple of languages where expletive negation has become obligatory in some contexts): even in Romance languages or Mandarin where expletive negation is rampant, it is never obligatory.

Jin & Koenig’s model, though, leaves open how expletive negation is represented in native speakers’ grammars. It could remain a performance phenomenon—no matter how frequent it is—or it could be part of native speakers’ competence in some languages, but not others, or for some triggers, but not others. Their model is agnostic on this point. In this paper, we argue that expletive negation should be included in native speakers’ grammatical competence and that an EN trigger’s negative inference is part of an alternate lexical entry for the EN trigger that includes the negative inference as non-at-issue content (à la Potts 2005).

To establish that expletive negation is not just a performance phenomenon, we ran three similar experiments in English, French, and Mandarin. An example stimulus set is provided in (2). Stimuli across the three languages were kept maximally similar (after translation from English to French and Mandarin), with a few necessary adjustments only made with respect to culture-specific proper names or differences in particular EN-triggers. Participants in each experiment saw a small text followed by a target sentence (in red in (2)) that was either headed by an EN trigger or non-EN trigger and had to judge whether the target sentence was consistent with the preceding text. Logical accuracy and decision latencies were recorded (see Jin & Koenig 2020 for more details on the English experiment). Stimuli were content-wise as similar as possible across the three languages. French EN trigger stimuli were divided in two halves, one half containing *ne* (a dedicated marker of expletive negation, Muller 1991) and the other half containing *ne ... pas*, which can but is not very frequently used expletively (Larrivée, 1996). We predicted that if a negator is interpreted expletively after an EN trigger, participants should make more logical errors and take longer to decide if the target is consistent with the context, as the ambiguity of the negator (expletive or logical negation) should make it harder to decide whether the target sentence coheres with the preceding text. Overall, we found, as predicted, that participants made more logical errors and took longer to decide when the target sentence’s matrix clause contained an EN trigger than when it did not. We also found an interaction between the \pm EN trigger condition and language: French and Mandarin speakers made more logical errors than English speakers when the matrix verb, adposition, or adverb was an EN trigger, which is expected given the different status of expletive negation in the languages’ reference grammars. We also found an interaction between language and negator form. French EN trigger stimuli with *ne* as negator lead to the most number of logical errors, compared to the corresponding English and Mandarin stimuli, but French EN trigger stimuli with *ne ... pas* as negator lead to about the same number of logical errors as the corresponding English stimuli and less logical errors than the corresponding Mandarin stimuli. Finally, there was no rank order correlation between EN triggers ordered by percentage of logical errors in the three languages, but there was a near-high correlation ($r = .66$) between the percentage of logical errors after individual EN triggers and the percentage of expletive negation produced after the corresponding triggers in our corpus in both English and Mandarin.

(2) a. **Non-EN-trigger + logically inconsistent negation**

I used to be a strict vegetarian. Last year, I was diagnosed with iron-deficiency anemia, a disease caused

by not eating enough meat. My doctor strongly recommended that I eat meat. **So I started not eating meat.**

b. **EN-trigger + logically inconsistent negation**

After learning that being vegan can prevent the exploitation of animals and promote a greener life on our planet, I decided to become vegan. **So I quit not eating meat.**

c. **Non-EN-trigger + logically consistent negation**

After learning that being vegan can prevent the exploitation of animals and promote a greener life on our planet, I decided to become vegan. **So I started not eating meat.**

d. **EN-trigger + logically consistent negation**

I used to be a strict vegetarian. Last year, I was diagnosed with iron-deficiency anemia, a disease caused by not eating enough meat. My doctor strongly recommended that I eat meat. **So I quit not eating meat.**

The results of our three experiments suggest that speakers of English, French, and Mandarin include fine-grained information about how likely an expletive negation is to appear after particular triggers and that this information is language specific, as there is no rank order correlation between triggers ordered by percentage of logical errors across the three languages. Furthermore, the difference between the likelihood of an expletive interpretation of *ne* and *ne ... pas* in our French experiment suggests that particular lexical items can be conventionally associated with an expletive negation interpretation.

The need to include in the lexical description of individual triggers its expletive negation potential is confirmed by the choice of expletive negator in languages that include more than one negator. We discuss Mandarin here, but similar data from Januubi Arabic and Zarma-Sonrai can be found in Jin & Koenig (2021). Mandarin has at least three negators, *bù*, *méi*, and *bié* (Li & Thompson, 1981). Simplifying, *bù* is a neutral negation typically used when the described event is still not completed later than reference time, whereas *méi* is the negation used when the described event is not completed at reference time; finally, *bié* is the negation used in imperatives and negative wishes. Critically, the rules for choosing negators are respected when the negator is used expletively. Thus, *bié* is used after predicates expressing fear, since the negative inference pertains to negative wishes, as shown in (3).

- (3) xǔduō rén zài wèile xuéyè hé shìyè nǔlì-zhe, shēngpà zìjǐ bié bèi shìjiè
many people PROG for study and career work.hard-PROG fear self IMP.NEG PASS world
táotài-diào.
eliminate-COMPL
'Many people are working hard in their studies and careers for fear that they might be out of step with the world.'

Similarly, the form of the negator after *qián* 'before' differs depending on whether the negation is expletive or logical, as predicted by the rules for choice of negator. Consider (4) and (5). The negation in (4) is expletive, so the sentence means that the export had not started at reference time (this is the negative inference) and the negator must therefore be *méi*. The negation in (5), on the other hand, is logical, so the sentence means that the end of the exports will take place later than reference time and the negation must be *bù*. The data from Chinese illustrated in (3)-(5) suggests that expletive negation must be part of the representation of individual EN

triggers, as the meaning that is relevant for the selection of negator (e.g., *bié* in (3)) depends on the specific negative inference triggered by the matrix verb. Only words such as *shēngpà* ‘fear’ entail a negative inference that is a negative wish that provides the appropriate context for the use of *bié*.

- (4) (Context: Since we started exporting our products to the US last year, our profits have quadrupled)

qíshí, hái **méi** chūkǒu qián wǒmen jiù néng yùjiàn zhège jiéguǒ le.
in.fact still PRF.NEG export before we already can predict this result PFV

‘In fact, we could already predict this result before we exported.’ (Not exporting is true at reference time = past of argument proposition of *before*)

- (5) (Context: Since we stopped exporting our products to the US because of the trade war, our profits have plummeted greatly)

qíshí, **bù** chūkǒu qián wǒmen jiù néng yùjiàn zhège jiéguǒ le.
in.fact IPFV.NEG export before we already can predict this result PFV

‘In fact, we could already predict this result before we stopped exporting.’ (Not exporting is what will happen in future of reference time)

To represent expletive negation in the grammar of French, Mandarin, and other languages, we use Lexical Resource Semantics (Richter & Sailer, 2004) as underspecification makes it relatively easy to state the constraints on the lexical description of EN triggers and treat the negative inference as a non-at-issue content, following Potts (2005) (see Hasegawa & Koenig 2011 and Sailer & Am-David 2016 for some previous work in Lexical Resource Semantics that tackles non-at-issue content). We add to the value of the feature SEM the attribute NI-CONT (non-at-issue content) whose value is a list of meaningful expressions. The (informal) descriptions of the two entries for *qián* ‘before’—the one used when no expletive negation occurs in the complement clause and the one used when an expletive negation occurs in the complement clause—are provided in (6); the two corresponding entries for *shēngpà* ‘fear’ are provided in (7). The value of PARTS for the two EN entries includes a negation and its argument proposition ($\bar{1}$ in (6) and (7)), but the argument proposition (not the negation of the argument proposition) is the argument of *before*’ and *fear*’, respectively, since the negation belongs to the non-at-issue content.

$$\begin{aligned}
 (6) \quad & \left[\begin{array}{l} \textit{before1} \\ \text{SEM} \left[\text{ICONT } \textit{before}'(\alpha) \right] \end{array} \right] \left[\begin{array}{l} \textit{before2} \\ \text{SEM} \left[\begin{array}{l} \text{ICONT } \textit{before}'(\bar{1}\alpha) \\ \text{NI-CONT } \langle \dots, \neg\bar{1}, \dots \rangle \\ \text{PARTS } \langle \dots\neg, \bar{1}, \neg\bar{1}, \dots \rangle \end{array} \right] \end{array} \right] \\
 (7) \quad & \left[\begin{array}{l} \textit{fear1} \\ \text{SEM} \left[\text{ICONT } \textit{fear}'(a,\alpha) \right] \end{array} \right] \left[\begin{array}{l} \textit{fear2} \\ \text{SEM} \left[\begin{array}{l} \text{ICONT } \textit{fear}'(\bar{2},\bar{1}\alpha) \\ \text{NI-CONT } \langle \dots, \textit{want}(\bar{2}, \neg\bar{1}), \dots \rangle \\ \text{PARTS } \langle \dots\neg, \bar{1}, \neg\bar{1}, \dots \rangle \end{array} \right] \end{array} \right]
 \end{aligned}$$

The expletive negation entry for *qián* ‘before’ includes as non-at-issue content the negation of the argument proposition of ‘before’ (its internal content). Interestingly, the expletive negation entry for *shēngpà* ‘fear’ includes the predicate ‘want’ in its non-at-issue content. Although that predicate does not appear to be expressed in (3), ‘want’ must still be present in the semantic representation so as to license the choice of negator (*bié*). Interestingly, additional predicates that are terms of the negative inferences can be expressed for other triggers. Jin & Koenig (2021) provide examples that predicates like $\text{regret}(p)$ license expletive negation because they entail that according to the attitude holder’s behavioral standards $\neg p$, in other words they entail $\Box \neg p$ with respect to the appropriate modal base and ordering source (Kratzer, 1981). The fact that all examples of expletive negation in English, French, and Mandarin we found after verbs expressing regret include a necessity modal operator support Jin & Koenig’s hypothesis. The attested French example in (8) whose (informal) representation is provided in (9) illustrates. In the case of *regretter* ‘regret’, then, both \Box and \neg within the NI-CONT value are expressed (as *falloir* and *ne*, respectively) and are members of the PARTS list whereas in the case of *shēngpà* ‘fear’, only \neg is, ‘want’ is not.

- (8) Je regrette qu’il ne faille souvent attendre des années avant que l’histoire ne juge
 I regret that.it NEG should.SBJV often wait ART.INDEF years before that.the.history NEG judge.SBJV
 les tyrans.
 the tyrants
 ‘I regret that it often should take years before history judges tyrants.’

$$(9) \left[\begin{array}{l} \text{regret2} \\ \text{SEM} \left[\begin{array}{l} \text{ICONT} \quad \text{regret}'(a, \boxed{1}) \\ \text{NI-CONT} \left\langle \dots, \Box \neg \boxed{1}, \dots \right\rangle \\ \text{PARTS} \quad \left\langle \dots \neg, \boxed{1}, \neg \boxed{1}, \dots \right\rangle \end{array} \right] \end{array} \right]$$

To conclude, our paper suggests that although expletive negation starts as a slip of the tongue due the semantic interference between the speaker’s intended message and a negative inference that derives from that message, EN triggers (and negators for French) can grammaticalize into distinct lexical entries. While most work on performance-based emergence of grammatical structure assumes the resulting grammatical structures optimize some aspect of production, parsing, or communication (see Horn & Bayer 1984 and Hahn et al. 2020 among others), the grammaticalization of expletive negation results from slippage—the entrenchment of a frequent slip of the tongue whereby an entailment of the speaker’s message rather than the message itself is expressed.

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