The grammatical representation of expletive negation

Yanwei Jin and Jean-Pierre Koenig
Department of Linguistics and Center for Cognitive Science
University at Buffalo
{yanweiji,jpkoenig}@buffalo.edu

Expletive or redundant negation

(1) J'ai   peur qu'il **ne** pleuve
I have fear that it NEG pleuve.SBJV
'I fear that it will rain' (*ne* = expletive negation *peur = expletive negation trigger*)

- Speaker of (1) intends to the say the opposite of what (s)he is saying
  - ▸ Literal meaning: **fear'(sp, ¬ rain')**
  - ▸ Actual meaning: **fear'(sp, rain')**

  "J'avoue que cette particule prohibitive paroît rédondante en notre Langue"
  I confess that this prohibitive particle appears redundant in our language (d'Olivet, 1767, 304)

Question

(1) Is expletive negation represented in the grammar of natural languages? (2) How does semantic composition work in sentences that contain an expletive negation?

Outline

1. What is expletive negation?
2. Do native speakers <u>produce</u> and <u>comprehend</u> negation expletively?
3. Is expletive negation represented in the grammar of natural languages?
4. How is expletive negation represented in the grammar of natural languages?

Outline

1. What is expletive negation?
2. Do native speakers <u>produce</u> and <u>comprehend</u> negation expletively?
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A semantically coherent definition of Expletive Negation

- Previous authors' use of the term *expletive negation* covers loosely related contexts where a negator seems semantically redundant (Delfitto, 2020)
- Jin & Koenig (2021) provide a semantically coherent definition

(2) "The occurrence of a negator is an instance of expletive negation if (i) it is included in a syntactic dependent of a lexical item (verb, adposition, adverb, or collocation), (ii) it is triggered by the meaning of that lexical item, but (iii) it does not contribute a (logical) negation to the proposition that the syntactic dependent denotes." (Jin & Koenig, 2021)

Expletive negation occurs on all continents in similar contexts

- Jin & Koenig (2021) and Jin (2021) looked at a large sample of languages (reference grammars and papers on negation): 128 languages have examples of expletive negation out of 1,142 languages
    1. Expletive negation occurs on every continent and in 61 genera
    2. Expletive negation triggers are almost the same across languages we looked carefully at
    3. The meaning of triggers accounts for the occurrence of expletive negation: triggers entail or strongly imply a negative proposition

(3) **fear(x, p) $\models_C$ want(x, ¬p)**

(4) a. **p**: positive proposition
    b. **¬p**: negative proposition
    c. **want(x, ¬p)**: negative inference

The interaction of language production and meaning accounts for the similarity of triggers

- Jin & Koenig (2019, 2021) develop a model of the production of expletive negation:

1. EN triggers lead to a negative inference that includes the negative proposition
2. Activation of concepts via inference can lead to erroneous lexicalization in production (Dell, 1986)
3. The lexicalization of the negative proposition occurs more often than typical slips of the tongue as it is entailed/strongly implied by the meaning of the message
4. Erroneous lexicalization of the negative proposition can become more or less entrenched (Langacker, 1987)

A graphical representation of our production model

$fear$ ← → $\textrm{FEAR}(x, p)$

$\textrm{WANT}(x, \neg p)$

not ←
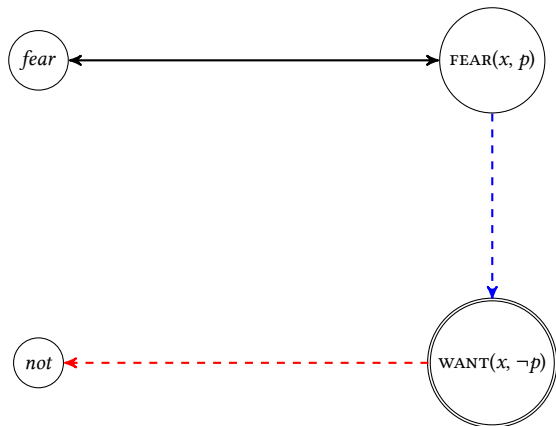
——— : lexical associations   - - - - - : inference   - - - - - : interference

Predictions of our model of EN

- <u>Linguistic uniformity hypothesis:</u> EN should occur in all languages
- <u>Trigger uniformity hypothesis:</u> EN should occur in very similar contexts across languages
- <u>Grammatical variability hypothesis:</u> The frequency of EN can vary by trigger, language, and negator

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English and Mandarin speakers produce EN more or less depending on the trigger

- Quirk et al. (1985) do not mention EN, Huddleston & Pullum (2002) lump one case of EN with different kinds of "pleonastic negation"; Horn (2010) shows that EN occurs in some contexts in English <u>parole</u>
- A Google corpus study showed that EN occurs in all the environments where it occurs in French and Mandarin: between ≃ 0% to 100% (mean: ≃ 24.6%)
- A corresponding Google corpus study showed that EN occurs more in Mandarin than English (≃ 60%)

Question
Do speakers <u>comprehend</u> negators expletively?

Semantic interference comprehension experiments involving expletive negation in English, French, Mandarin, and Spanish

- Participants read short paragraphs (2-3 sentences) and their continuations (1 sentence).
- Participants indicated whether the continuation is consistent or inconsistent with the paragraph they just read:

    If speakers interpret a negator in the complement of an EN trigger expletively, consistency judgments should be harder than for non-EN triggers (two opposite responses compete with each other)

- Logical accuracy of judgments and response time were recorded.

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.

Linguistic uniformity is confirmed

- Speakers of all four languages made more logical errors in the +EN condition than in the -EN condition.
- Speakers of all four languages took longer to respond in the +EN condition than in the -EN condition.

	English		French		Mandarin		Spanish	
	−EN	+EN	−EN	+EN	−EN	+EN	−EN	+EN
% of logical errors	7.35%	22.5%	9.35%	55.6%	9.7%	58.3 %	9.5%	27.7%
Decision latency	3930	5673	5163	5949	3944	6143	4334	7155

	ne		*ne …pas*	
	−EN	+EN	−EN	+EN
% of logical errors	9.49%	82.04%	9.2%	29.05%
Decision latency	4128	5163	3761	7124

Variability in expletive negation

- How frequently speakers produce expletive negation or understand negators expletively depends on
  - Language: French, Mandarin ≫ Spanish > English
  - Trigger: PREVENT > FORGET (E)
  - Negator form: *ne* > *ne ...pas* (F)
- Comprehension mirrors production: there is a near high correlation between percentage of EN interpretation in corpus and by participants in English and Mandarin *r* = .66)

Outline

1. How frequent is expletive negation (EN) in languages of the world and how similar are the contexts where expletive negation occurs in languages of the world?

2. Do native speakers produce and comprehend negation expletively in "natural" contexts?

3. **Is EN represented in the grammar of natural languages?**

4. How is EN represented in the grammar of natural languages?

What do speakers know about EN in individual languages?

- Speakers know that different triggers have a different likelihood of leading to the production of EN (= trigger EN propensity)
- A trigger EN propensity is a <u>language specific</u> piece of information
  - The ranking of EN trigger propensity is not the same across languages: The orderings of EN trigger propensities across English, French, Mandarin, and Spanish do not match (Kendall rank correlation tests, $p > .05$)
- We need to include <u>with each trigger</u> <u>in each language</u> information about its propensity to trigger a negative inference

Grammatical entrenchment of negative inferences
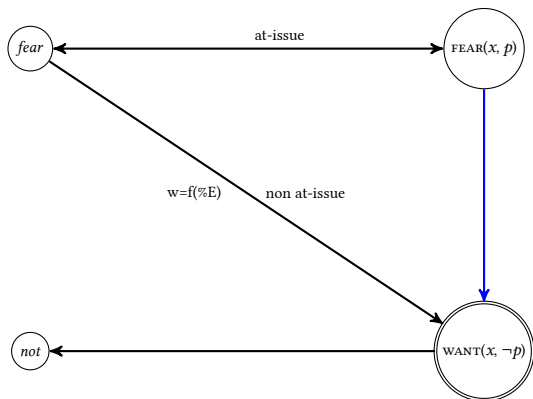
- Negative inferences are short-circuited (Morgan, 1978; Horn & Bayer, 1984)

Hypothesis

Negative inference is part of the (non-at-issue) semantic content of triggers

Arguments for the short-circuited inference hypothesis: the form of negators

- French negators are more or less likely to be understood expletively: *ne ...pas* ≪ *ne* (Larrivée, 1996)
  ⇒ The entry for *ne* must mention its expletive status

- Languages that have several distinct logical negators use distinct expletive negators <u>in accord with the language's constraints on choice of negator</u> (Arabic, Mandarin, Zarma-Sonrai)
  ⇒ Speakers must represent the negative inference grammatically to choose which negator to use

Negators in Mandarin

- There are at least three negators in Mandarin, *bù*, *méi*, *bié*
    - *méi*: negation used when the negated proposition is true at reference time
    - *bù*: neutral negation (Li & Thompson, 1981); used when the negated proposition is true after reference time
    - *bié*: negation used in imperatives and negative wishes

- The negative inference for FEAR is **want(x, ¬p)**: the appropriate expletive negator for FEAR is the negator appropriate for imperatives and negative wishes

(5) xǔduō rén   zài   wèile xuéyè hé shìyè nǔlì-zhe,   shēngpà zìjǐ **bié**
     many people PROG for   study and career work.hard-PROG fear   self IMP.NEG
     bèi   shìjiè táotài-diào.
     PASS world eliminate-COMPL

     'Many people are working hard in their studies and careers for fear that they might
     be out of step with the world.' (Retrieved from:
     https://www.bilibili.com/read/cv3882825/, accessed 22 November 2019)

A structured semantic representation model of EN

- We need to represent <u>grammatically</u> the negative proposition that licenses expletive negation to appropriately choose negator form in Arabic, Mandarin, Zarma-Sonrai, …
- We also need to represent it <u>grammatically</u> to account for the occurrence of *ne* in modern French
- Our analysis assumes:
  - A structured representation of the meaning of sentences (von Stechow, 1991)
  - Non-at-issue content (negative inference) is distinct from at-issue content (positive proposition) (Potts, 2005)
  - A semantic underspecification approach to natural language semantics, Lexical Resource Semantics (LRS) (Richter & Sailer, 2004)
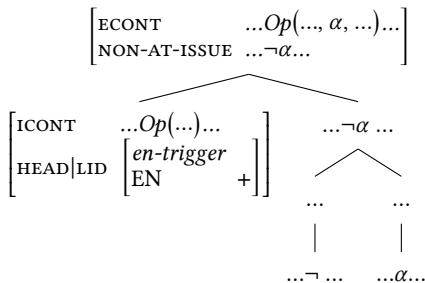
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The overall idea

- Semantic composition within the argument proposition of EN-triggers proceeds as expected
- Special composition rule for the combination of an EN-trigger and its complement clause:
  When composing $\ldots \neg\alpha \ldots$ with EN-triggers, α is the argument proposition of the trigger's meaning and $\neg\alpha$ is part of the non-at-issue content

$$
\begin{bmatrix} \text{ECONT} & \ldots Op(\ldots, \alpha, \ldots)\ldots \\ \text{NON-AT-ISSUE} & \ldots\neg\alpha\ldots \end{bmatrix}
$$

$$
\begin{bmatrix} \text{ICONT} & \ldots Op(\ldots)\ldots \\ \text{HEAD}|\text{LID} & \begin{bmatrix} \textit{en-trigger} \\ \text{EN} & + \end{bmatrix} \end{bmatrix}
\qquad \ldots\neg\alpha\ldots
$$

$$\ldots \qquad \ldots$$

$$\ldots\neg\ldots \qquad \ldots\alpha\ldots$$

Lexical vs. configurational composition

- We need to be able to reference parts of formulas in our EN-trigger specific compositional rule to pick apart $\neg$ and α: Semantic underspecification (LRS)
- But, lexical items do not have access to the entire semantics of the dependents they select in standard LRS (Sailer 2004: SEM is not part of SYNSEM, only CONT is)
  1. A lexically-driven EN-composition rule: we change our assumptions about the feature geometry of SEM and treat EN-trigger composition lexically
  2. A configurational EN-composition rule: we add a clause to the Semantics Principle for EN-triggers *qua* triggers
- The lexically-driven approach is slightly easier

The general EN trigger lexical class

- Conventionalized EN triggers have an alternate entry that ensures that:
  - The external content of the complement includes the negative proposition
  - The internal content of the EN trigger includes the application of an operator to the positive proposition
  - The non-at-issue content of the EN trigger includes the negative inference
  - EN-triggers <u>when used in a expletive negation context</u> have a LID of type *en-trigger* and are $[\text{EN} \ +]$

$$
(6) \begin{bmatrix} \text{HEAD|LID} & \begin{bmatrix} \textit{en-trigger} \\ \text{EN} & + \end{bmatrix} \\ \text{SYNSEM} & \langle ..., [\text{ECONT} \ \neg\alpha], ... \rangle \\ \text{CONT|MAIN} & P \\ \text{SEM} & \begin{bmatrix} \text{ICONT} & \beta \\ \text{NI-CONT} & \langle ..., \gamma, ... \rangle \end{bmatrix} \end{bmatrix}
$$
$P(\ldots, \alpha, \ldots) \triangleleft \beta, \neg\alpha \triangleleft \gamma$

Vacuous restrictions on negative inference

- For many EN triggers the negative inference <u>is</u> the negative proposition $\neg p$
- For those triggers, the non-at-issue content is simply the negation of the EN trigger's argument proposition

$$
(7) \quad
\begin{bmatrix}
\textit{before1} \\
\text{HEAD|LID} \begin{bmatrix} \textit{en-trigger} \\ \text{EN} \qquad - \end{bmatrix} \\
\text{SEM} \quad \begin{bmatrix} \text{ICONT} & ...\text{before'}(\alpha)... \end{bmatrix}
\end{bmatrix}
\begin{bmatrix}
\textit{before2} \\
\text{HEAD|LID} \begin{bmatrix} \textit{en-trigger} \\ \text{EN} \qquad + \end{bmatrix} \\
\text{SEM} \begin{bmatrix} \text{ICONT} & ...\text{before'}(\boxed{1}\alpha)... \\ \text{NI-CONT} & \langle ..., \neg\boxed{1}, ... \rangle \end{bmatrix}
\end{bmatrix}
$$

Unexpressed restriction on negative inference

- For other triggers the negative inference ≠ negative proposition $(Op(\neg p))$
- *Op* can remain unexpressed even if it matters for the choice of negator
  - the main predicate of the EN trigger's complement for **fear'** is <u>part of</u> the positive proposition, but **want'** is not

(8)
$$
\begin{bmatrix}
\textit{fear1} \\
\text{HEAD|LID} & \begin{bmatrix} \textit{en-trigger} \\ \text{EN} & - \end{bmatrix} \\
\text{SEM} & \begin{bmatrix} \text{ICONT} & ...\text{fear'}(a,\alpha)... \end{bmatrix}
\end{bmatrix}
\begin{bmatrix}
\textit{fear2} \\
\text{HEAD|LID} & \begin{bmatrix} \textit{en-trigger} \\ \text{EN} & + \end{bmatrix} \\
\text{SEM} & \begin{bmatrix} \text{ICONT} & ...\text{fear'}(\boxed{2},\boxed{1}\alpha)... \\ \text{NI-CONT} & \langle ...,\text{want'}(\boxed{2},\neg\boxed{1}), ... \rangle \\ \text{PARTS} & \langle ...\neg, \boxed{1}, \neg\boxed{1},\text{want'},... \rangle \end{bmatrix}
\end{bmatrix}
$$

(9) J'ai   peur qu'il ne <u>pleuve</u>.
    I have fear that it NEG pleuve.SBJV
    'I fear that it will rain.'

Expressed restriction on negative inference

- For some triggers the part of the negative inference that is not the negative proposition (*Op*) <u>is</u> expressed
  - the main predicate of the EN trigger's complement is <u>part of</u> the negative inference: $\Box_{bs}$ in (11) is the main predicate of the EN trigger's complement

(10) 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.
(Retrieved from: https://www.quora.com/What-is-the-craziest-thing-youve-done-for-love-and-do-you-regret-it-even-if-it-didnt-work-out, accessed 20 October 2019)

(11)
$$
\begin{bmatrix}
\textit{regret2} \\
\text{HEAD|LID} \quad \begin{bmatrix} \textit{en-trigger} \\ \text{EN} \quad + \end{bmatrix} \\
\text{SEM} \quad \begin{bmatrix}
\text{ICONT} \quad \ldots\text{regret'}(a, \boxed{1})\ldots \\
\text{NI-CONT} \quad \langle \ldots, \Box_{bs}\neg\boxed{1}, \ldots \rangle \\
\text{PARTS} \quad \langle \ldots, \neg, \boxed{1}, \neg\boxed{1}, \boxed{2}\Box_{bs}, \ldots \rangle
\end{bmatrix} \\
\text{ARG-ST} \quad \langle \text{NP}, \begin{bmatrix} \text{CONT} \quad \begin{bmatrix} \text{MAIN} \quad \boxed{2} \end{bmatrix} \end{bmatrix} \rangle
\end{bmatrix}
$$

Negators restricted to expletive negation

- French expletive negation works the same as expletive negation in other languages and the same for *ne* and *ne ...pas*
- <u>But</u> French expletive *ne* <u>by itself</u> is lexically specified as modifying a VP that reverse-select for an EN-trigger

$$(12) \quad \begin{bmatrix} \textit{expl-ne-wd} \\ \\ \textsc{cat} \quad \begin{bmatrix} \textsc{head} & \begin{bmatrix} \textsc{lid} & \textit{expl-ne} \end{bmatrix} \\ \textsc{mod} & \begin{bmatrix} \textsc{cat}|\textsc{rev-select} & \left\{ ..., \begin{bmatrix} \textsc{lid} & \begin{bmatrix} \textit{en-trigger} \\ \textsc{en} + \end{bmatrix} \end{bmatrix}, ... \right\} \end{bmatrix} \end{bmatrix} \end{bmatrix}$$

The conventionalization of a semantic inference

- Negative inference starts out as a semantic interference between the intended message and an inference from that message, but:
  - There is evidence from production and comprehension that speakers of individual languages associate a relative propensity to the occurrence of EN with individual triggers
  - In languages like Januubi Arabic, Mandarin, Zarma-Sonrai (and others), the choice of expletive negator in the complement clauses obeys the language's rules for form of negator
  - French *ne* is a negator that selects for the negative inference

A specialized semantic composition rule

- We model the conventionalization of the negative inference via an EN-trigger specific composition rule that requires:
  1. Only the α of the $\neg\alpha$ semantics of the complement clause be the argument of the EN trigger
  2. $\neg\alpha$ be included in the negative inference associated with the trigger
- Our analysis relies crucially on the assumption that grammar rules include descriptions of semantic representations
- Our analysis easily extends to the unique case of French *ne*:
  - The entry for expletive *ne* reverse-selects for EN-triggers *qua* triggers

On the nature of linguistic conventions

- It is unclear <u>when</u> a EN-trigger entry arises
- It is not clear that the negative inference is <u>conventional</u> in the sense of Grice (1957) or Lewis (1969)

  "Même si certains usagers sentent des nuances de ce genre, elles n'ont aucun caractère général." (Grevisse & Goose 2007, 1401 [Translation: Even if some users feel nuances of this kind, they are not general in nature]).

- Speakers' attitudes w.r.t. EN and the variability of EN's conventionalization suggests the normativity of grammars is more fuzzy than we sometimes think (Pullum, 2019)
  - Convention $\simeq$ expectation (can be more or less)
  - Convention $\simeq$ mutually known intention (Power, 1984)

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