

Negative Polarity Items

Corpus Linguistics, Semantics, and Psycholinguistics

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Four Questions from Ladusaw (1996)

- 1 Licensor Question
Which elements license NPIs?
- 2 Licensee Marking Question
How can an NPI be distinguished from other items?
- 3 Licensing Relation Question
Which relation must hold between the licensor and the licensee?
- 4 Status Question
What is the status of sentences with unlicensed NPIs?

Licenser Question

Which elements license NPIs?

- Take a number of NPIs and gather example sentences.
- *any, ever, lift a finger*
- *any*:
 - ▶ Nobody ordered any meat dish.
 - ▶ * Pat ordered any meat dish.
- *ever*:
 - ▶ Nobody has ever understood this theory.
 - ▶ * Pat has ever understood this theory.
- *lift a finger*:
 - ▶ Nobody lifted a finger to help me.
 - ▶ * Pat lifted a finger to help me.

Occurrences of *ever* Hoeksema (2000)

- 1 Nobody ever trusted Fred.
- 2 I don't think I could ever trust you.
- 3 Do you think I could ever trust you?
- 4 If you think I could ever trust you, you're wrong.
- 5 I love you more than I could ever say.
- 6 Fred is too smart to ever admit that he wrote the pamphlet.
- 7 Few people ever admit that they're wrong.
- 8 Fred was the first to ever swim across the Adriatic.
- 9 All I could ever do was gnash my teeth and obey.
- 10 Only Fred has ever swum across the Adriatic.
- 11 Fred denied ever having had an affair with Edna.
- 12 Who would ever trust Fred?
- 13 Like I would ever trust Fred!

Licenser Question

Which elements license NPIs?

- 1 clausemate negation or n-word
- 2 complement clause to *don't think*
- 3 yes/no questions
- 4 *if*-clause
- 5 comparative
- 6 *too*
- 7 *few N ... , not every N ...*
- 8 superlative
- 9 [*NP every ...*]:
- 10 *only*
- 11 complement clause to *doubt, refuse*
- 12 rhetorical wh-questions
- 13 exclamations

Classification of the licensers?

- lexical items; constructions
- not only constructions
- sometimes: reading-dependent
 - ▶ Every restaurant that charges so much as a dime for iceberg lettuce ... should be shut down.
 - ... * happens to have four stars in the handbook.
- sometimes: form-dependent
 - ▶ Has he ever been to Hamburg before?
 - ▶ * He has ever been to Hamburg before?
- No licenser??
 - ▶ * Pat is glad that he ever went to Hamburg.
 - * Luckily Pat ever went to Hamburg.
 - ▶ * Guess what: We got any tickets at all!
 - ▶ I am glad we got any tickets at all!
 - Luckily we got any tickets at all!

Licensee Marking Question

How can an NPI be distinguished from other items?

If there are different types of NPIs, how can they be distinguished?

Collections of NPIs

Dutch: Hoeksema (2002)

German: CoDII, Kürschner (1983)

English: Welte (1978), von Bergen and von Bergen (1993) (compiled into: `english-npi.pdf`)

Syntactic categories?

- N: *Sterbenswörtchen* (German, *dying word*)
- V: *fackeln* (German, *dither*)
- A: *pluis* (Dutch, *hunky-dory*)
- Adv: *ever, yet*
- Det: *any*
- Aux: *need*
- P: ??
- Conj: *sondern* (German, *but*)
- Comp: *lest* (?)
- Numerals: — (van der Wouden, 1997, p. 68)

NPI-Challenge: Find an NPI of the missing syntactic categories!

Simple versus complex

- simple: *any, need*
- complex (idioms): *lift a finger, budge an inch, at all, all that*

Semantic marking?

- no NPIs:

- ▶ “content nouns” (*elephant*)
in idiom: *hold a candle to*
- ▶ verbs denoting highly specific actions: *devour, cycle*

- NPIs:

- ▶ nouns denoting minimal amounts: *drop, bit, finger, inch, word*
- ▶ nouns with taboo character: *shit, a damn*
- ▶ maximal elements: *wild horse would drag so. somewhere, in a hundred years, for the world, touch with a ten-foot pole, sonderlich* (German, *particularly*)

Are all NPIs the same?

- With *not everyone*:
 - ▶ Not everyone has ever heard about NPIs before.
 - ▶ * Not everyone has earned a red cent with paintings.
- With matrix negation:
 - ▶ I don't claim that Pat will ever sell one of his paintings.
 - ▶ * I don't claim that Pat will earn a red cent with his paintings.
- In questions:
 - ▶ Have you ever been to Hamburg before?
 - ▶ Did Pat earn a red cent with his paintings?

Licensing Relation Question

Which relation must hold between the licensor and the licensee?

- Syntactic:

- ▶ licensor precedes NPI: * Any book has not been read by Pat.
- ▶ c-command:
 - * The student who won't stay the second week, has ever downloaded the class material.

- Semantic:

- ▶ licensor takes scope over NPI:
 - Pat didn't go to any class. (# Some class x : Pat didn't go to x)

- Locality: intervention effect/immediate scope constraint:

- ▶ Pat doubts that Chris/ *every student skipped any class meeting.
- ▶ Pat didn't give every student any comments.
 - for every student x : Pat didn't give x comments.
 - # NOT: for every student x : Pat gave x comments.

Status Question

What is the status of sentences with unlicensed NPIs?

- syntactically ill-formed? (syntax)
- syntactically well-formed, but uninterpretable? (semantics)
- syntactically and semantically well-formed, but inappropriate in most conceivable contexts? (pragmatics)

Possible Answers

- Syntactic answers
- Logical answers
- Pragmatic answers
- Collocational answers

Syntactic Answers

- Syntactic licensing relations:

- ▶ Binding:

John_i saw himself_i/*herself/*him_i in the mirror.

- ▶ In situ wh-words:

Who knows that John read which book?

* Who knows the man that read which book?

- Intervention effects:

- ▶ Binding:

The twins_i knew that there were pictures of [each other]_i in the newspaper.

* [The twins]_i knew that Mary had pictures of [each other]_i.

- ▶ In situ wh-words:

?? Which diplomat should I not discuss which issue with _?

Pesetsky (2000), Beck (2006)

* Who knows that every student read which book?

Syntactic Answers

- Licenser: marked with a syntactic feature
- Licensee: marked with a syntactic feature
- Relation:
 - ▶ c-command Klima (1964)
 - ▶ immediate c-command at LF Linebarger (1980)
 - ▶ binding Progovac (1994)
 - ▶ feature checking Guerzoni (2006)
- Status: syntactically not well-formed.

Problems

- Marking arbitrary or relies on other theories.
- Parallel to other syntactic processes not clear (binding, covert movement).
- Reading-dependent behavior Heim (1984):
 - ▶ Every restaurant that charges so much as a dime for iceberg lettuce ... should be shut down.
... * happens to have four stars in the handbook.

Logical Answers

- Entailment:
A entails B: whenever A is true, B must be true as well.
- Downward entailment:
Context X_Y is downward entailing iff
for each A, B such that A is a subset of B, XBY entails XAY .
- Example:
 - ▶ “lives in Hamburg” is a subset of “lives in Germany”
 - ▶ “Pat doesn’t live in Germany”
entails “Pat doesn’t live in Hamburg.”
 - ▶ “Some ESSLLI participants live in Germany” doesn’t entail “Some ESSLLI participant lives in Hamburg.”
 - ▶ “Every linguist who lives in Germany knows about ESSLLI.”
entails “Every linguist who lives in Hamburg knows about ESSLLI.”

Logical Answers

- Licenser: Downward-entailing operators of different types (Ladusaw (1980), Zwarts (1997), von Stechow (1999))
- Licensee: inherent scope property Ladusaw (1980); partial semantics
- Relation: scope
- Status: grammatically well-formed, but uninterpretable

Licensers and licensees

- downward-entailing (DE):
 - ▶ *few, hardly, not every, ...*
 - ▶ $f(X \cup Y) \subseteq f(X) \cap f(Y)$ and $f(X) \cup f(Y) \subseteq f(X) \cap f(Y)$
 - ▶ simply DE operators: 'allow for exceptions'
 - ▶ license *any, ever*, but not *a red cent*
- anti-additive (AA):
 - ▶ *nobody, never, ...*
 - ▶ $f(X \cup Y) = f(X) \cap f(Y)$ and $f(X) \cup f(Y) \subseteq f(X \cap Y)$
 - ▶ simply AA operators: n-constituents; 'don't allow for exceptions'
 - ▶ license all NPIs
- antimorphic:
 - ▶ *not, allerminst* (Dutch, *not at all*)
 - ▶ $f(X \cup Y) = f(X) \cap f(Y)$ and $f(X \cap Y) = f(X) \cup f(Y)$
 - ▶ 'sentential negation'
 - ▶ license all NPIs

Problems

- entailment generalization empirically problematic
- interaction with syntax/grammar unclear
- no account for locality/intervention

Pragmatic Answers

- Informativeness of an utterance:
 - ▶ Pat read the book or Pat didn't read the book.
 - ▶ Did you drink at least a minimal amount of water?
- Scalar implicatures:
 - ▶ scale: all > many > few > some > no
 - ▶ "I like (at least) many places in Hamburg."
entails "I like (at least) some places in Hamburg."
 - ▶ "I like (at least) many places in Hamburg."
implicates: "It is not true that I like all places in Hamburg."
(make the strongest assertion possible)
- Domain widening:
 - ▶ I didn't know a student. (domain: ESSLLI participants)
 - ▶ I didn't know a student at all before. (domain: all students in the world)
 - ▶ * I know at least a single student at all.

Pragmatic Answers

- Licenser: (doesn't play a role; instead: presence of a domain-widening operator Kadmon and Landman (1993), Chierchia (2006) or an assertion operator Krifka (1995))
- Licensee: triggers lexical alternatives
- Relation: distribution of the pragmatic operators
- Status: claim too weak or contradiction between asserted and implicated content of the utterance.

Krifka (1995):

- ▶ Mary saw anything.
- ▶ assertion: Mary saw something what so ever.
implicature: There is no reason to believe that Mary saw a concrete thing.

Problems

- different types of NPIs?
- distribution of the pragmatic operator not fully clear
- pragmatic repair strategies don't work with NPIs.

Collocational Answers

- collocation: *strong tea, take a shower* Sinclair (1991)
- Butler (1985), p. 130
“The defining feature of a lexical item, by which such an item is recognized, is its pattern of co-occurrence with other items, that is its *collocational* behavior. A lexical item is recognized as different from other lexical items because its total pattern of collocation is unique.”
- application to NPIs: van der Wouden (1997)

Collocational Answers

- Licenser: marked by lexical property (entailment van der Wouden (1997), operator in the semantic representation Sailer and Richter (2002))
- Licensee: arbitrary marking
- Relation: co-occurrence in a particular constellation
- Status: unusual, strange, not-acceptable

Problems

- collocation theory usually 'data-driven' but unconnected to formal syntax/semantics/pragmatics.
- expects high degree of idiosyncratic variation
- no principled account for locality effects
- intervention effects unclear

Summary of possible answers

- different theories have different focus, look at different classes of data.
- difficulties of comparing theories
- limitations of introspective data (variation, context-dependent licensing, comparison with other phenomena)
- status of the data is not clear at all

Why empirical research?

- Licensor:
Can we find more contexts? Are all contexts equally fine?
- Licensee:
Can we find more NPIs? What classes of NPIs are there?
- Relation:
Can we test whether the relation between the NPI and the licensor patterns with other linguistic relations?
- Status:
Can we test the status of sentences with unlicensed NPIs?

Empirical methods

- corpus linguistics: usage data
 - ▶ more data on the usage of known NPIs
 - ▶ NPI classification based on usage possible?
 - ▶ usage data essential for context-dependent readings
 - ▶ find new NPIs
- psycholinguistics: judgment and processing
 - ▶ NPI classification
 - ▶ investigation of intervention
 - ▶ answer to the status question

Summary

- What we saw today:
 - ▶ Four questions on NPIs
 - ▶ Four attempts to answer them
- Conclusion
 - ▶ diverse theoretical approaches with different predictions
 - ▶ empirical basis still not settled.
- Outlook
 - ▶ Tuesday & Wednesday: corpus linguistics
 - ▶ Thursday & Friday: psycholinguistics

Assignment Day 1

- Aim:

Find six different NPIs in your native language that belong to at least three different syntactic categories.

- Method:

- 1 Pick six to eight NPIs from the file: `english-npi.pdf`
- 2 Translate the items into your native language.
- 3 Test whether the translations are NPIs as well.

Diagnostic environments:

- (i) Can the item occur in a clause whose subject is "nobody"?
- (ii) Is the sentence grammatical when you use the subject "Pat" instead?

example:

- (i) **Nobody** had the ghost of a chance of getting the job.
- (ii) * Pat had the ghost of a chance of getting the job.

- Mail your results by tomorrow 11am to

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- Beck, Sigrid (2006). Intervention Effects Follow from Focus Interpretation. *Natural Language Semantics* 14, 1–56.
- von Bergen, Anke and von Bergen, Klaus (1993). *Negative Polarität im Englischen*. Tübingen: Narr.
- Butler, Christopher S. (1985). *Systemic Linguistics: Theory and Application*. Batsford, London.
- Chierchia, Gennaro (2006). Broaden Your Views. Implicatures of Domain Widening and the "Logicity" of Language. *Linguistic Inquiry* 37, 535–590.
- von Fintel, Kai (1999). NPI-Licensing, Strawson-Entailment, and Context-Dependency. *Journal of Semantics* 16, 97–148.
- Guerzoni, Elena (2006). Intervention Effects on NPIs and Feature Movement: Towards a Unified Account of Intervention. Unpublished manuscript, University of Southern California Los Angeles.
- Heim, Irene (1984). A Note on Negative Polarity and Downward Entailingness. In *NELS* 14, pp. 98–107.
- Hoeksema, Jack (2000). Negative Polarity Items: Triggering, Scope and C-Command. In L. Horn and Y. Kato (Eds.), *Negation and Polarity*, pp. 115–146. Oxford University Press, Oxford.

- Hoeksema, Jacob (2002, November). De negatief-polaire uitdrukkingen van het Nederlands. Inleiding en lexicon. Manuscript, Rijksuniversiteit Groningen; constantly updated.
- Kadmon, Nirit and Landman, Fred (1993). 'Any'. *Linguistics and Philosophy* 16, 353–422.
- Klima, Edward (1964). Negation in English. In J. A. Fodor and J. Katz (Eds.), *The Structure of Language*, pp. 246–323. Prentice Hall, Englewood Cliffs, New Jersey.
- Krifka, Manfred (1995). The Semantics and Pragmatics of Weak and Strong Polarity Items. *Linguistic Analysis* 25, 209–257.
- Kürschner, Wilfried (1983). *Studien zur Negation im Deutschen*. Gunter Narr, Tübingen.
- Ladusaw, William (1980). *Polarity Sensitivity as Inherent Scope relations*. Garland Press, New York.
- Ladusaw, William (1996). Negation and Polarity Items. In S. Lappin (Ed.), *The Handbook of Contemporary Semantic Theory*, pp. 321–341. Blackwell.

Linebarger, Marcia Christine (1980). *The Grammar of Negative Polarity*. Ph. D. thesis, MIT. cited after the reproduction by the Indiana University Linguistics Club, Indiana, 1981.

Pesetsky, David (2000). *Phrasal Movement and its Kin*. Cambridge MA: MIT Press.

Progovac, Ljiljana (1994). *Negative and Positive Polarity*. Cambridge University Press.

Sailer, Manfred and Richter, Frank (2002). Not for Love or Money: Collocations! In G. Jäger, P. Monachesi, G. Penn, and S. Wintner (Eds.), *Proceedings of Formal Grammar 2002*, pp. 149–160.

Sinclair, John (1991). *Corpus, Concordance, Collocation*. Oxford: Oxford University Press.

Welte, Werner (1978). *Negationslinguistik. Ansätze zur Beschreibung und Erklärung von Aspekten der Negation im Englischen*. Wilhelm Fink Verlag, München.

van der Wouden, Ton (1997). *Negative Contexts. Collocation, Polarity and Multiple Negation*. London: Routledge.

Zwarts, Frans (1997). Three Types of Polarity. In F. Hamm and E. W. Hinrichs (Eds.), *Plurality and Quantification*, pp. 177–237. Dordrecht: Kluwer Academic Publishers.