

Minimizer negative polarity items in non-negative contexts

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Minimizer negative polarity items, such as *lift a finger*, are observed to be restricted in their occurrence to anti-additive context, i.e., they are licensed in the immediate scope of clausal negation and negative indefinites, but not in the scope of simply downward-entailing expressions such as *few*, see (1).

- (1) a. Alex didn't lift a finger to help.
- b. Noone lifted a finger to help.
- c. *Few students lifted a finger to help.

In other NPI-licensing contexts, such as *if*-clauses, the restrictor of *every*, and polar questions, minimizers are excluded under episodic, non-biased readings. They are, however, licensed under certain pragmatic conditions (Borkin, 1971; Linebarger, 1980; Heim, 1984; van Rooy, 2003). Generally, in these cases, there is some presupposition, expectation, or other inference involved in which the NPI would be in the scope of a negation, see (2).

- (2) Every restaurant that charges so much as a dime for iceberg lettuce, ought to be closed down.
Inference: 'A restaurant should not charge so much as a dime for iceberg lettuce'.

The common observation is that minimizers occur in fewer contexts than weak NPIs (*ever*, *anything*). This generalization is built into all current theories of NPI licensing. Sedivy (1990) shows that this cannot be maintained empirically. She discusses two contexts in which minimizers can be used felicitously, but weak NPIs of the *ever* type are excluded. Both contexts lack an overt negation. First, minimizers can occur with contrastive uses of auxiliaries (3).

- (3) a. I DO give a damn.
- b. *Bert DID ever kiss Marilyn Monroe. (Sedivy, 1990, 98)

While Sedivy presents her examples in isolation, (3-a) clearly requires a context in which it is claimed that the speaker does not give a damn. Such a context is not sufficient to license *ever*, though:

- (4) a. A: I am disappointed that you don't give a damn about my problems.
 B: But, I DO give a damn.
- b. A: I don't think Bert ever kissed Marilyn Monroe.
 B: * But, Bert DID ever kiss Marilyn Monroe.

Second, minimizers can appear in the scope of modals when there is an irrealis inference, see (5). Sentence (5-a) is felicitous if the speaker is committed to John not having lifted a finger to help. However, *ever* is not licensed in (5-b), even if the speaker commits to John not having eaten any tofu.

- (5) a. John should have lifted a finger to help Mary clean up.
- b. John should have eaten any healthful tofu. (Sedivy, 1990, 99)

Sedivy's (1990) data show that there is no subset-superset relation between the licensing contexts of minimizers and weak NPIs, but an overlap in the core licensing contexts in (1-a) and (1-b). Even though NPIs have been an active area of research in the last decades, Sedivy's observations have still not received an explanation. I will have a more detailed look at the at-issue and non-at-issue semantics of the relevant constructions and present a representational theory of NPI licensing which captures both the similarities and the differences in the licensing of the two types of NPIs discussed here.

Accounts of NPIs

Sedivy (1990) presents her data in the light of three types of NPI analyses: First, entailment-based approaches à la Ladusaw (1980, 1983), second, an LF-representational approach with a pragmatic component (Linebarger, 1980, 1987), and a binding-theoretical approach (Progovac, 1988).

Entailment-based approaches take the truth-conditional meaning of an utterance as their starting point. With there not being a downward-entailing operator in (3) and (5), the unacceptability of weak NPIs is correctly predicted, though not the acceptability of minimizers. Similarly, the approach in Progovac relies on the LF of the sentence containing the NPI. Consequently, there is no negation in the relevant logical form and the non-licensing of weak NPIs is correctly predicted – though the occurrence of minimizers is unexpected.

Linebarger (1987) assumes that an NPI is licensed in the immediate scope of negation at the LF of a sentence. This requirement can be fulfilled at the LF of the sentence containing the NPI or of a *negative implicatum* (NI). Sedivy (1990) observes that the sentences in (3-a) and (5-a) may be considered as having such an NI. However, there is no clear way to distinguish between minimizers and weak NPIs and the status of the NI is left rather unclear in Linebarger’s approach.

Kadmon & Landman (1993) and Krifka (1994) made pragmatic, alternative based approaches to NPIs prominent. According to Krifka, NPIs refer to small entities and trigger larger alternatives. In addition, NPIs need to occur in emphatic utterances in the sense that what is being asserted is stronger than – i.e. entails – what could have been asserted by any of the alternatives. In its original formulation, Krifka’s theory depends on a speech act operator. This means that NPI licensing would only be possible at the level of a complete utterance and not in embedded clauses. Even if Krifka’s emphatic assertion operator is reinterpreted as an operator that can be embedded, it is not clear how the contrast between minimizers and weak NPIs in Sedivy’s examples could be modelled.

Within HPSG, there are several analyses of NPIs, including Tonhauser (2000) and Richter & Soehn (2006). These two approaches identify NPI-licensing context based on an entailment-based concept of licensing à la van der Wouden (1997). The approach in Richter & Soehn (2006) has an additional syntactic component to it: An NPI not only specifies the required strength of its licenser, but also the syntactic domain within which it needs to be licensed. This is done in a so-called *collocation module*, expressed by a feature COLL on lexical items. Interestingly, Richter & Soehn also stipulate that some NPIs may be licensed in the non-at-issue, backgrounded semantics. Their analysis is sketched in Figure 1. The semantic contribution of the German NPI adverb *beileibe* ‘certainly’ is marked with the tag \square . This NPI specifies in its COLL value that it should occur in the scope of an anti-additive operator (such as *not*, *nobody*) in the semantic representation of the complete clause containing the NPI. Alternatively, it can occur in the scope of an anti-morphic operator (i.e., plain negation) in some backgrounded expression associated with the utterance containing the NPI.

While I will adopt a version of Richter & Soehn’s (2006) collocational analysis, their analysis of NPI licensing in non-negative contexts is very preliminary. In particular, I will suggest an integration of the background in terms of an *enriched semantic representation*.

Enriched semantic representations

In this section, I will elaborate on the idea that an utterance’s semantic representation consists of both, a representation of its at-issue content and of its non-at-issue content. I assume that such an enriched representation contains accommodated presuppositions, conventional implicatures (CIs), and, potentially, more material.

This two-step architecture can also be found in *Discourse Representation Theory* (DRT, Kamp et al. (2011)). There, a *preliminary representation* is computed systematically along with the syntactic structure. This representation is expanded through anaphora resolution – which includes the accommodation or presuppositions, van der Sandt (1992).

Potts (2005) shows that CIs are computed in parallel to the at-issue content of an utterance. At the utterance level, they are included as conjuncts to the semantic representation of a sentence. Schlenker (2010, 2013) and AnderBois et al. (2015) point to an even closer interaction of asserted and non-asserted content, arguing that there is a grammatically relevant stage in which CIs are integrated with the at-issue semantics.

It might be useful to go a step further and to include even more semantic material that is conventionally associated with an utterance, as argued for under the headings of *explicature* (Wilson & Sperber, 1993; Carston & Hall, 2012). Examples like (6) show that generalized conversational implicatures – as the temporal order of the conjuncts – have a truth-conditionally relevant effect.

- (6) a. If the old king has died of a heart attack and a republic has been declared then Tom will happy.
b. If a republic has been declared and the old king has died of a heart attack, then Tom will be unhappy. (Carston & Hall, 2012, 67)

Within HPSG, phenomena in which the at-issue content is enriched have been discussed in a number of publications: Ginzburg & Sag (2000) provide a surface-oriented analysis of syntactic fragments in which non-overt implicit material is introduced into the semantic representation through a fragment construction. Hasegawa & Koenig (2011) analyze CIs as what they call *secondary content*. Sailer & Am-David (2016) use presuppositions and CIs in their treatment of definites. They all assume that utterances contain a semantic representation of such non-at-issue content.

To integrate these approaches, I introduce an attribute UTT(ERANCE)-CONT(ENT) for the enriched semantic representation, in addition to a feature like CONT, whose value is just the at-issue content.

In (7)–(9), I show what the UTT-CONT values could look like for a short answer, a sentence with the focus-sensitive element *only* (using the meaning from Horn (1996)), and a sentence with a definite. I mark the at-issue part of the enriched representation in black, the rest in gray.

- (7) (What did Alex read?) – A book. $\exists x(\mathbf{book}(x) \wedge \mathbf{read}(\mathbf{alex}, x))$
(8) Alex saw only Chris. $\exists A(\neg \exists x(x \in A \wedge x \neq \mathbf{chris} \wedge \mathbf{see}(\mathbf{alex}, x))) \wedge \mathbf{see}(\mathbf{alex}, \mathbf{chris})$
(9) Alex believes that the president arrived.
 $\mathbf{believe}(\mathbf{alex}, \wedge \exists x(\mathbf{president}(x) \wedge \mathbf{arrive}(x))) \wedge \exists! x(\mathbf{president}(x))$

Next, I will look at the contexts that show unexpected licensing of minimizers and propose an enriched representation for them. What Sedivy (1990) calls “contrastive uses of auxiliaries” can be considered *verum focus* (Höhle, 2019; Wilder, 2013; Gutzmann et al., 2020). I will follow Gutzmann et al. (2020), who assume an operator **VERUM**, which only makes a use-conditional semantic contribution, i.e., it specifies conditions under which the sentence can be uttered felicitously. Gutzmann et al. (2020, 39) say that **VERUM**(ϕ) is felicitous iff the speaker wants to prevent that the question under discussion is downdated with $\neg\phi$. Gutzmann et al. argue that this accounts for the fact that $\neg\phi$ must be a salient answer for the question under discussion in discourse.

In my rendering of their analysis, I integrate the use-conditional semantic contribution into the enriched semantic representation, see (10). Note that the semantics of the verb *call* occurs twice: it is not in the scope of negation at the at-issue content, though it is in the scope of negation in the non-at-issue content.

- (10) (But,) Alex DID call. $\mathbf{call}(\mathbf{alex}) \wedge \mathbf{Prevent-Downdating}(\mathbf{speaker}, \neg \mathbf{call}(\mathbf{alex}))$

We can propose a similar representation for modals with an irrealis inference, see (11). As in the case of *verum focus*, verb’s semantic contribution occurs twice in the formula: it is not in the scope of negation in the at-issue content, but it is in the enriched semantic representation.

- (11) Alex should have called. $\mathbf{SHOULD}(\mathbf{PAST}(\mathbf{call}(\mathbf{alex}))) \wedge \neg \mathbf{PAST}(\mathbf{call}(\mathbf{alex}))$

Analysis

I will adopt the collocational, representational analysis of Richter & Soehn (2006). I will first sketch the proposal and, then, its encoding in HPSG. The licensing constraint on weak NPIs is given in (12). Such an NPI is licensed in all NPI-licensing contexts. This licensing is checked at the level of the representation of the at-issue content of the utterance containing the NPI, i.e., in the CONT value.

- (12) Weak NPIs: The semantic contribution of the item needs to be in the scope of an NPI-licensing operator at the at-issue semantic representation of the utterance containing it.

This contrasts with the constraint on minimizers in (13). Such NPIs are licensed in the scope of an anti-additive operator. However, this will be checked at the level of the enriched semantic representation.

- (13) Minimizers: The semantic contribution of the item needs to be in the scope of an anti-additive operator at the complete semantic representation of the utterance containing it.

The sentences in (14) illustrate the licensing potential of *few*. The quantifier **Few** licenses weak NPIs in its scope, as shown in (14-a). However, the minimizer in (14-b) must be in the immediate scope of negation. This is not satisfied in the clause’s semantic representation – not in the at-issue content, and there is nothing added for the enriched representation.

- (14) a. Few students saw anything. $[\mathbf{Few} x : \mathbf{student}(x)](\exists y(\mathbf{thing}(y) \wedge \mathbf{see}(x, y)))$
b. *Few students lifted a finger to help. $[\mathbf{Few} x : \mathbf{student}(x)](\mathbf{lift-finger}(x))$

We can now look at contexts in which minimizers are only licensed under particular readings. In (15), a strong NPI occurs in a wh-question. If this is uttered as a neutral question, the only NPI-licensing operator is the interrogative operator. This operator is not capable of licensing the NPI *budge an inch*. As noted above, minimizers can occur in such questions under a rhetoric reading. For such a reading, the enriched representation contains a speaker assumption that nobody budged an inch. Consequently, the NPI is in the immediate scope of negation in the gray-marked, i.e. non-at-issue, part of the enriched semantic representation. This satisfies the minimizer’s licensing requirement.

- (15) Who budgeted an inch to help Mary?
 $?x(\mathbf{person}(x) \wedge \mathbf{budge-inch}(x)) \wedge \mathbf{think}(\mathbf{speaker}, \neg\exists x(\mathbf{person}(x) \wedge \mathbf{budge-inch}(x)))$

We can now look at sentences with stressed auxiliaries as in (3). I provide example with their enriched semantic representations in (16) and (17). The relevant semantic representation for the licensing of the weak NPI *anyone* in (16) is the black part. In it, there is no operator licensing the NPI. The relevant domain for the licensing of the minimizer in (17) is the entire enriched representation. In it, the minimizer is in the immediate scope of negation, even though it is not in the scope of a negation in the at-issue content.

- (16) *But, Bert DID kiss anyone.
 $\exists x(\mathbf{kiss}(\mathbf{bert}, x)) \wedge \overline{\mathbf{Prevent-Downdating}}(\mathbf{speaker}, \neg\exists x(\mathbf{kiss}(\mathbf{bert}, x)))$
- (17) But, Alex DOES give a damn.
 $\mathbf{give-damn}(\mathbf{alex}) \wedge \mathbf{Prevent-Downdating}(\mathbf{speaker}, \neg\mathbf{give-damn}(\mathbf{alex}))$

The same explanation applies to the use of modals with an irrealis inference. In the schematic representation in (18) for the sentences in (5), the NPI's semantic contribution is not in the scope of a licensing operator in the at-issue content, though it is in the immediate scope of negation in the overall enriched representation. Consequently, weak NPIs cannot occur, but minimizers can.

- (18) **Modal-Op**(... **npi** ...) \wedge \neg (... **npi** ...)

While capturing the possible occurrences of minimizers in non-negative contexts, my analysis correctly predicts that such NPIs cannot be used as fragment answers, contrary to negative indefinites, see (19). The reason is that there is no conventionalized inference of a negative answer to the question.

- (19) What did Alex do? Nothing/ *Lift a finger.

Note that the NPI is even excluded as a short answer when the question in (19) is negatively biased. This follows under my modelling when combined with Ginzburg & Sag's (2000) analysis of fragment answers. Ginzburg & Sag propose that a fragment is integrated into the semantic representation of a *salient utterance*. As shown in (15), the at-issue content of the biased question is just like that of an ordinary question. The negation is added through semantic enrichment. However, it is only the at-issue part that serves as the salient utterance that the short answer addresses.

This theory can be integrated into Richter & Soehn's (2006) **HPSG approach**. In Figure 2, I only mention the licensing aspects. When an expression imposes a collocational restriction on the at-issue content, this is expressed on an element of the COLL list through the feature LF-LIC – as in Richter & Soehn (2006). For collocational constraints on the enriched representation, i.e. on the UTT-CONT value, I use the feature UTT-CONT-LIC. The COLL-specification of the weak NPI *ever* in the AVM on the left is as it would be in Richter & Soehn (2006). For simplicity, I assume that the licensing contexts are captured by the relation **downward-entailing-strength-operator** (**de-str-op**). The minimizer *budge (an inch)* needs to be licensed in the enriched semantic representation, i.e., there is an UTT-LF-LIC requirement. The licensing relation needs to be **anti-additive-strength-operator** (**aa-str-op**).

Conclusion

I discussed Sedivy's (1990) data on occurrences of minimizers in contexts which do not allow for weak NPIs and that do not contain any of the ordinary NPI-licensing operators overtly. I argued that the data can be accounted for if a level of an enriched semantic representation is assumed. I formulated my proposal in a version of the representational theory of NPI licensing of Richter & Soehn (2006). The proposal captures the classical observation that the licensing of minimizers involves pragmatic aspects, but that it is nonetheless strongly constrained by the linguistic form – whereas pragmatic aspects are less prominent in the licensing of weak NPIs. Nonetheless, I can still treat NPI licensing as a uniform phenomenon: it is a collocational requirement with respect to a semantically characterizable set of contexts.

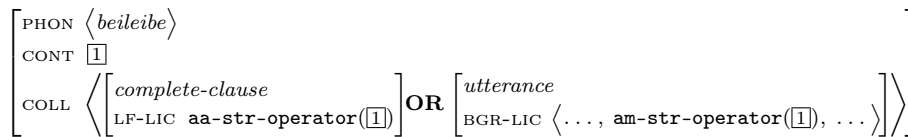


Figure 1: Analysis of *beileibe* ‘certainly’ in Richter & Soehn (2006) (simplified)



Figure 2: Sketches of the analyses of *ever* and *budge (an inch)*

- References** ◇ AnderBois, Scott, Adrian Brasoveanu & Robert Henderson. 2015. At-issue proposals and appositive impositions in discourse. *Journal of Semantics* 32(1). 93–138. doi:10.1093/jos/fft014. ◇ Borkin, A. 1971. Polarity items in questions. In *Papers from the 5th regional meeting of the chicago linguistic society*, 53–62. Chicago: Chicago Linguistic Society. ◇ Carston, Robyn & Alison Hall. 2012. Implicature and explicature. In Hans-Jörg Schmid, Wolfram Bublitz & Andreas H. Jucker (eds.), *Cognitive pragmatics*, vol. 4 (Handbooks of Pragmatics), 47–84. Berlin and Boston: de Gruyter. ◇ Ginzburg, Jonathan & Ivan A. Sag. 2000. *Interrogative investigations. The form, meaning, and use of English interrogatives*. Stanford: CSLI Publications. ◇ Gutzmann, Daniel, Katharina Hartmann & Lisa Matthewson. 2020. Verum focus is verum, not focus: Cross-linguistic evidence. *Glossa* 5(1). 51. 1–48. doi:https://doi.org/10.5334/gjgl.347. ◇ Hasegawa, Akio & Jean-Pierre Koenig. 2011. Focus particles, secondary meanings, and Lexical Resource Semantics: The case of Japanese *shika*. In Stefan Müller (ed.), *Proceedings of the 18th international conference on Head-Driven Phrase Structure Grammar, University of Washington*, 81–101. <http://csli-publications.stanford.edu/HPSG/2011/hasegawa-koenig.pdf>. ◇ Heim, Irene. 1984. A note on negative polarity and downward entailingness. In *NELS 14*, 98–107. ◇ Höhle, Tilman N. 2019. Über Verum-Fokus im Deutschen. In Stefan Müller, Marga Reis & Frank Richter (eds.), *Beiträge zur deutschen Grammatik. Gesammelte Schriften von Tilman N. Höhle*, 381–416. Berlin: Language Science Press 2nd edn. doi:10.5281/zenodo.2588379. <https://langsci-press.org/catalog/book/234>. Originally published 1992. ◇ Horn, Laurence R. 1996. Exclusive company: *Only* and the dynamics of vertical inference. *Journal of Semantics* 13(1). 1–40. ◇ Kadmon, Nirit & Fred Landman. 1993. ‘any’. *Linguistics and Philosophy* 16. 353–422. ◇ Kamp, Hans, Josef von Genabith & Uwe Reyle. 2011. Discourse representation theory. In Dov Gabbay & Franz Günthner (eds.), *Handbook of philosophical logic*, vol. 15, 125–394. Dordrecht: Reidel 2nd edn. ◇ Krifka, Manfred. 1994. The semantics and pragmatics of weak and strong polarity items in assertions. In *Proceedings of salt iv*, 195–219. ◇ Ladusaw, William. 1980. *Polarity sensitivity as inherent scope relations*. New York: Garland Press. ◇ Ladusaw, William. 1983. Logical form and conditions on grammaticality. *Linguistics and Philosophy* 6. 373–392. ◇ Linebarger, Marcia. 1987. Negative polarity and grammatical representation. *Linguistics and Philosophy* 10. 325–387. ◇ Linebarger, Marcia Christine. 1980. *The grammar of negative polarity*: MIT dissertation. Cited after the reproduction by the Indiana University Linguistics Club, Indiana, 1981. ◇ Potts, Christopher. 2005. *The logic of conventional implicatures* (Oxford Studies in Theoretical Linguistics 7). Oxford: Oxford University Press. ◇ Progovac, Ljiljana. 1988. *A binding approach to polarity sensitivity*: University of Southern California dissertation. ◇ Richter, Frank & Jan-Philipp Soehn. 2006. *Braucht niemanden zu scheren: A survey of npi licensing in german*. In Stefan Müller (ed.), *Proceedings of the 13th international conference on head-driven phrase structure grammar, varna 2006*, 421–440. <http://csli-publications.stanford.edu/HPSG/2006/richter-soehn.pdf>. ◇ van Rooy, Robert. 2003. Negative polarity items in questions: Strength as relevance. *Journal of Semantics* 20. 239–273. ◇ Sailer, Manfred & Assif Am-David. 2016. Definite meaning and definite marking. In Doug Arnold, Miriam Butt, Berthold Crysmann, Tracy Holloway King & Stefan Müller (eds.), *Proceedings of the Joint 2016 Conference on Head-driven Phrase Structure Grammar and Lexical Functional Grammar, Polish Academy of Sciences, Warsaw, Poland*, 641–661. Stanford, CA: CSLI Publications. <http://csli-publications.stanford.edu/HPSG/2016/headlex2016-sailer-am-david.pdf>. ◇ van der Sandt, Rob A. 1992. Presupposition projection as anaphora resolution. *Journal of Semantics* 9. 333–377. ◇ Schlenker, Philippe. 2010. Supplements within a unidimensional semantics I: Scope. Paper presented at the *Amsterdam Colloquium 2009*. <http://ling.auf.net/lingbuzz/002578>. ◇ Schlenker, Philippe. 2013. Supplements within a unidimensional semantics II: Epistemic status and projection. In Seda Kan, Claire Moore-Cantwell & Robert Staubs (eds.), *Proceedings of the fourtieth annual meeting of the north eastern linguistic society*, vol. 2, 167–182. Amherst, MA: Graduate Linguistics Student Association. ◇ Sedivy, Julie. 1990. Against a unified analysis of negative polarity licensing. *Cahiers Linguistiques D’Ottawa* 18. 95–105. ◇ Tonhauser, Judith. 2000. An approach to polarity sensitivity and negative concord by lexical underspecification. Handout to a talk given at *7th International Conference on HPSG*, University of Berkeley, 22–23 July 2000. ◇ Wilder, Chris. 2013. English ‘emphatic *Do*’. *Lingua* (128). 142–171. doi:https://dx.doi.org/10.1016/j.lingua.2012.10.005. ◇ Wilson, Deirdre & Dan Sperber. 1993. Linguistic form and relevance. *Lingua* 90(1–2). 1–25. ◇ van der Wouden, Ton. 1997. *Negative contexts: Collocation, polarity and multiple negation*. London: Routledge.