

Arguments in favor of an ambiguit approach to negation

Background and Data: Throughout the 20th century it was repeatedly discussed to what extent negation constitutes a unified phenomenon. There are two main tenants: the monoguit and the ambiguit approaches (following Horn's 1985, 2001 terminology). According to the monoguit approach there is one basic semantics for all appearances of the negator. Thus, negation in natural languages can be captured exhaustively as the expression of the connective of negation in classical logic. In contrast, adherents of the *ambiguit approach* come in various flavors (see Horn 1985, 2001). Some argue that it is better to speak about more than one connectives, with different truth tables (inter alia Bochvar 1981 [1938]), or about various functions (semantic or pragmatic) expressed by the morphology of negation (inter alia Ladusaw 1979 Karttunen & Peeters 1979). Recently, Schwarz & Bhatt (2006) tackled this debate in their discussion of anti-licensing of Positive Polarity Items (=PPI). They follow Ladusaw (1979) who stipulates a homophonous negation morpheme in English: *not*₁ is the regular negator and *not*₂ only appears in explicit denials (=it is stated that ~p but it is believed and expected that p). The latter is assumed not to be an anti-licenser of PPIs (even when they scope below negation.) Schwarz (2004) and Schwarz and Bhatt (2006) argue that in German there is a syntactic disambiguation: the anti-licenser negation (*not*₁) and the non-anti-licenser (*not*₂), which they call "light negation", differ with regard to the position of the negator *nicht*. The position of *nicht* is at the left edge of the verb phrase. Normally, especially when *nicht* immediately precedes a definite or indefinite noun phrase, *nicht* is not positioned in this location. In certain environments, however, the constraints on the location of the *nicht* disappear. They demonstrate that the class of environments in which light negation appears is essentially co-extensive with positive polarity "rescuing" environments. Among these environments are the following: counterfactual interpretations of conditional clauses; negative polar questions (and negative rhetorical questions).

Ladusaw's (1979: 180) approach that the semantics of *not*₂ is of an explicit denial, encounters several problems. First, it is unclear why it does license PPIs, since explicit denials inherently take wide scope and this is the environment where by definition PPIs like *some* are anti-licensed. Second, Ladusaw's explanation cannot explain all cases of the rescuing of PPI, for example sentence (1), which does not express an explicit denial, still has the PPI *some* below negation:

- (1) There is no one here who didn't find some typos. neg > some

Finally, as has been repeatedly claimed by the monoguit approaches, homophony is little appealing and even more so when it should be so general cross-linguistically (inter alia Gazdar 1978, and more recently Homer forthcoming).

Another piece of information that is relevant for our discussion is Bar-Asher Siegal's (forthcoming) demonstration that Jewish Babylonian Aramaic (=JBA) has two negators: *lā* and *lāw*, and that in various contexts *lāw*, which historically functioned as a complete clause (stating "it is not the case that..."), was reanalyzed as an independent negator and thus grammaticalized as an external negation. Interestingly in the same environments where PPIs are rescued in English, and where German allows light negation, JBA has *lāw*, the negator that derives historically from an independent external negation clause.

Claim: This paper argue for an *ambiguit approach*. Accordingly, there are two types of negation: internal negation and external negation (defined in (2)), and JBA has distinguished morphemes for each of them (this fact resolves the problem of homophony). Since the environments in which the PPIs are rescued are the same as the ones in which JBA has the external negation I propose that the characteristics of the external negation are the reason behind the rescue of the PPIs.

While previous ambiguit approaches focused on either different truth tables (inter alia Bochvar 1981 [1938]) or on the discursive status of the root proposition (inter alia Horn 1985, 2001), I would like to propose an ambiguit approach according to which natural languages have two types of negation, different in their nature: one is a type of information and the other is the negative connective, as defined in classical logic. The two are described informally in (2):

- (2) **Internal negation:** the negative statement is about the topic of the sentence. It provides new negative information about the topic of the clause.

[Topic @R] <= The topic is a member of the set that lacks the quality R

External negation: It is a statement about a statement, it provides information about the truth value of the root-proposition, i.e., reverses it.

~p <= The root proposition p is false

From a discursive perspective, **internal negation** provides a certain type of information, a negative one. Generally, when statements are considered in terms of information, an increase in information about the topic can be positive (affirmation), for example when it is a statement about the possession of a certain quality; or negative (denial), for example when the lack of a quality is stated. Thus, when considering the truth values of a sentence, in affirmation the sentence is true if the entity denoted by the topic is a member of the set which has that quality, and in denial if it is a member of the set that lacks that quality. In both cases the truth value of the sentence depends on membership in a certain set, but in each, it is a different set

(Note that the set of elements that possess the quality R is not necessarily the complement of the set of elements that lack the quality R. This fact is necessary for the distinction between contradictory opposites and contrary opposites.)

External negation, in contrast, concerns statements about statements. It states more broadly that a statement fails to be true either because it is false, or because there is a presupposition failure.

In this framework the type of negation depends on the type of the proposition: internal negation by its very nature provides negative information about its topic, hence, in categorical judgments (Kuroda 1972, 1990) the negation is of the internal type; when there is no topic, or when the entire statement is already given, and in other semantically defined environments where the negative statements are merely an indication about the truth-value of the relevant statement (as, I will argue, is the case in rhetorical questions and in antecedents of counterfactual conditional sentences), the negation is an external one.

[Since this distinction is sensitive to the information provided in discourse, it is natural to describe it in terms of dynamic semantics (Heim 1983). Therefore, in the presentation, a formal description with update rules for atomic propositions will be provided.]

Consequently, I argue that all environments where PPIs are rescued under negation are instances of external negation. The reason for this rescue is that in these environments the root (positive) *p* is copied with its original PPI, and is commented on regarding its true value by an external negation (which is "a statement about a statement".) Consequently the PPIs (which is part of the root proposition) can be shielded. Light negation in German is, accordingly, not an arbitrary phenomenon, but the expression of the external negation in German.

Further substantiation: in negating the root proposition stated in (3a), it is possible to state that (3a) is false: as is the case in (3b, illustrated in 4b). The ordinary reading of (3c), however, expresses an internal negation, and thus it provides a different meaning. In this example (3c) states how many questions were not answered (4c). In the relevant environments where PPIs are known to be rescued (Schwarz & Bhatt 2006, among others), the interpretation of the negation is similar to the one that "external negation" has (3b). (In the brackets, *n* indicates the number of answers that are required for the sentence to be true.)

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| (3) | (a) | Mike answered three questions (out of ten) | (n=3) |
| | (b) | It is not the case that Mike answered three questions (out of ten) | (n≠3 preferred: <u>n<3</u>) |
| | (c) | Mike did not answer three questions (out of ten) | (preferred: n≤7 or n≠3 [preferred: <u>n<3</u>]) |
| (4) | (a) | answer (Mike, three questions) | |
| | | paraphrased: The relation of ANSWERING is being held between Mike and three questions | |
| | (b) | ~[answer (Mike, three questions)] | traditionally neg > three questions |
| | | paraphrased: It is not true that the relation of ANSWERING is being held between Mike and three questions | |
| | (c) | ©answer (Mike, three questions) | traditionally three questions > neg |
| | | paraphrased: The relation of NOT-ANSWERING is held between Mike and three questions | |
| (5) | (a) | Mike didn't answer three questions (out of ten) | (n≤7 or n≠3) |
| | (b) | There is no one here who didn't answer three questions (out of ten). | (n>3) |
| | (c) | I am surprised that they didn't answer three questions (out of ten). | (n<3/ n≤7) |
| | (d) | If Mike had not answer three questions (out of ten) he would have failed in the exam. | (n>3) |
| | (e) | Didn't he answer three questions (out of ten)?! | (n=3) |

These data show that the environments where PPIs are rescued below negation, the negation is interpreted inherently similar to external negation as is argued by the current proposal.

Time permitting, I will consider various experimental studies on vagueness assuming a *monogist approach* (among them Bonini et al. 1999, Alxatib & Pelletier 2011 and Serchuk et al. 2011) and show that some of the puzzles they struggle with are better explained with the *ambiguist approach* presented in the current paper.

References: Alxatib, Sam, and Francis Jeffrey Pelletier. 2011. "The Psychology of Vagueness: Borderline Cases and Contradictions." *Mind and Language* no. 26:287-326; Bar-Asher Siegal, Elitzur A. forthcoming. "The case for external sentential negation: Evidence from Jewish Babylonian Aramaic." *Linguistics* no. 53; Bocharov, D. A., and Merrie Bergmann. 1981. "On a three-valued logical calculus and its application to the analysis of the paradoxes of the classical extended functional calculus." *History and Philosophy of Logic* no. 2 (1-2):87-112; Bonini, Nicolao, Daniel Osherson, Riccardo Viale, and Tim Williamson. 1999. "On the psychology of vague predicates." *Mind and Language* no. 14:377-393; Gazdar, Gerald. 1979. *Pragmatics: implicature, presupposition and logical form*. New York: Academic Press; Homer, Vincent. forthcoming. "Domains of Polarity Items." *Journal of Semantics*; Horn, Laurence R. 1985. "Metalinguistic Negation and Pragmatic Ambiguity." *Language* no. 61 (1):121-174; Horn, Laurence R. 2001. *A natural history of negation, The David Hume series*. Stanford, Calif.: CSLI; Karttunen, Lauri, and Stanley Peters. 1979. "Conventional implicature." In *Syntax and Semantics*, edited by Oh Choonkyu and David A. Dinneen, 1-56. New York: Academic Press; Kuroda, Sige-Yuki. 1972. "Categorical and Thetic Judgments: Evidence From Japanese Syntax." *Foundations of Language* no. 9:1-37; Kuroda, Sige-Yuki. 1990. "The Categorical and the Thetic Judgment Reconsidered." In *Mind, Meaning and Metaphysics: the Philosophy and Theory of Language of Anton Marty*, edited by K. Mulligan, 77-88. Dordrecht: Kluwer; Schwarz, Bernhard. 2004. How to rescue negative polarity items. University of Texas at Austin; Schwarz, Bernhard, and Rajesh Bhatt. 2006. "Light negation and Polarity." In *Cross-Linguistic Research in Syntax and Semantics: Negation, Tense and Clausal Architecture*, edited by Raffaella Zanuttini, Héctor Campos, Elena Herburger and Paul H. Portner, 175-198. Washington, DC: Georgetown University Press; Serchuk, Phil, Ian Hargreaves, and Richard Zach. 2011. "Vagueness, Logic and Use: Four experimental Studies on vagueness." *Mind and Language* no. 26:540-573.