

In this paper, I argue that sentential negation, commonly treated as a unary sentential operator, has the logical property characteristic of “essentially relational quantificational operators” (the term borrowed from Partee (1995)) such as *every* and *always*, showing evidence from phenomena related to NPI-licensing, namely, locality, nonveridicality, and NPI-licensing in because-clause.

Zwarts (1998) argues that unlike *any*, which is licensed in a variety of downward entailing contexts (Ladusaw 1980), *one bit* can only occur in the scope of sentential negation, which he treats as a unary antimorphic functor: (i) $f(X \cup Y) \leftrightarrow f(X) \cap f(Y)$; (ii) $f(X) \cup f(Y) \leftrightarrow f(X \cap Y)$.

However, this analysis makes a wrong prediction as in (2a) even though the environment where *one bit* occurs is characterized as antimorphic (see (3)). In (2b), *any* is licensed, indicating that the position is in the scope of negation. Note that contra Linebarger (1980), wh-operator nor focus induces an intervention effect as in (4). An alternative account of the effect is called for.

I argue that the contrast between (2a) and (4a) is attributed to the asymmetry vs. symmetry dichotomy involved in the logical representations of these examples. In (2a), the asymmetric relation is that of entailment and presupposition. The propositions are asymmetrically related in the sense that the former is required to be false whereas the latter is not required as such. In (4a), the relation is symmetric, i.e., $\exists x[\text{linguist}(x) \wedge \text{one-bit-happy-about}(x, \text{these-facts}) \wedge \text{have-seen}(I, x)]$, which is in the direct scope of *not*. I propose the semantics of sentential negation as in (5).

The definition (5) is couched in terms of nonveridicality (Zwarts 1995; Giannakidou 1998). (5a-i) ensures that the restriction is downward entailing, guaranteeing that *any* in (2b) is licensed. (5a)-(ii-iii) imposes constraints on the proper interpretation of (i), ensuring that (i) is asymmetric. The proposed semantics of negation allows *one bit* to be interpreted only in the nuclear scope of negation. The locality facts follow from this: in (2), where *one bit* and *any* are equally local to negation, the contrast is attributed to their distinct licensing requirements.

The weaker semantics of the restrictor in (5a-ii) receives empirical support. As observed in Rooth (1996) among others, treating *not* as an operator inducing presupposition is too strong. Thus, we take the existential presupposition in (2) as a by-product induced by the cleft formation.

The semantics stated in (5) provides a straightforward account of the contrast between (2a) and (4a-b). In (4a-b), *one bit* is licensed in the nuclear scope of negation (what is filled in the restriction is specified contextually) whereas in (2a), it is part of the restriction; hence, unlicensed.

Further evidence for the asymmetric analysis of sentential negation is given in (6). Although potentially ambiguous between the matrix and embedded clause negation readings, B’s response in (6a-B) can have only the latter reading, leaving indeterminate whether or not the act of saying took place. This is evidenced from the fact that the continuation marked by # is contradictory with B’s response. In (6b), given the normal yes/no question reading, it is the matrix clause that is negated in B’s response, leaving indeterminate whether or not B likes broccoli. The present analysis correctly predicts this contrast. In (6a-B), the embedded clause, interpreted in the nuclear scope of negation, is required to be false. In (6b-B), the embedded clause, not required to be false, is interpreted in the restriction; hence, *one bit* is unlicensed. The fact that *any* and *at all* in (7) are licensed is predicted in the present analysis—these NPIs, subject to a weaker licensing condition, are licensed in the restrictor of negation.

The present analysis also gives a principled account of NPI-licensing in because-clause obviating the incorrect prediction made by *derivative licensing* (Linebarger’s negative implicature); *widening* and *strengthening* requirements on *any* (Kadmon & Landman 1993). (8a) has the presupposition, “for some reason, A, B, or C ..., George starves his cat,” and (8b), “for some reason, A, B, or C ..., Mary helps George.” The sentences exclude one of the reasons in the respective presuppositions. In (8b), since *one bit* is present in one of the alternatives in the restriction (i.e., *because she likes him one bit*), the sentence is ruled out. In (8a), *any* is licensed as part of the restriction as in (2b). The only difference between (2b) and (8a) is that in (2b), the domain of *any* is presupposed to be non-empty whereas in (8a), it doesn’t have to be. (8a) presupposes some reason is true. Since *because he has any love for her* is merely an alternative, the presuppositionality of the restriction does not affect the licensing of *any*.

- (1) a. *Few people were one bit happy about these facts.
b. *No linguist was one bit happy about these facts.
c. The men weren't one bit happy about these facts. (Zwarts (1998))
- (2) a. *It isn't John who was one bit drunk at the party.
b. It *is/isn't John who bought any of these books.
- (3) a. It wasn't John who cried or laughed ↔ it wasn't John who cried and it wasn't John who laughed.
b. It wasn't John who cried and laughed ↔ it wasn't John who cried or it wasn't John who laughed.
- (4) a. I haven't seen a linguist who is one bit happy about these facts.
b. [You]_F may like broccoli, but [I]_F don't like it one bit.
- (5) a. $\|[\text{Not}: \phi] \phi\| = 1$ iff (i) $\{s: \phi(s)\} \subseteq \{s: \neg\phi(s)\}$;
(ii) the truth of $\|[\text{Not}: \phi] \phi\|$ does not require that $\|\phi\| = 0$;
(iii) the truth of $\|[\text{Not}: \phi] \phi\|$ requires that $\|\phi\| = 0$.
b. if (ii) and (iii) are not satisfied, (i) is undefined.
- (6) a. A: You said that you like broccoli.
B: No, I didn't say that I like it one bit.
#I didn't say that I hate it either.
b. A: Did you say that you like broccoli?
B: No, *I didn't say that I like it one bit.
- (7) a. A: Did you say that you know something about the accident?
B: No, I didn't say that I know anything about it.
b. A: Did you say that you like broccoli?
B: No, I didn't say that I like it at all.
- (8) a. George doesn't starve his cat because he has any love for her. (Leinbarger 1980)
b. *Mary doesn't help George because she likes him one bit.

References

- Giannakidou, A. 1998: *Polarity Sensitivity as (Non)veridical Dependency*. John Benjamins.
Kadmon, N. and F. Landman 1993: "Any." *Linguistics and Philosophy*, 16: 353-422.
Ladusaw, W. 1980: *Polarity Sensitivity as Inherent Scope Relations*. Garland.
Leinbarger, M. 1980: *The Grammar of Negative Polarity*. Ph.D. thesis, MIT.
Partee, B. H. 1995: "Quantificational structures and compositionality." *Quantification in Natural Languages*, 541-601, Kluwer.
Rooth, M. 1996: "Focus." *Handbook of Contemporary Semantic Theory*. Blackwell.
Zwarts, F. 1995: "Nonveridical contexts." *Linguistic Analysis*, 25: 286-312.
Zwarts, F. 1998: "Three Types of Polarity." *Plurality and Quantification*, 177-238, Kluwer.