

## The scalar interpretation of double negation

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Sentences may contain two consecutive negatives in languages without negative concord. This is despite the fact that, logically, the doubly-negated element (sans negations) should suffice to convey the same meaning [1]. Nonetheless, doubly-negated expressions seem to convey a meaning different from the affirmative element: “not unhappy” does not mean “happy” [1,2]. It has been suggested that adding a second negator to an already negated adjective makes a weaker statement than the (logically) equivalent affirmative, by compelling an unexcluded middle [3]. The main aim of this study is to provide empirical evidence for the scalar interpretation of doubly-negated expressions. We specifically considered the notion that double negation might not be dissimilar from the category of approximators which adapt an expression to a non-prototypical situation [4], and thus included those in our experiment for comparison. A second aim was to examine the differences between two kinds of double negation constructions. In Hebrew, unincorporated double negations (*lo lo*, similar to *not not*) are highly productive (and can be used with nouns and verbs). A second type of negation, *bilti*, functions similarly to *un-* in creating contrariety. It appears less often, only with adjectives, and can also be used in double negation construction (*lo bilti*). In our experiment, participants were asked to determine the range of simple expressions on a given adjective scale. For example, they had to mark with parentheses the range that the expression *not interesting* occupied on a scale with *interesting* on one side and *boring* on the other. We examine several adjectives, in their bare form, or modified by a single negation in two constructions (*not interesting* using both the equivalent of “not” and “bilti”), by double negation (*not not/not bilti interesting*) or by hedges (*kind of/ a bit interesting*). Adjectives of the same scales (*interesting* and *boring*), as well as the combinations with the modifiers, were counterbalanced across participants, such that each participant saw each scale only once. For analysis, we extracted three parameters from the responses – (i) the range’s size, (ii) the central point of the range, and (iii) whether it included the relevant edge (i.e. ‘interesting’ for *interesting* and *not not interesting*, and ‘boring’ for *not interesting*). Initial results from 30 participants show that both kinds of double negation in Hebrew differ significantly from the bare adjectives on all 3 parameters, such that the ranges for bare adjectives are smaller, located closer to the logically-relevant edge and include the edge more often than the doubly-negated expressions. This result confirms the suggestion that double negation allows for a weaker interpretation of the (supposedly) equivalent affirmative, while retaining the possibility of being interpreted logically. Additionally, both kinds of double negation differ significantly from the hedges: they were bigger than ‘a bit’ (but did not differ on the central point), and their center was closer to the edge than the center of ‘kind of’ (and only *not bilti* also differed on size). This result suggests that double negations afford a wider range of interpretation, likely determined by context. Finally, *not not* and *not bilti* were similar on size and center, but differ significantly on edge inclusion. This result shows that the two kinds of double negation differ only in respect to the possibility for a logical reading: while a logical interpretation is generally avoided in both, *not not* allows for it more often than *not bilti*.

**References:** [1] Horn, L. (2010). The expression of negation. [2] Jespersen, O. (1924). The philosophy of grammar. [3] Horn, L. (2017). Formal Models in the Study of Language. [4] Prince et al. (1982). Linguistics and the Professions.