

## An analysis on the English prefix *un-* from a scalar semantics point of view

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This presentation discusses how by involving the concept of scalarity can the English prefix *un-*, which not only attaches to adjectives (e.g. *unhappy*, *untrue*) but also to verbs (e.g. *unfold*, *unfasten*), be given a unified semantic analysis and the empirical advantages of such an approach.

Most studies on English prefixes associate *un-* that attaches to roots of different syntactic categories with different word formation rules. Dixon (1991), for example, analyzes *un-* as a prefix that “indicates an opposite quality with an adjective, but a reverse action with a verb (p6).” However, it is arguable whether these two senses are indeed rooted in the prefix.

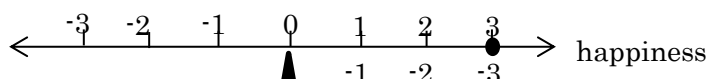
Yumoto (1997) provides an alternative analysis and proposes that *un-* is an affix that negates the state predicate (i.e. [AT(x)]) in the Lexical Conceptual Structure (LCS) of its root; that is, *un-* conveys a unified meaning: negation. When it attaches to an adjectival root, it triggers the antithesis sense (e.g. (1a)), and when it attaches to a verbal root, it gives rise to a reversal sense (e.g. (1b)).

- (1) a. [BE<sub>Ident</sub> ([John], [Place **NOT** AT ([Property KIND])])] (Yumoto 1997, p180)  
 b. [CAUSE ([i], [INCH ([BE ([i], [**NOT** AT (FOLDED)])])])] (ibid, p178)

We agree with Yumoto (1997) in giving a unified analysis to the prefix, for it is more preferable in terms of the economy principle. But differently, we propose that the function of *un-* is to reverse the polarity of the scale denoted by the root it attaches to; hence, contrary to Yumoto, we consider the basic meaning of *un-* to be the “reversal” sense. When it prefixes an adjective, it triggers the antithesis sense by altering the polarity of the scale denoted by the adjectival root. For instance, the *un-* prefixation changes the denotation of *happy* in (2a) from a positive degree to a negative one (2b).

- (2) a. [[happy]] =  $\lambda x. x$  is d-happy.  
 b. [[unhappy]] =  $\lambda x. x$  is -d-happy.

Graph1



Likewise, when *un-* prefixes a verb, it changes the polarity of the scale the verbal root denotes. Thus, if as illustrated in (3a), *kennel* denotes a movement into a kennel, then as shown in (3b), *unkennel* denotes a movement out from a kennel, and in this prefixation process, the only thing that is altered is the ordering relation that defines the movement path, which Rappaport (2008), among others, suggests can be considered a kind of a scale.

<p>(3) <i>kennel</i>          dimension: location          Degrees: outside of RO, inside of RO          Reference Object: the kennel  <b>Ordering: towards RO</b>          Reference Path: two-valued bounded          Motion Path: equal to reference path</p>	<p><i>un-kennel</i>          dimension: location          Degrees: outside of RO, inside of RO          Reference Object: the kennel  <b>Ordering: away from RO</b>          Reference Path: two-valued bounded          Motion Path: equal to reference path</p>
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Our scalar approach is implemented to account for some empirical facts that are otherwise problematic or unpredictable. Firstly and most importantly, it captures the distribution of the types of verbs *un-* can be a prefix of. In Yumoto (1997), *un-* is provided with a unified meaning, but it is not clear why it cannot prefix a stative verb, which also includes an [AT(x)] function in its LCS; therefore, she has to establish two lexical rules for *un-* after all. Contrastively, our analysis correctly predicts such a distribution. Since the function of *un-* is to reverse the polarity of a scale, the verbs it can attach to have to include a scale in its denotation. Table 1 shows this prediction is true. Rappaport (2008) and RH&L (2010) divide verbs into scalar and non-scalar ones, and the dichotomy lines up clearly with whether a predicate can be prefixed by *un-*.

Table 1

	adjectives	stative	Activity	accomplishment	achievements
[AT [x]]	✓	✓	×	✓	✓
Scalar	✓	×	×	✓	✓
<i>un-</i> prefix	✓	×	×	✓	✓

Also, our approach makes degree modification predictable. If, as we claim, the basic function of *un-* is to change scalar polarity, then as also mentioned in K&M (2005), it follows naturally why a maximum-endpoint adjective (e.g. (4a)) becomes incompatible with a maximum-endpoint modifying adverb (e.g. *completely*) after being prefixed by *un-* while a minimum-endpoint adjective (e.g. (4b), (4c)) becomes compatible with such adverbs after the prefixation.

- (4) a. It is completely {dead / ??*un*-dead}.  
 b. It is completely {*un*bent / ??bent }.  
 c. It is a completely { *un*-talked / ??talked } about program.

In sum, this presentation proposes an analysis in which the cross-categorical behaviors of the *un-* prefixation can be subsumed to a unified lexical process that evokes a manipulation on the scale structure of its root morpheme, and through this proposal, we hope to shed light on the debate of whether it is necessary to adopt the ontological concept of scalarity in verbal semantics.

## References

- Dixon, R.M. W. (1991). *A semantic approach to English grammar*. Oxford: Oxford University Press.
- Kennedy, C., and McNally, L. (2005). Scale structure and the semantic typology of gradable predicates. *Language 81*: pp.345–381.
- Rappaport Hovav, M. (2008). Lexicalized meaning and the internal structure of events. In Rothstein S. (Ed.), *Theoretical and crosslinguistic approaches to the semantics of aspect*. Amsterdam: John Benjamins.
- Rappaport Hovav, M. and Levin, Beth (2011). Reflections on manner/result complementarity. In Doron, Rappaport Hovav, M., and Sichel I. (Eds.) *Syntax, lexical semantics, and event structure*. Oxford: Oxford University Press.
- Yumoto, Yoko. (1997). Verb prefixation on the level of semantic structure. In Kageyama, T. (Ed.) *Verb semantics and syntactic structure* (pp.177-204). Tokyo: Kurosio Publishers.