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When *under* means ‘underto’:  
Evidence for a unified locational semantics for English prepositions

Why can spatial prepositions such as *in* and *under*, though taken to be descriptions of static location, be used to convey directional interpretations?

- (1) I walked in the room                      (2) My dog ran under the table

Several studies have recently addressed this question with respect to *in*, which alternates in this use with the purely directional *into* (Nikitina 2004, Thomas 2004).

- (3) I walked into the room

However, a full account of this phenomenon cannot ignore other spatial prepositions such as *under* and *above* which also permit directional uses, but lack a purely directional alternative. We report on a study of the directional uses of *under* that supports the conclusions of certain studies of *in*: a spatial preposition receives a directional interpretation precisely when contextual factors support an inference of directionality. We argue that this is evidence for a unified treatment of the semantics of *in* and of non-alternating prepositions like *under*.

In studying the directional uses of *under*, we took what is known about the *in/into* alternation as a starting point. Studies have claimed that directional *in* is disfavored if (a) the verb has a manner component, (b) the verb is intransitive, or (c) the landmark does not immediately follow the verb. In all those cases *into* is preferably used. Identification of these factors depends on cases when *in* might be used to mean *into*, but we could not ask the precisely analogous question about *under* because of the absence of a morphological alternative (*\*underto*). That is, since there is no alternative to *under*, the latter might be expected to appear in contexts where *in* is dispreferred simply because there is no competing alternative. This may give the erroneous impression that, unlike *in*, *under* is not primarily locational, but ambiguous between a locational and a directional meaning. This would in turn predict that the distribution of *under* should not be sensitive to the factors that disfavor *in*. We show this prediction to be false.

We extracted all literal uses of *under* as head of a PP from the Switchboard corpus and the Fisher corpus of Training English (289 tokens). We used a logistic regression model to investigate whether directional *under* was disfavored by the same verb types as *in*, because this is the dimension along which *in* and *under* are directly comparable. We show that although directional readings of *under* are very common with motion verbs (as expected because of the lack of an alternative), the odds of such an interpretation are lowest with manner of motion verbs (e.g. *walk*, *run*), intermediate with directed motion verbs (e.g., *go*, *come*), and highest with transitive verbs (e.g. *throw NP*, *dunk NP*). This pattern reflects exactly the preferences for directional *in*. This suggests that, as with *in*, the meaning of *under* is always locational, with motion to the location inferred when contextual information, including verb type, supports it. This differential distribution across verbs would be unexpected if there were simply two *unders*: one describing static location and the other directional interpretations.

In concluding we consider the implications of our research for the lexicalization of motion events, pointing out that directional interpretations of spatial prepositions are found in so-called path languages like French (Pourcel and Kopecka 2006) as well as manner languages like English. Thus, this property cuts across proposed lexicalization types in a way that supports Beavers, Levin, and Tham's (2006) suggestion that there is not, in fact, a dichotomy between path and manner languages. Rather, the typology emerges from general constraints on how manner and path may be encoded in languages interacting with independent morphosyntactic properties of individual languages.

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## References

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