Towards a domain-neutral prepositional semantics

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The domain of space enjoys a privileged status in semantics, especially in prepositional semantics, where spatial uses of prepositions are often the centrepiece of investigation. Coupled with this focus on space is often the proposition that spatial language forms the basis for non-spatial language. Localism, as the proposition is called, is espoused by various schools of semantics, most strongly so by cognitive linguistics (e.g. Lakoff 1987, Talmy 2000, Tyler & Evans 2003). Important support also comes from conceptual semantics (Jackendoff 1983, 1991). Formal semantics is less clear on the matter (e.g. Zwarts 2005, Zwarts 2017, Kracht 2020), though the preferential treatment given to space may be seen as a weak support for localism.

Our paper argues that there is a feasible but underdeveloped alternative to localism: domain- neutral prepositional semantics. This approach investigates possible generalisations that are overlooked in spatial semantics. Its basic thesis is that the semantics of many prepositions encode abstract, domain-neutral features. These features carry no domain-specific information but provide general schemas that are interpreted by specialised systems. For instance, a pre- position like *to* – often taken to be a goal path preposition – would contain no information with respect to paths in space. The spatial interpretation arises through interaction with a spatial system.

We illustrate this approach with two Swedish prepositions, the ablative *från* ('from') and the lative *till* ('to'), starting out in the spatial domain in order to show how spatial uses afford generalisations that transcend the spatial domain. The procedure begins by circumscribing the minimal spatial content of the prepositions.

Previous work in spatial semantics suggests that dynamic prepositions, such as English *to*, *from*, *into* and *onto*, are correlated with static prepositions. The latter denote configurations that occur at some point of the paths denoted by the former: *from* and *to* correspond to *at* while *into* and *onto* correspond to *in* and *on*. Such correspondences are generally taken to be cross- linguistic (Bennett 1975, Jackendoff 1983, 1991, Asher & Sablayrolles 1995, Kracht 2002, Zwarts 2005, Pantcheva 2011). What to make of the proposed correspondence depends on the understanding of *at*. According to Zwarts & Winter (2000), *at* denotes a space external to an object, as opposed to *in*, which denotes a space internal to an object. According to Bennett (1975), *at* is neutral in this regard and a hypernym of both *on* and *in*.

For Swedish *från* and *till*, the correspondence yields the correct predictions only under Bennett's description. Both prepositions are neutral to the distinction between proximal (*near*) and direct localisation (*in, on*). We shall call this configuration *coincidence*. In a context, either interpretation may be strongly favoured. For (1a), the favoured interpretation is proximal, and for (1b), it is direct. Pragmatic factors account for the variation.

(1)
    a. *De åkte till butiken.*
       'They drove to the store.'

    b. *De åkte till Danmark.*
       'They drove to Denmark.'

In sentences with a motion verb, such as (1), paths are clearly an important aspect. But there are reasons to believe that paths are not encoded by the prepositions as such. In some spatial uses, paths are not salient, if at all present. In (2), the path, though inferable, is of little im- portance due to the saccadic nature of gaze shifts and the inconspicuousness of any such path. (2) more importantly tells us that the gaze went from the state of being at the scene to the state of not being at the scene.

(2) *Han vände blicken från scenen.*
    'He turned his gaze from the scene.'

It is also revealing to consider phrases in isolation from any verbal context. (3) shows three noun phrases denoting a part and a whole. Some situations permit either of the three expressions. The difference then lies in which aspect of the relationship is highlighted. *Från* highlights the origin of the part and *till* highlights the purpose, the intended place of the part. *Av* is neutral and simply expresses the parthood relationship. Unlike *av*, *från* and *till* express an order, but there is no path.

(3)
    a. *en del till bilen*

'a part for the car'

b. *en del från bilen*
'a part from the car'

c. *en del av bilen*
'a part of the car'

Spatial non-motion events provide similar evidence. In (4), the light is first in the state of being red, then in the state of being green. The event is spatial, but there can be no path because there is no motion. Localist accounts, however, see such uses as derived from motion (e.g. Talmy 2000). We submit this runs counter to good theoretical practice, as it purports to derive the simpler concept (change) from the more complex concept (motion). The former is inherent in the latter.

(4) Ljuset växlade från rött till grönt.
'The light shifted from red to green.'

These examples suggest a minimal specification for *från* and *till*. The prepositions do not encode paths. They encode sequences of two conditions. If the configuration as previously suggested is *coincidence*, then *från* encodes a *coincidence* (c) that precedes a *non-coincidence* (~c) and *till* a *coincidence* that succeeds a *non-coincidence*. As expected, one is the converse of the other:

(5) $[\![$från$]\!]$ = (c, ~c)
$[\![$till$]\!]$ = (~c, c)

By removing the notion of paths from the meaning of the prepositions, we are able to formulate a semantic characterisation schematic enough to afford non-spatial interpretations without assuming localism. Coincidence is then understood as a domain-neutral condition of agreement or correspondence for which the prepositions encode converse orders of satisfaction. This configuration naturally has different realisations corresponding to ontological differences be- tween domains. For spatial

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uses, coincidence means to be in a particular place (i.e., the thing coincides with the place). For temporal uses as in (6a), coincidence means to occur at a particular time. In (6b) and (6c), where we assume the book to be an abstract object, coincidence is interpreted as being in the immediate context of the whole book as opposed to some distal, detached context. This distinction is largely a matter of praxis with no particular spatial manifestation. For a change of state as in (6d), coincidence means agreement between two categorisations, and in (6e), it means the presence of a property in a thing.

(6)

    a. *Han arbetar från morgon till kväll.*
      'He works from morning to evening.'

    b. *ett kapitel till boken*
      'a chapter for the book'

    c. *ett kapitel från boken*
      'a chapter from the book'

    d. *Huset förvandlades från ruckel till drömhus.*
      'The house was transformed from a shack to a dream house.'

    e. *Han gick från ledsen till glad på ett ögonblick.*
      'He went from sad to happy in an instance.'

Evidence for a domain-neutral description comes from the parallelism and agreement between such varied uses. There are indications that also some of the inferences needed for domain- specific interpretations have domain-neutral properties. For instance, the inference of a path in some spatial expressions seems analogous to the inference of an amount of time passed in (6a) and the inference of a gradual transformation in (6d). In (6e), on the other hand, there is no gradation, and (4) above is vague on the matter, telling in favour of a neutral analysis. Localist accounts see similarities of this sort as evidence for conceptualisation of non-space in terms of space (e.g. Jackendoff 1983, Talmy 2000). But an explanation in terms of abstraction is equally possible: here we posit a domain-neutral distinction between continuous and

discrete sequence. Our analysis requires no domain-specific properties to be encoded in *från* and *till*, thus providing an alternative to the domain specific analyses more common in contemporary semantics. Though this approach may require reformulations of some notions in spatial semantics, it is geared towards integrating previous analyses into the mechanisms responsible for domain-specific interpretations. Its contention is not that spatial semantics is wrong but that it is limited. The benefit of this line of research is that it clears the way for possible generalisations that could provide insights into semantic patterns that are inaccessible from a purely spatial point of view.

References:

Asher, Nicolas & Pierre Sablayrolles. 1995. A typology and discourse semantics for motion verbs and spatial PPs in French. *Journal of semantics* 12, 163–209.

Bennett, David C. 1975. *Spatial and temporal uses of English prepositions: An essay in stratificational semantics.* London: Longman.

Jackendoff, Ray. 1983. *Semantics and cognition.* Cambridge, Mass.: MIT Press. Jackendoff, Ray. 1991. Parts and boundaries. *Cognition* 41, 9–45.

Kracht, Marcus. 2002. On the semantics of locatives. *Linguistics and philosophy* 25, 157–232.

Kracht, Marcus. 2020. Spatial prepositions and locatives in formal semantics. In D. Gutzmann et al. (ed.), *The Wiley Blackwell Companion to Semantics*.

Lakoff, George. 1987. *Women, fire, and dangerous things. What categories reveal about the mind.* Chicago: University of Chicago Press.

Pantcheva, Marina Blagoeva. 2011. *Decomposing path: The nanosyntax of directional expressions.* Tromsø: University of Tromsø.

Talmy, Leonard. 2000. *Towards a cognitive semantics.* 2 vol. Cambridge, Mass.: MIT Press. Tyler, Andrea & Vyvyan Evans. 2003. *The semantics of English prepositions: Spatial scenes,embodied meaning, and cognition.* Cambridge: Cambridge University Press.

Zwarts, Joost. 2005. Prepositional aspect and the algebra of paths. *Linguistics and philosophy* 28, 739–779.

Zwarts, Joost. 2017. Spatial semantics: Modeling the meaning of prepositions. *Language and linguistics compass*, 1–20.

Zwarts, Joost & Yoad Winter. 2000. Vector space semantics: A model-theoretic analysis of locative prepositions. *Journal of logic, language and information* 9, 169–211.