Gradable path prepositions as measure-of-change functions

While gradability is a property typically associated with adjectives, many items from other syntactic categories also exhibit this property, as indicated by their compatibility with degree modifiers, measure phrases, and comparatives (1)-(4). Nevertheless, it is debatable which of these items actually lexicalize a degree argument (Rappaport-Hovav 2008, Rett 2013).

(1) Jan half ate the cheese.
(2) Jan slightly tripped.
(3) Jan is 3 meters behind the house.
(4) Jan ran farther towards the house than Koki.

In this paper I argue that path prepositions (ex. towards, away from, through, across) do lexicalize a degree argument, insofar as they exhibit the same scalar and aspectual behavior as deadjectival degree achievements (ex. widen, dry). For one thing, both enforce comparative rather than absolute readings of measure phrases (5-6). Additionally, when degree achievements and path PPs encode a closed scale (as indicated by their compatibility with endpoint-oriented degree modifiers completely and partially, see Kennedy & McNally 2005) they also exhibit a telic-atelic alternation (9). But open-scale degree achievements and path PPs are strictly atelic (10).

(5) Jan walked 3 meters away from the house.  ↦ Jan’s distance from the house is 3 meters.
(6) The river widened 3 meters.  ↦ The river’s width is 3 meters.

(7) Closed-scale degree achievements and path PPs
   a. Jan walked {completely/partially} through the garden.
   b. The pavement is {completely/partially} dry.

(8) Open-scale degree achievements and path PPs
   a. *Jan walked {completely/partially} towards the garden.
   b. *The channel is {completely/partially} wide.

(9) Closed-scale items exhibit a telic-atelic alternation
   a. Jan walked through the tunnel in/for twenty minutes.
   b. The pavement dried in/for twenty minutes.

(10) Open-scale items are strictly atelic
    a. Jan walked towards the tunnel *in/for twenty minutes.
    b. The channel widened *in/for twenty minutes.

I extend Kennedy and Levin’s (2008) account of degree achievements as measure-of-change functions to path prepositions, first showing that it successfully captures the striking parallels between the two classes, and second arguing that it is more desirable than those accounts which derive the aspect of path PPs from the algebra of paths (ex. Zwarts 2005). This is because the measure-of-change account
derives the aspectual properties of path PPs directly from their scalar properties, and therefore it alone is able to provide a principled explanation for the data in (7)-(10).

First, the comparative semantics of degree achievements and path PPs is captured by the fact that they both encode measure-of-change functions, which measure not degrees but *changes* in degree over the course of an event. This is achieved by mapping the value of a degree $d$ at the end of the event onto a derived scale whose minimum bound is equal to $d$’s value at the beginning of the event. For example, the denotation of *through the tunnel* below states that the degree of overlap between the path traveled by an individual $x$ and a path through the tunnel, $p$, at the end of $e$ is equal to degree $d$, and that $d$ is mapped to a scale with a starting value equal to $d$’s value at the beginning of $e$. In this way, the initial and final values of $d$ are compared.

(11) $\text{through the tunnel} = \lambda x \lambda d \lambda e. \text{overlap}_d(p)(\text{path}(x))(e) = d \wedge \text{through}(x)(p)$

More importantly however, the connection between scale boundedness and telicity is derived from the location of the standard of interpretation (Kennedy 2007). When the scalar standard is set to minimum, a *through the tunnel* event is one in which any increase along the overlap scale is achieved, resulting in an atelic reading. When the standard is set at maximum, however, the telic reading arises. Therefore, telic readings are only available for items encoding scales with a maximum bound (9 vs. 10).

In contrast, Zwarts (2005) derives the aspect of path PPs from the algebraic structure of the path denoted by the PP. Cumulative paths lead to atelic event descriptions, and non-cumulative paths to telic ones. The telic-atelic alternation in (9) is derived by applying the “universal grinder” to the path denoted by *through the tunnel*, rendering it cumulative. However, this fails to explain why a similar operation is not in principle available for (10), for example, through the application of a “universal packager” to the path denoted by *towards the tunnel*.

In addition to motivating a degree semantics for path prepositions, the present analysis shows that Kenney and Levin’s measure-of-change semantics extends successfully to a class of items for which it was never designed—strong evidence that it is on the right track.

References


