The semantics of Degree Verbs

The class of *degree achievements* (Dowty 1979) is notoriously difficult to reconcile with the traditional Vendlerian classification. These predicates, henceforth called *degree verbs* (DV), include verbs such as: *lengthen*, *fatten*, *increase*, *dry*, *complicate* etc. This contribution aims at formalizing their semantic behavior by highlighting their intrinsic gradual and differential nature.

As observed by several scholars (Dowty 1979; Bertinetto & Squartini 1995; Hay 1998; Hay & al. 1999; Kennedy & Levin 2002, 2008; Kearns 2007; Piñón 2008; Kennedy 2012; Beavers 2013), DVs oscillate between accomplishment (ACC) and activity (ACT) behavior. According to some authors, this amounts to an oscillation between telic and atelic meaning; according to others, DVs are fundamentally telic in all their uses. To illustrate: *The soup cooled* may be read as:

(A) the soup is colder than before, but not actually cold according to a (contextually defined) standard; hence, no more than an intermediate threshold has been reached.

(B) the soup is cold according to a (contextually defined) standard; hence, the final threshold has been attained.

Authors like Abusch (1986) and Kennedy & Levin (2002, 2008) claim that reading (A) is atelic, or that its interpretation depends on the nature of the adjective upon which the given DV is derived (Hay 1998, Hay & al. 1999). By contrast, Bertinetto & Squartini (1995) and Kearns (2007), suggest that attainment of an intermediate threshold guarantees, in and by itself, telicity even in the (A) reading.

A robust line of research attempted at defining the DV behavior by means of scalar semantics, based on the corresponding gradable adjective. Thus, a DV should be defined by the INCREASE function operating on property *G*, objects *x*, degrees *d* and events *e*:

$[INCREASE(G(x))(d)(e)]] = 1$ iff $G(x) (END(e)) = G(x)(BEG(e)) + d$

such that one observes an increment if the degree to which *x* has property *G* at the end of the event (*END*) is the non-null sum of the degree at the initial stage of the event (*BEG*) and of the increment degree *d*.

A crucial point of Kennedy's approach is that the (a)telicity of DVs depends on the nature of *d*. If *d* is existentially bounded, i.e. the increment has occurred but its degree is not specifiable (as in *The level of the water increased FOR two hours*), the predicate is atelic; if *d* is at least potentially specifiable (as in *The level of the water increased IN two hours*), the predicate is telic.

Piñón (2008) takes issue with the fact that the degree *d* account be responsible of the (a)telicity of DVs, showing that it is compatible with alternative interpretations. Based on Krifka (1989, 1992), he claims that one needs to posit a link between the incremental theme properties – which these predicates exhibit due to their gradual nature – and the increment degree. In other words, he posits a correlation between the NP's quantized/cumulative properties and the predicate's properties.

The present approach develops this proposal, showing that DVs are inherently telic. We assume a double-graduality theory, relative to: (I) the event and its degree of realization (DoR), (II) the object and its dimensional properties (extent). The DoR of the event is saturated to 1 whenever the predicate expresses a perfective view. The extent is saturated to 1 whenever the object property is completely affected. While the extent is mereologically defined with ACCs, in the case of DVs it relates to an inherent property scale along which any differential change is measured. To capture this contrast, we call "difference" the extent component of DVs.

Telicity is fulfilled whenever the product of DoR and extent is defined. E.g., *The level of the water increased* exhibits a realization degree *d = 1* and an extent *ın* (where the iota quantifier indicates a defined amount, possibly specified as in …*by 10 cm*).

The different aspectual reading (perfective/imperfective) has important consequences:

(i) The water level *was increasing* {* by 10 cm / * in 3 hours}

(ii) The water level *increased* {by 10 cm / in 3 hours}

where (i) can only be accepted in a tendential/provisional (rather than factual) meaning, for the progressive reading preempts the telic interpretation suggested by the increment degree's specification. Any specification of the extent is ruled out in imperfective contexts.

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