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Telicity by Parts, Degrees and Ends

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1. Background. Taking the source of telicity as our main distinguishing criterion, we may classify contemporary approaches to the representation of telicity into three main types.

1.1 Telicity by ends and results. The oldest approaches to telicity assume an essential Aristotelian distinction between (descriptions of) states of affairs that necessarily involve some inherent end, completion, culmination or result, and those that lack it (cf. Garey 1957, and its origins in Kenny 1963, Dowty 1979, and references therein). This dichotomy is often thought to be grammaticalized in the Slavic opposition between perfective vs. imperfective verbs (or verb forms).

1.2 Mereologically-based telicity by parts and sums. These approaches presuppose structural parallels between the denotational domains of verbal and nominal predicates, both structured by the mereological 'part-of' relation (Link 1983, 1987; Bach 1986). A telic predicate comes with a quantitative criterion of application, which is supplied by means of an extensive measure function. In the core cases, the quantitative criterion of application is specified by the verb's argument linked to its (Strictly) Incremental Theme role, which is characterized as a homomorphism between events and objects preserving the 'part-of' relation (Krifka 1986, 1992, 1998; Dowty 1991).

1.3 Degree-based telicity. The component of a verb's meaning, which determines its telicity potential, is a function that measures the degree to which an object changes relative to some scalar dimension over the course of an event. Such 'measures of change' are based on general measure functions that are lexicalized by gradable adjectives (e.g., *cool, darken, empty*), and map an object to a scalar value representing the degree to which it manifests some gradable property at a given time (Zucchi 1998, Kennedy and McNally 1999, Hay et al. 1999, Kennedy and Levin 2001, Rotstein and Winter 2004, Beavers 2004, Kennedy and McNally 2005). Telic predicates denote events that are individuated by some maximal value on the associated scale. The acceptability of the *in*-

PP in *The soup cooled in 10 minutes* indicates that *cooled* is here telic, and the sentence is true of an event only if it leads to an endstate in which the soup has reached some maximal 'cool' value on the associated temperature scale.

2. Proposal. The three main approaches to telicity are not mutually exclusive, and indeed, we find approaches that integrate at least some elements from each (cf. Jackendoff 1996, Krifka 1998, Kratzer 2004, Filip&Rothstein 2005, Filip 2008). It will be shown that their insights can be combined and that their integration is essential to the formulation of a general theory of telicity in natural languages.

Results from linguistics, philosophy and psychology converge on the idea that events do not culminate per se and are individuated in terms of objects (in the widest sense) to which they are in one way or another related. Building on degree-based approaches to telicity, I propose that events in the denotation of telic predicates are individuated by being maximalized with respect to a scale inherent in (at least) one of their participants (or some quantifiable dimension, such as a temporal trace or path). The requisite maximalization operator on events MAX_F cannot be directly applied to such a scale measuring objects (in the widest sense), but instead to a partial ordering of events that it induces. By what mechanism do we induce an ordering on events? The answer to this question is provided by mereologically-based approaches to telicity: It is a homomorphic mapping between the part structure of the domain of events and the domain of objects, provided we extend the latter to include scales. In sum, telicity amounts to maximalization on events, and its representation draws on two presumed sources of telicity: mereologies (telicity by parts and sums) and scales (telicity by degrees).

3. The main burden of the analysis is on identifying for each (use of a) telic predicate the requisite scale of events with respect to which we can pick up what counts as the maximal event at a given situation. Predictions concerning the cross-linguistic variation in the encoding of telicity depend on what meaning components a given language packages into its verbs--verb roots and morphological operations on verbs: namely, what matters is how much of the information inducing an ordering on events is already lexicalized in a verb and how much of it is expressed externally to it by verb's arguments and modifiers, and at which level of the grammatical description. The division of labor between verb-internal

vs. verb-external means of expression is the crucial factor in predicting whether MAX_E will apply to the denotations of verbs, VP's or sentences in a given language. It also influences the details of the telic interpretation of a given sentence, and whether telicity is a matter of entailment or conversational implicature.

The empirical evidence for the two sources of telicity proposed here comes from their separate lexicalization in verb roots: (i) 'Degree achievements' (cf. Dowty 1979), or better 'scalar verbs' (in the sense of Hay et al 1999, Rappaport Hovav 2008, among others), which lexicalize a property scale and require that the object it is predicated of be overtly expressed (cf. Rappaport Hovav 2008); (ii) (strictly) incremental verbs (e.g., *eat, write, build*), which lexicalize the homomorphism between the part structures of objects and events. The latter are inherently non-scalar, but compose with Theme objects which serve as scales for maximalization of events they describe (cf. Filip 2008).

Scalar verbs provide an argument in support of the claim made here that mereologically-based change by parts and scale-based change by degrees are orthogonal, since they can co-occur with the same scalar verb, giving it multiple sources of telicity (example is adapted from Kennedy & Levin 2007):

(1) All the sky darkened in an hour.

i. All the sky reached the maximal degree on a scale for darkness. [change by degrees]

ii. Parts of the sky gradually underwent darkening until all the sky was dark. [change by parts, and also possibly change by degrees]

Based on evidence from Germanic and Slavic languages (cf. Filip 2008), and as a point of departure, I take the empirical hypothesis that the number of scalar root verbs and (strictly) incremental root verbs is crosslinguistically quite restricted. From this it then follows that the vast majority of root verbs in natural languages do not lexicalize the meaning components that are crucial to the telic interpretation of sentences, and hence in the vast majority of cases, telicity is morphologically and/or syntactically constructed, modulo pragmatic principles of interpretation.