What the fuzz is an event result?
Affectedness and telicity in the meaning of verbs across languages

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In Cognitive Semantics, Talmy's (2000, 2016) typology classifies languages depending on how the result of events (i.e., the change in the location or state of an event participant) is typically expressed. In verb-framed languages results are typically expressed in single verbs (e.g., in Spanish: *salir* 'to exit', *destruir* 'to destroy''), whereas in satellite-framed languages results are typically expressed in satellite markers (e.g., particles in Dutch: *uit-gaan* 'out-go', *kapot-maken* / 'broken-make', and verbal complements in Mandarin Chinese: *Zǒu-kāi* 'go-open', *sī-suì* 'tear-smithereens'). The intuitiveness of this typological distinction has inspired many important cross-linguistic studies (e.g., Gerwien & von Stutterheim, 2018; Montero-Melis et al., 2017; Papafragou et al., 2008), however, this intuitiveness conflates two components of event results which have been thoroughly examined in semantic theories of verb meaning and scalar change: affectedness and telicity (cf. Beavers, 2011; Fillip, 2012; Kennedy & McNally, 2005; Rappaport Hovav & Levin, 2010). While affectedness refers to an unspecified degree of change in a participant (e.g., moving in space), telicity refers to the existence of a particular endpoint delimiting the envent (e.g., exiting a building). At present, it is not clear whether the notion of result, which is at the heart of Talmy's typology, reflects affectedness or telicity.

Here, we investigated this question by examining the extent to which verbs in Spanish (a verb-framed language) and in Mandarin and Dutch (two satellite-framed language) express affectedness and/or telicity. Rather than assessing the lexical semantics of verbs by means of conventional linguistic diagnostics such as the *in/for an hour* test (which have the disadvantage to be sensitive to other elements in a sentence), we developed an experimental approach to assess the meaning of verbs in isolation. The goal was to obtain a nuanced picture of the extent to which telicity and affectedness are expressed in different verb forms across language types. First, a native speaker of each language assembled a list of verbs by naming different phases of events portrayed in 40 short videos showing change-of-state events. The clips showed how an agent changed the state of an object until a natural endpoint was reached (e.g., a paper was cut in half). This resulted in 126 verbs in Spanish, 155 verbs in Mandarin and 180 in Dutch. After classifying verbs according to their form (either single verb, verb + satellite or serial verb) they were used in a web-based questionnaire to test the intuitions of native speakers of Spanish (N=69), Mandarin (N=71) and Dutch (N=91). In each trial, participants saw a verb in the infinitive form and answered two multiple choice questions about the action expressed by the verb: Q1) at the end of the action, must the state or the location of an object needs to be different, or neither of them? (probing affectedness), and Q2) must the action reach a particular endpoint or not? (probing telicity).

For each question, the proportion to which each of the given choices was chosen was calculated per verb and then tested against chance level ($\alpha = 0.05$). When a given response was chosen above chance level, the corresponding verb was labeled either as change-of-state verb (CoS), change-of-location verb (CoL), or no-change verb (regarding affectedness; Q1), and either as telic or atelic (with respect telicity; Q2). When no option was clearly preferred, verbs were label as "no consensus" for the corresponding dimension. The verb classification revealed that single verbs across language types are greatly used for expressing change (i.e., affectedness; Figure 1.a), and thus verb-satellite constructions and serial verbs broadly express change as well. Further, the classification showed that the lexical semantics of verb-satellite constructions in Mandarin and Dutch differed from single verbs with respect the expression of event endpoints (i.e., telicity; Figure 1.b). In addition, the proportion of atelic verbs increases as the proportion of telic satellites decreases. Spanish, a verb-framed language, presented a big class of telicity-ambiguous verbs (no consensus). Previous and future studies addressing Talmy's typology must be rightfully considered in light of nuanced crosslinguistic differences with respect the expression of telicity, and not of affectedness.

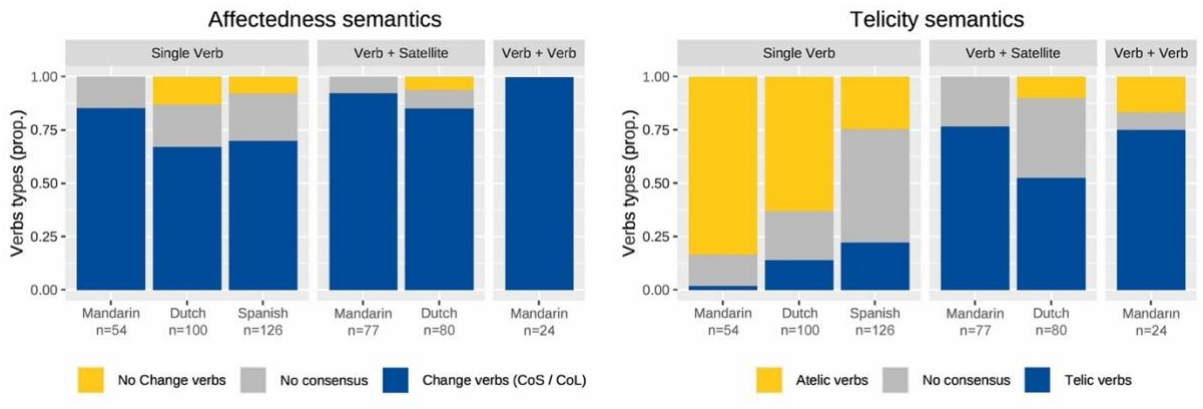
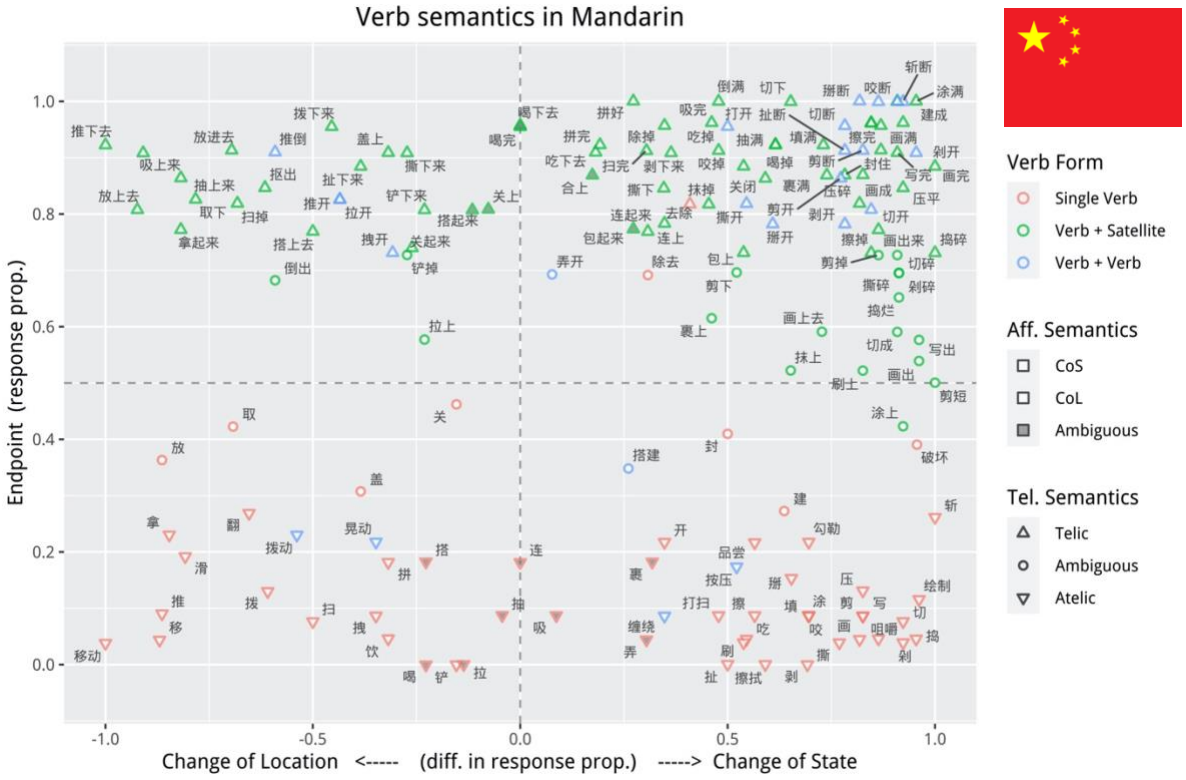


Figure 1. Proportion of verb types (by form) across languages labeled either as Change (either CoS or CoL), No change or No consensus relative to the question probing affectedness (a, left side) and labeled either as Telic, Atelic or No consensus relative to the question probing telicity (b, right side).

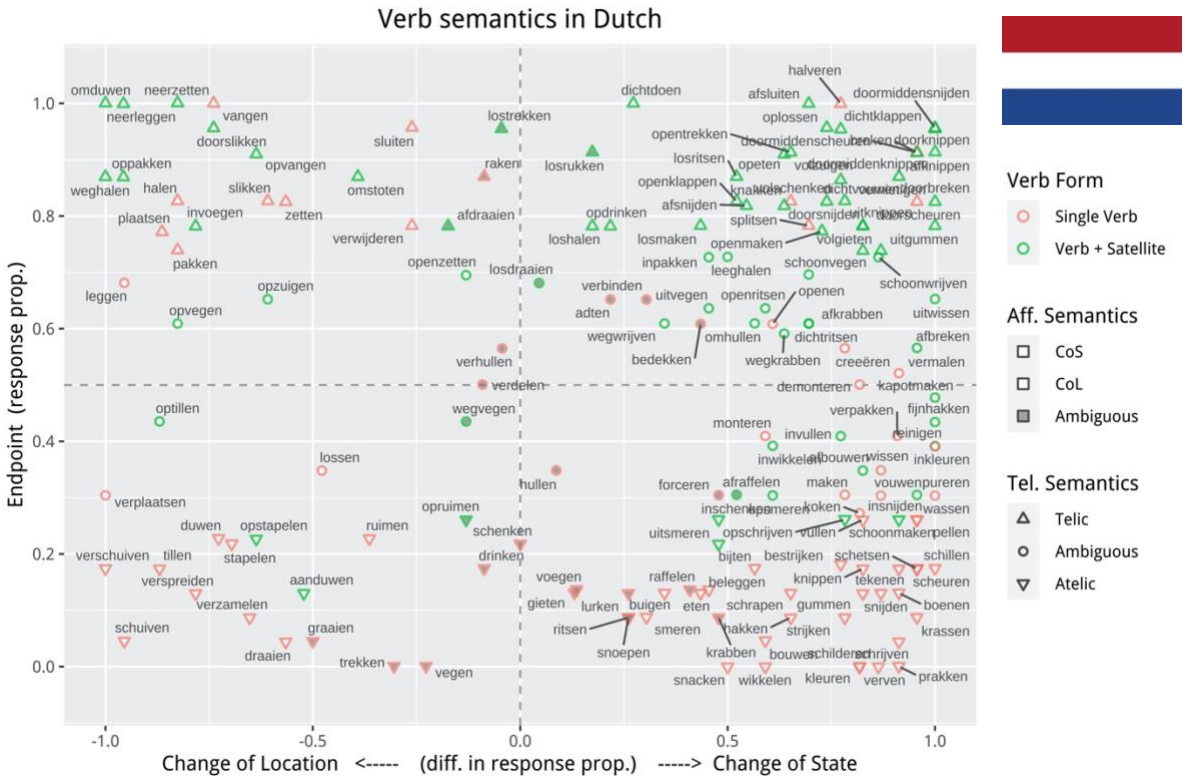
Appendixes

The figures below portray in two dimensional plots the proportion of responses that individual verbs had in Mandarin, Dutch and Spanish for. The x-axis reflects the difference in the proportion of change of location choices against change of state choices for question 1 (affectedness), and the y-axis reflects the proportion chices for endpoint question 2 (telicity).

Appendix 1: Verbs in Mandarin



Appendix 2: Verbs in Dutch



Appendix 3: Verb sin Spanish