

## Constraints on the Complexity of Verb Meaning and VP Structure

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In an insightful short study of the dative alternation, Manfred Krifka (1999) underscores that whether a verb lexicalizes a manner component of meaning is important to determining whether it shows the alternation. This element of meaning has figured prominently in a constraint on possible verb meanings to be stated below, which we understand as a constraint limiting the complexity of verb meanings. What to our knowledge has not been appreciated is that the constraint on what can be encoded in the meaning of a verb is mirrored in some, but not all, languages in a constraint on the meaning that can be encoded in a verb and its complements. Why languages should differ in this respect remains a mystery to us, but we hope that articulating the mystery may contribute towards its solution.

There is a sense in which possible verb meanings are unconstrained: a particular verb—or perhaps, more precisely, verb root—can pack numerous idiosyncratic entailments into its meaning, supplemented by a host of implicatures. These come into play even in the use of an everyday verb like *break*; you can break a glass, a window, or a bone, but you crack a nut, tear a shirt, or pop a balloon. Nevertheless, as Carter (1976) and Grimshaw (2005:85), among others, point out, there are strong constraints on how much information can be packaged into the meaning of a particular verb. We suggest, however, that complexity is not determined by the number of entailments or implicatures associated with a verb. Rather the presence of certain types of meaning components, whether or not they themselves are internally complex, contribute to the complexity of a verb's meaning. One such component is the manner component which figures in Krifka's study.

Levin and Rappaport Hovav (1991) suggest that there is a complementarity between manner and result components of meaning lexicalized in verbs: only one such component can be lexicalized. The effects of this generalization are visible throughout the English verb lexicon, where there are various lexical domains with two subclasses of verbs: those that lexicalize manner and those that lexicalize result. For example, among verbs that can be used to describe removing events, *clean* and *clear* lexicalize a state that may result from removing stuff from a surface, without specifying the activity which brings about the removal; in contrast, *wipe* and *scrub* lexicalize a manner component and describe actions involving surface contact and motion; these actions are often used to remove stuff from a surface, but they need not bring about a specific change. If you scrub or wipe a bathtub, it may or may not end up clean, and there are many activities, including scrubbing or wiping, which can lead to a clean bathtub. When a verb lexicalizes one of these two components, the only way to express the other one, be it manner or result, is outside the verb. For instance, a manner verb can combine with a result XP, as in *Pat wiped the table clean*, and a result verb can be accompanied by an adverbial clause expressing manner, as in *Pat cleaned the table by wiping it*. We suggest that this complementarity reflects a constraint on the overall complexity of a verb's meaning. Certain types of meaning components contribute toward lexical complexity. Each type of component may have a multitude of instantiations, which themselves do not contribute to the complexity of verb meaning. A manner, for instance, can be very complex, as in the set of steps encoded in the verb *waltz* or the subtle distinctions lexicalized in *frown*, *grimace*, and *scowl*. Nevertheless, all manner verbs show the complementarity of manner and result as components of a verb meaning: *crawl*, *swim*, and *walk* are all the same in this respect.

What counts as a result? Investigations of lexicalization patterns of verbs of motion suggest that this notion is not to be equated with change of state. Talmy (1975, 1985) long ago noticed that languages tend to 'conflate' in their verbs either motion and path, as in the English verbs *ascend* and *cross*, or motion and manner, as in the English verbs *amble* and *jog*. Thus, the verb *ascend* specifies a path of motion, but not the manner in which this path is traversed, while the verb *jog* specifies a manner of motion, but is neutral as to whether the motion is along a particular path. The complementarity of path and manner is reminiscent

of the complementarity of manner and result,<sup>1</sup> and Levin and Rappaport Hovav (1992) take path to be a type of result. It is not immediately clear what path and result have in common, but we suggest, in light of recent work (Beavers in press, Hay, Kennedy, and Levin 1999, Kennedy and McNally 2005, Krifka 1998, Rappaport Hovav 2006, Tenny 1994, among others), that changes of state and traversals of path can be considered scalar changes, and scalar changes are the basis for results. Therefore, the manner/result complementarity is often a complementarity between different kinds of changes. Following Dowty (1979), all eventive verbs involve change, and a subclass of these verbs involve change along a scale, and it is this kind of change that gives rise to the potential for a result. These are the changes that are in complementary distribution with manners, which are nonscalar changes.

The constraint against lexicalizing both manner and result components in a single verb is a constraint about what can be packaged into a verb's meaning. But as illustrated above, a clause can include more than one such meaning component. The English resultative construction allows manner and result 'state' components to be combined (e.g., *wipe the table clean*), while PPs can be used to combine manner and path components (e.g., *stroll towards/to the pond*). Furthermore, there are languages where serial verb constructions (e.g., Emai, Mandarin Chinese) or compound verb constructions (e.g., Japanese, Korean) may express meanings comparable to the English resultative or verb plus PP constructions (Choi and Bowerman 1991, Matsumoto 1996, Schaefer 1986, Slobin 2004, Wienold 1995, Zlatev and Yangklang 2004, among others). These constructions allow multiple pieces of meaning to cooccur at a level above a single word.

However, some languages appear to have a constraint on how much meaning can be packaged into the smallest constituent that includes the verb and its complements, which mirrors the constraint on how much can be packaged into a verb in other languages. Thus, as already mentioned, Talmy (1975, 1985) points out that in contrast to English, manner of motion verbs in Romance languages cannot take telic path phrase complements (see also Aske 1989, Slobin and Hoiting 1994). Thus, as a translation stylistics book notes, the English (a) sentence must be translated into French as in (b).

- (1) a. An old woman hobbled in from the back.  
 b. Une vieille femme arriva en boitant de l'arrière-boutique.  
 an old woman arrived in limping from the back-store  
 (Vinay and Darbelnet 1958:105)

We suggest that this difference is a reflection of a constraint against a manner verb appearing with a complement expressing a result, a VP-level constraint reminiscent of the constraint that is apparent in English at the word level.<sup>2</sup> In addition, Romance languages lack the resultative construction (Aske 1989, Green 1973, 1975, Talmy 1991, 2000, among others), and use a result verb plus a manner adjunct or modifier to express the same content, as the English (a) examples and their French counterparts in the (b) sentences illustrate.

- (2) a. Marie sponged the table clean<sub>adj</sub>.

<sup>1</sup>There is a potential counterexample to this constraint: the English verb *climb*, which is said to express both manner and result in some uses, including *Kelly climbed (up) the tree*. Interestingly, as discussed by Fillmore (1982:32-33) and Jackendoff (1985), in most uses, *climb* expresses either a clambering manner of motion, as in *Kelly climbed down from the roof*, or an upwards direction, as in *The plane climbed to a cruising altitude*, consistent with the constraint. Although we cannot elaborate here, we believe that even the potentially problematic use of *climb* can be shown to actually lexicalize one component of meaning, so that this verb is the exception that proves the rule.

<sup>2</sup>Romance languages, however, do allow atelic path phrases with manner of motion verbs (Aske 1989). In fact, *climb*, the potential exception to the constraint at the word level is also an atelic verb; it appears that manner never combines with a telic path inside a verb. Thus, none of the telic path verbs in English include manner (e.g., *arrive, enter, exit, reach*). Manner tends to be in complementary distribution with a path-type result, but a telic path 'counts' more with respect to this constraint than an atelic path.

- b. Marie a nettoyé la table avec une éponge.  
 Marie has cleaned<sub>verb</sub> the table with a sponge  
 ‘Marie cleaned the table with a sponge.’
- (3) a. The cat licked the plate clean<sub>adj</sub>.  
 b. Le chat a nettoyé l’assiette à coups de langue.  
 the cat has cleaned<sub>verb</sub> the plate with licks (literally, ‘strokes of the tongue’)  
 ‘The cat cleaned the plate with licks.’

This can be seen as another instantiation of the constraint against a manner verb appearing with a result complement. There is a less known instantiation of this constraint in Romance languages. In English verbs like *dig* or *carve*, which describe activities often used to create objects, may take an effected object, as in *carve a statue* or *dig a hole*. Romance languages do not have comparable uses of such verbs (Levin and Rapoport 1988, Martínez Vázquez 1998). For example, as Martínez Vázquez (1998:259) points out, in Spanish effected objects are mainly found with verbs lexicalizing a notion of creation, i.e., a result; when the verb emphasizes the activity over the creation, i.e., is a manner verb, then effected objects are not possible.

- (4) Escribió unas palabras.  
 ‘S/he wrote some words.’ (Martínez Vázquez 1998:259, (66))
- (5) a. Rayó/grabateó un papel.  
 ‘S/he scratched/scrawled on paper.’  
 b. \*Rayó/grabateó unas palabras.  
 ‘S/he scratched/scrawled some words.’ (Martínez Vázquez 1998:259, (68))

As all these examples suggest, Romance languages lack a range of constructions which allow a manner verb and a result phrase to be combined in a single VP in English. English and Romance languages, then, seem to differ as to the ‘level’ at which this constraint operates: at the word level in English and at both this level and the level of the verb and its complements in Romance. The mystery is why languages should differ so.

This mystery might be considered together with another mystery raised in recent work by Bohnemeyer et al. (2005), which shows that in some languages a single motion verb can take source, goal, and route complements, as in the English *go/walk from the post office across the street to the bank*, while in a second type of language, represented by Japanese, a single verb can jointly take source and goal complements, but a route must be introduced by a separate verb, and in yet a third type of language, represented by Yukatek, a distinct verb must introduce each of these components of a motion event, roughly as in the English *leave the post office, cross the street, and go to the bank*. Even above the level of the word, then, some languages show stricter constraints than others on how much information can be combined with a single verb. Thus, we point to a mystery about whether VP meanings have the same constraints as verb meanings, while Bohnemeyer et al. raise the question of how many components of meaning a verb itself can combine with in a language.

We close by asking why there should be some languages which allow more material to be packaged into a VP than others. This mystery does not seem to have an obvious answer. It cannot, for instance, just be attributed to the morphosyntactic means these languages have available for expressing particular meanings. French, for example, does allow APs inside a VP, as Green (1973) discusses, so this cannot be the reason why French lacks resultative constructions. Is there then simply a constraint on how complex a meaning can be encoded in a linguistic unit of a certain type, with languages differing as to what this unit is?

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