Telicity and iconic scales in ASL

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Overview. In a series of papers ([6][4] *i.a.*), Wilbur shows that a number of sign languages display a non-arbitrary form-to-meaning correspondence in the verbal lexicon: telic verbs end with sharp deceleration ('end-marking'); atelic verbs do not. Figure 1 provides an example. In ASL, Wilbur also shows that the phonetic form of a verb may be manipulated with semantic effect. In this talk, I provide an analysis of these facts in terms of structural iconicity, where the interpretation of a sign preserves abstract structure of the form of the sign. I follow [3] in assuming that the meanings of change-of-state verbs are derived from scales; I argue that verbs in ASL iconically represent these scales, and that end-marking on telic verbs is the iconic representation of the maximum of a closed scale.
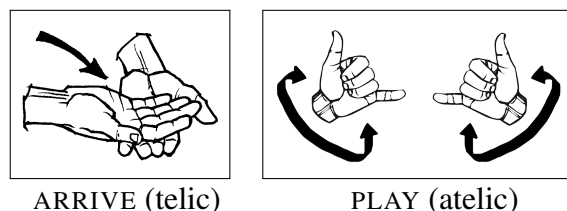

ARRIVE (telic)   PLAY (atelic)

Figure 1: Images of ARRIVE and PLAY in ASL

Gradient manipulations. In ASL, Wilbur shows that the phonetic form of a verb may be manipulated with semantic effect. For example, the verb SIT-DOWN in ASL ends with contact between the signer's two hands; if the sign is produced without this contact at the end, the verb is interpreted roughly as 'almost sat down.' If the verb DIE is signed slowly, it is interpreted roughly as 'slowly die.' Wilbur proposes that these phonetic features are discretely codified in the grammar as a finite set of combinatorial morphemes. Here, I argue that these effects arise not from discrete morphemes, but from an iconic mapping that preserves abstract geometric structure from the form of a sign to its meaning. As evidence, I present examples with gradient interpretive effects that cannot be generated by a discrete combinatorial system alone.

First, Figure 2 presents an example where the reduplicated sign GIVE accelerates from a length of 0.27 seconds down to a length of 0.07 seconds. The resulting interpretation is that the event occurred at a speed that increased over time. Critically, the interpretation of acceleration is only possible with arbitrarily many levels of speed represented.

Figure 2: Reduplicated GIVE

Second, pronunciation of a sign can be interrupted by pauses; the resulting inference of this 'bit-by-bit' inflection is that the event occurred gradually reaching successive states towards completion of the event. These intermediate markers are sensitive to fine-grained temporal and spatial modifications. For example, if the verb DIE is signed with an increased number of pauses as the motion of the sign nears its end point, this is interpreted as meaning that the subject's health declined more and more slowly until the moment of death. In order to capture this meaning, the interpretive system must be able to preserve information from at least two different dimensions: the time elapsed and the distance that the hand has traveled.

Verbal scales. [2] observes that many adjectives come associated with scales, allowing gradability with degree modifiers like English *very*. [2] shows that adjectives display different semantic properties depending on whether their associated scale contains a maximal and/or minimal element. [3] argues that a similar decomposition holds for verbs, based on the observation that verbs are sensitive to the same categories as adjectives, as exemplified by pairs

like *wide/widen* and *dry/dry*. Of note, verbs based on closed scales have a telic and an atelic reading, as in (1). In contrast, verbs based on open scales are always atelic, as seen in (2).

(1)   a.   The towel dried for an hour.

        b.   The towel dried in an hour.

(2)   a.   The gap between the boats widened for a few minutes.

        b.   ?? The gap between the boats widened in a few minutes.

For [3], pragmatic principles determine the meaning of a change-of-state verb; critically, verbs based on closed scales admit the (telic) meaning in which a degree increases to a maximum.

Iconic scales.   [1] argues that adjectival scales are iconically represented in Italian Sign Language (LIS): when the phonological form of an adjective includes a path motion, a comparative form can be constructed by signing the adjective at two different positions along the path.

I propose that the same scales that are are iconically represented in adjectives are also iconically represented in change-of-state verbs in ASL.

Specifically, for each point in the production of a verb, we say that (a) the time that has elapsed after the onset of the sign is proportional to the time that has elapsed after the start of event, and that (b) the distance that has been traversed from the beginning of the phonetic motion (compared to a default motion) is proportional to the change along a scale from the initiation of the event (compared to a canonical event). When a verbal form travels the maximal distance that a phonological motion can travel (perhaps due to contact with another bodypart), an iconic condition entails that the scalar change reaches a maximal degree.

Importantly, the iconic condition on endpoints is only defined if a scalar maximum exists— that is, if the meaning of the verb is based on a closed scale. As above, verbs based on closed scales are exactly those verbs which receive telic meanings. End-marking tracks telicity.

Extension: *again*-ambiguities.   In English, the adverb *again* has been shown to be ambiguous between a repetitive reading and a restitutive reading; e.g., the sentence '*I closed the door again*' either means that I closed the door twice or that I returned it to a state of closure.

For some signers, ASL shows a similar ambiguity with AGAIN. When AGAIN is used with iconically incompletive verbs (where the phonetic motion stops before completion), preliminary results suggest that two readings of AGAIN remain available. Critically, the restitutive reading of (3) presupposes that the door was previously in a state *of being incompletely closed*. Note that this is not a possible reading of the English sentence '*I almost closed the door again*.'

(3)   I DOOR AGAIN CLOSE-incomplete.

The availability of the restitutive reading shows that the state of incomplete closure must be retrievable from the meaning of the modified verb so that it can be targeted by *again*. This state is available on a scale-based decomposition, which represents the full set of closure-degrees. This lends support for a version of [5]'s scale-based analysis of *again*-ambiguities.

Selected References
[1] Aristodemo, V. and Geraci, G. 2015. Comparatives and visible degree scales in Italian Sign Language (LIS). *FEAST 4*. [2] Kennedy, C. and Levin, B. 2008. Variable telicity in degree achievements. In *Adjectives and adverbs: Syntax, semantics and discourse*. OUP. [3] Kennedy, C. and McNally, L. 2005. Scale structure and the semantic typology of gradable predicates. *Language*. [4] Malaia, E. and Wilbur, R. 2012. Telicity expression in the visual modality. In *Telicity, Change, and State: A Cross-Categorial View of Event Structure*. OUP. [5] Pedersen, W. 2014. A scalar analysis of again-ambiguities. *Journal of Semantics*. [6] Wilbur, R. 2003. Representations of telicity in ASL. *Chicago Linguistics Society 39*.