

Talmy's topological dimensions of figure and ground applied to gesture

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According to Talmy, in language about space, the ground is conceptualized to be of different topological dimensions. Topological categories are size and shape neutral (Talmy 2000:223-24), so for example not only a straight plane is two-dimensional, but also a curved surface. In a figure-ground construction such as 'the trees were planted along the road', a preposition like 'along' requires the ground to be conceptualized as being 1D. Other prepositions yield concepts of 0D ('near'), 2D ('over') or 3D ('throughout') forms (Talmy 2000:191).

Assuming that co-speech gesture is part of language (McNeill 1985, Kendon 2004), Talmy's distinction of 0-3D conceptualizations in language may also be applicable to gesture (Hassemer et al. 2011). In form-based gesture analyses, hands are often described in terms of parameters including configuration, location, and motion (Stokoe 2005, Calbris 1990, Kendon 2004, Müller 1998). These parameters describe the hands both in motion and held still, or, more generally, the *articulator form*. In contrast, this work proposes the concept of *gesture form*, as articulator form interpreted through cognitive-semiotic strategies, such as modes of representation (Müller 1998), practices (Streeck 2008), as well as geometric or image-schematic representations (Mittelberg 2010).

Based on multimodal data gathered from an object description task, *gesture form* is claimed to consist of several *form elements*. The number of dimensions of these form elements is determined by at least two principles. These *gesture form principles* are consonant with the "connector constructs", as described by Talmy (2012) in his recent observations on gesture.

Gesture form will be illustrated through analyses of a pointing and a drawing gesture, both performed with an index-finger-pointing hand shape. These different practices would traditionally be classified as deictic and iconic gestures respectively, but breaking these down into their underlying principles will highlight the common ground of these two practices (principles *Articulator Profiling*, *Shape Profiling*, *Continuation*, *Intersection*) while also specifying what sets their form conceptualization apart (principle *Trace Leaving*):

Articulator Profiling. Not the entire body, but just one articulator is profiled (in the present cases, the index finger). Both the entire body, as well as a portion of it, i.e. the finger, are 3D.

Shape Profiling. Not the three-dimensional shape, but only the dominant elongation along one axis of the outstretched index finger is profiled, evoking a one-dimensional shape (line segment).

Continuation. This shape is continued along the established axis (away from the body), resulting in a line of undefined length, but of the same dimensions.

Intersection. The point (0D) where this line (1D) intersects with the surface (2D) of another entity is the location pointed at. These four static gesture form principles can be regarded as the "Conditions of Possibility" (Kant 1868:59) of understanding a pointing gesture.

In a drawing gesture, the hand, maintaining the pointing configuration, is moved laterally such that the point leaves a trace in form of a one-dimensional path (*Trace Leaving*; cf. Mandel 1977; Talmy 2000 "fictive motion"). The presentation includes a formalization of these principles for a comparison with how language structures space (Talmy 2000).

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