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Title: Underspecified changes: a dynamic, probabilistic frame theory for verbs

Abstract: Based on an analysis of ‘rise’ in frame-based approaches like FrameNet or his own record-based frame theory, Cooper (2009, 2010) challenges the traditional view that words have a single general meaning. Since the basic building blocks of those frame theories are attribute-value pairs or fields consisting of a label and a type, it must be possible in order to define a general meaning to determine (i) a common supertype of the theme argument and (ii) a common supertype of the attribute whose value gets changed and, thereby, to fix those attributes whose values remain unchanged. Cooper considers examples of the type in (1).

- (1) a. The temperature (of the liquid) is rising.
- b. The giant Titan rises through the waves.
- c. MasterCard rises.
- d. China rises.

Besides the problem of finding a common supertype for the four frames in subject position, there is the further problem that in (1a) the attribute which gets changed is denoted by the Theme-argument, whereas for (1b-d) it is an attribute of the entity denoted by the Theme. Similarly, there hardly is a common supertype relating the attributes temperature and location in (1a,b) and, even worse, without a constraining context it is unclear what attribute gets changed in (1c,d).

In this talk, we present an alternative way of analyzing verbs of change which builds on the frame approach by Cooper but also offers a solution for the remaining problems mentioned above. Our frame account is based on typed-feature structures (Kallmeyer & Osswald 2013, Carpenter 1992) embedded in a dynamic type logic (Van Eijck 1997, 2001) with a probabilistic component. The general idea is to impose a constraint not on a particular attribute, say temperature, but on its value range. For typed feature structures, the admissible values of an attribute are of a particular sort, say degree, which can in addition be subtyped by the algebraic (order-theoretic) structure imposed on them, say a flat or a linear order.

We will identify and discuss different kinds of underspecification focusing on uses of the verb ‘rise’ and sketch a frame account to resolve them. The account allows the differentiation between hard and soft information and grasps the non-monotonic character of the resolution process.