

Fred Landman WHY MEASURES ARE MASS AND HOW MASS COUNTS

In Link-style Boolean semantics the oppositions *mass-count* and *singular-plural* are analyzed in terms of the notion of *atomicity*: a singular noun denotes a set of atoms, a plural noun denotes the closure under sum of that set, which is, so to say, a mountain rising up from the atomic sea bed. The notions of *counting*, *distributivity*, and *cardinal comparison* are defined in terms of atomicity.

Technically, in Boolean semantics it is not the notion of atomicity itself that allows the proper analysis of these notions, but the more fundamental notion of *disjointness*. I argued in Landman 2011 for basing the analysis of the mass-count distinction on the opposition *disjointness/overlap* rather than *atomic/non-atomic*. Iceberg semantics makes this precise. It eliminates the notion of atomicity from the semantic theory and specifies a compositional mechanism which associates with the standard denotation of any noun phrase (here called the *body*) a *base* set, a set that generates the body under the sum operation. The denotation of a plural noun phrase is still a mountain rising from its base, but the base is, so to say, lifted up from the sea bed, so count mountains float in a sea of mass. In Iceberg semantics the notions of *mass-count* relate to the base, and *counting*, *distributivity*, and *cardinal comparison* are defined in terms of disjointness of the base.

The theory is a *compositional* theory which means that, given one's assumptions about the mass-count nature of, say, the interpretations of lexical nouns, and the composition principles, the theory makes predictions about the mass-count nature of the interpretations of complex NPs and also of DPs.

In the first part of this talk I will give an overview of Iceberg semantics, showing how the composition process works, and showing that the theory indeed predicts that the interpretation of a complex NP, like the pseudo partitive *bottle of wine* is count, *both* on its *container* classifier interpretation (bottle containing wine), *and* (more interesting) on its *portion* classifier interpretation (wine that forms the content of a bottle).

The second part of the talk concerns *measure* readings of measure phrases like *three liters of wine*. Rothstein 2011 has argued that measure phrases – on their measure interpretation – pattern with mass nouns. I propose here a theory which derives this in a non-stipulative way. I assume that measures like *liter* denote measure functions, and I show that extending Iceberg semantics in the most straightforward way to measures gives the measure *liter* an Iceberg interpretation which provably is mass. The compositional theory then derives the mass nature of complex measure phrases from that.

The third part of the talk is concerned with *counting*, *distributivity*, and *cardinal comparison*. These properties are traditionally taken to be diagnostic properties of count nouns, count interpretations. Work in the last decade on *neat mass nouns* (or *object mass nouns*), like *furniture*, *kitchenware*, *livestock* has brought out a puzzle: these mass noun phrases *do* allow a form of *distributivity* and *cardinal comparison*. Importantly, they do that *without* shifting to count nouns or count noun interpretations: these noun phrases, also when they show distributivity or cardinal comparison, continue to pattern syntactically and semantically with mass nouns and not with count nouns.

That the puzzle is real is shown by data from Dutch that I will discuss, where, in context, the *same* form of *distributivity* and *cardinal comparison* is possible for true blooded *mess mass nouns* (or *prototypical mass nouns*) like *meat water*, *mud*, and again, without changing these to count nouns. I will show that these facts actually have a very natural and insightful explanation in Iceberg semantics.