RETREIVING AND PROCESSING THE SYNTAX AND SEMANTICS OF THE MASS/COUNT DISTINCTION

LINNAEA STOCKALL (HAMPSHIRE COLLEGE), E. MATTHEW HUSBAND (BROWN UNIVERSITY) AND ASHLEY BENATAR, (CONCORDIA UNIVERSITY)
Istockall@hampshire.edu; matthew_husband@brown.edu; a_benata@live.concordia.ca

The linguistic mass/count distinction has a conceptual basis: count nouns (CN) usually denote discrete individuals (chair), while mass nouns (MN) generally denote homogeneous, non-atomic units (oil). This semantic distinction has lead to proposals that mass nouns have more complex lexical semantic representations than count terms (Link 1983), and lexical decision experiments found that MN are recognized more slowly than CN (Gillon et al 1999). However there are mismatches between concepts and mass/count grammar: i.e. individual-denoting MN (furniture), nouns that can be either (stone), cross-linguistic variation (spinach is a MN in English, CN in French) and languages like Chinese in which all nouns are grammatically MN. This mismatch suggests that the distinction is morpho-syntactic, not semantic and that CN involve additional grammatical structure (Bale & Barner, 2007). This is consistent with Steinhauer et al (2001) who find that implausible CN evoke greater LAN ERPs than implausible MN in a sentence reading experiment. Less is known, however, about nouns that can be either mass or count. Barner & Snedeker (2006) show that determiners and number morphology are used by adults and young children to interpret dual nouns (DN) as either mass or count, but the lexical semantics and processing of these nouns remains unclear.

Experiment 1 compared MN, CN and DN in a single word lexical decision experiment. We find that unambiguous MN (judged by raters as incompatible with count syntax) were responded to significantly slower than unambiguous CN and DN (F1=5.34,p<.02).This contrast is consistent with Barner and Snedeker (2006)’s proposal that lexically MN roots are individual-denoting while CN and DN noun roots denote true mass and require syntax for count denotations.

Experiment 2 collected word-by-word self-paced reading data on DN in sentential context. We manipulated the determiner and number morphology (1-4), controlling for noun lemma frequency. On the noun, we found a main effect of plurality (F1=7.632,p<.01) and determiner (F1=72.350,p<.001) and no interaction (F1=.159,p=.692), suggesting the cost of processing plurality and the determiner are independent. On the noun+1 region, we found a main effect of determiner (F1=27.091,p<.001) and a weak plurality-determiner interaction (F1=3.599,p=.063) driven by a fast recovery of the bare plural compared to the bare singular. Nouns which are embedded in count syntax were read quickly, but nouns embedded in mass syntax were read significantly more slowly. Interestingly, bare plurals are morpho-syntactically count, but semantically very similar to mass nouns (Link, 1983), and we find reading times that seem to reflect this semantic property rather than the syntactic factors.

In summary, we find that DN are associated with the same lexical retrieval costs as CN, not MN, suggesting that DN have the same lexical semantics as CN. Moreover, mass syntactic environments cause them to be read more slowly than count environments, suggesting that processing mass semantics is computationally challenging whether the source of the interpretation is lexical or syntactic.

(1) The country vineyard supplied wine for the auction.  (bare singular)
(2) The country vineyard supplied wines for the auction.  (bare plural)
(3) The country vineyard supplied the wine for the auction.  (definite singular)
(4) The country vineyard supplied the wines for the auction.  (definite plural)