

## **Proportions and Quantities**

Pre-DGfS Workshop

3 March 2015

ZAS (Rm. 403)

- 2:00** **Hedde Zeijlstra** (Göttingen) & **Viola Schmitt** (Vienna) – An even weaker meaning for number
- 2:45** **Dorothy Ahn** (Harvard) - Additive focus particles *too* and *either*
- 3:30** **BREAK**
- 4:00** **Chris Kennedy** (University of Chicago) - Number word meaning and type-shifting principles
- 4:45** **Stephanie Solt** (ZAS) - Q-adjectives, type shifting and cross-linguistic variation

**Point of departure and sketch of proposal** [8, 9] show that classical theories of plurality, which take DPs with morpho-syntactically singular NP to involve quantification over atomic individuals and DPs with morpho-syntactically plural NP to involve quantification over non-atomic (plural) individuals are too strong. They propose an alternative treatment that has three components: (i) number is interpreted as a sister of an individual-denoting constituent – accordingly, any reflex of number on other constituents is the result of syntactic agreement with that interpretable occurrence. If the DP is quantificational, number is interpreted in the sister position of the trace left by QR of that DP. (ii) SG introduces a PS that its sister denotes an atom, PL is the total identity function on  $D_e$ , as in (1). Speakers adhere to *maximize PS* (cf. [4]), accordingly, they will use the singular whenever possible. What is traditionally thought of the “semantic contribution” of the plural is thus merely the result of implicature (or implicated presupposition) based on the hearer’s assumption that whenever a speaker uses the plural, this is the strongest she could felicitously utter.

$$(1) \quad \llbracket \text{SG} \rrbracket = \lambda x_e : x \text{ is an atom.} \quad \llbracket \text{PL} \rrbracket = \lambda x_e . x$$

We argue that this treatment is still too strong and depart from it in two respects. (i) Rather than introducing a restriction on individuals, the PS triggered by the singular makes reference to the potential extension of the restrictor-set. (ii) The singular merely presupposes that the restrictor-set *could* be a singleton containing only an atom, (2).

$$(2) \quad \text{Let } S \text{ be a sentence containing an NP marked singular, } \alpha. \llbracket S \rrbracket \text{ is defined iff there is a situation } s \in \llbracket S \rrbracket \text{ where } \llbracket [\alpha]^s \rrbracket = 1 \text{ and } \llbracket [\alpha]^s \rrbracket \subseteq \{x | \forall y [y \leq x \rightarrow y = x]\}.$$

**Point of departure** [8, 9] falsely predict there to be no difference between the simplex case in (3a) and the NP-conjunction in (3b). However, if I talked to two children in total, one girl and one boy, (3b) with plural-marking on the NP is ill-formed. If, on the other hand, I talk to three children in total, (3c) is fine.

- (3) a. There were three children at the party. I talked to two girls.  
 b. There were three children at the party. # I talked to two boys and girls.  
 c. I saw four children at the party. I talked to three boys and girls.

Note that proposals such as [10] and [1] which, as opposed to [8, 9] view the plural to have more content than the singular, cannot the examples in (3), either, as they do not predict there to be a difference between (3b) and (3c).

**Proposal** Assume, for the sake of simplicity, that *and* in these contexts simply denotes set-union, but that the existential import of determiners can distribute over the individual conjuncts (for more discussion cf. [6], [5]). None of the sentences in (3b), (3c) can be underlyingly elliptical, as that would require my talking to more people than were present at the party. Then the minimal pair in (3b), (3c) suggests that the plural cannot be used whenever a singular extension of the NP would still yield a potentially true sentence. This is the case in (3b) – if there is only one boy in the situation and only one girl, (3b) could still have a chance of being true. In (3c) on the other hand we cannot conclude for each NP that a singleton-extension would yield a potentially true sentence (if both NPs would have singleton extensions, it wouldn’t). Reversing the picture, this means that singular presupposes that a singular extension of the NP would yield a potentially true

sentence – essentially what is captured in (2).

Since the meaning of *two* requires that its domain of quantification contains minimally two members, *two* (in English) can never be combined with a singular NP as in (4a). But this raises questions for conjunctions. Why are (4b) and (4c) out under our proposal, even if their joint denotation is a non-singleton set?

- (4) a. \*I saw two boy.  
b. \*I saw two boy and girl.  
c. \*I saw two boy and girls.

The easiest explanation would be one that appeals to the observation by [3] that in a coordinate structure, each coordinate must be licensed individually in the position of the coordinate structure – which, given the ungrammaticality of (4a) would rule out both (4b) and (4c). However, this condition does not extend to (all) cases of non-Boolean conjunction (of which the present cases form a subset), an additional explanation is needed. We submit that the condition in (2) is passed on by the operation denoted by *and*: Nothing *a priori* excludes that the union of two singleton sets yields a singleton set, too, and when conjoining two singular NPs, the resulting complex NP will also carry the presupposition in (2) above- which explains why (4b) is bad. If, however, *and* passes on the semantic contribution of number marking on its NP-conjuncts, then (4c) can be ruled out because that contribution is not identical – in other words, (4c) is ruled out by a version of the old idea that only similar (semantic or syntactic) categories can be coordinated, [7], [2], [11].

The proposal in its present form makes the correct predictions also for other cases. English *every* selects for singular, and indeed (5) will not be necessarily false if only a single lawyer exists. By the same reasoning, (5b) is ruled out because the singular requires that the sentence would also be true if the restrictor set were a singleton – but this is incompatible with the selectional requirements of *meet* (no non-atomic individual can be obtained from a singleton set).

- (5) a. I talked to every lawyer in this room.  
b. \*Every lawyer met.

It also predicts there do be a difference between singular and plural indefinites, which seems desirable in light of contrasts such as (6).

- (6) a. In Rome I saw no pope  
b. # In Rome, I saw no popes.

- [1] Donka F. Farkas and Henriëtte E. de Swart. The semantics and pragmatics of plurals. *Semantics and Pragmatics*, 3(6):1–54, March 2010.  
[2] Peter Geach. A Program for Syntax. *Synthese*, 22:3–17, 1970.  
[3] Grant Goodall. *Parallel structures in syntax*. Cambridge University Press, Cambridge, 1987.  
[4] Irene Heim. Artikel und Definitheit. In Arnim von Stechow and Dieter Wunderlich, editors, *Semantik: Ein internationales Handbuch der zeitgenössischen Forschung*, pages 487–535. de Gruyter, Berlin, 1991.  
[5] Caroline Heycock and Roberto Zamparelli. Friends and colleagues: Plurality, coordination, and the structure of DP. *Natural Language Semantics*, 13(3):201–270, 2005.  
[6] Manfred Krifka. Boolean and non-boolean ‘and’. In László Kálmán and László Pólos, editors, *Papers from the Second Symposium on Logic and Language*, pages 161–188, Budapest, 1990. Akadémiai Kiadó.  
[7] John Ross. *Constraints on variables in syntax*. PhD thesis, Massachusetts Institute of Technology, 1967.  
[8] Uli Sauerland. A new semantics for number. In *Proceedings of SALT 13*, pages 258–275, Cornell University, Ithaca, NY, 2003. CLC Publications.  
[9] Uli Sauerland, Jan Andersen, and Kazuko Yatsushiro. The plural is semantically unmarked. In Stephan Kepser and Marga Reis, editors, *Linguistic Evidence*, pages 413–434. Mouton de Gruyter, Berlin, 2005.  
[10] Benjamin Spector. Aspects of the pragmatics of plural morphology: On higher-order implicatures. In Uli Sauerland and Penka Stateva, editors, *Presuppositions and Implicatures in Compositional Semantics*, 2007. Palgrave-Macmillan, 2007.  
[11] Edwin Williams. Across-the-board rule application. *Linguistic Inquiry*, 9(1):31–43, 1978.

**Dorothy Ahn (Harvard)**  
**Additive focus particles *too* and *either***

It has long been assumed that additive focus particles *too* and additive *either* are presuppositional, meaning that they do not add to the truth-conditional meaning of the sentence they adjoin to, and only contribute an additive presupposition that some other parallel proposition is true. This talk argues that *too* and *either* do add to the truth-conditional meaning of the host sentence by adding a conjunction and a disjunction, respectively, where the conjoined (or disjoined) element is an anaphor that refers to some discourse or contextual antecedent. Some advantages of this proposal are discussed, looking at the NPI intervention effects of *too* (Homer 2008, Chierchia 2013) and the NPI nature of additive *either* (Rullmann 2003, Levinson 2008).

**Chris Kennedy (University of Chicago)**  
**Number word meaning and type-shifting principles**

The analytical history of number words is the story of a syntactic mistake. Numerals have been variously thought to be determiners, adjectives, and names, and have correspondingly been given semantic analyses as existential quantifiers, relations between sets, cardinality predicates and singular terms, but none of these analyses support a fully satisfactory account of the complex range of semantic and pragmatic properties that numerals display. In this talk, I argue that numerals are properly analyzed as members of the category of degree expressions, which includes comparatives, intensifiers and other kinds of quantity terms, and that they denote second order properties of quantities. I support this analysis by showing that it supports a comprehensive account of a diverse range of facts, and explore the consequences of the proposal for the distribution and interpretation of numerals given standard assumptions about type-shifting operations.

**Stephanie Solt (ZAS)**

**Q-adjectives, type shifting and cross-linguistic variation**

While the Q-adjectives *many*, *few*, *much* and *little* are most commonly taken to be either quantifiers or cardinality predicates, a variety of evidence points instead to their analysis as degree expressions, specifically gradable quantifiers over degrees (type  $\langle d, \langle dt, t \rangle \rangle$ ). In this, Q-adjectives may be aligned to degree modifiers and in particular to numerals, for which Kennedy (to appear) proposes a quite parallel degree-based semantics. Kennedy argues further that numerals are able to undergo type lowering, a possibility which is proposed to underlie their 'at least' readings. I discuss data that bear on the availability of such type lowering operations for Q-adjectives, relating to cumulative readings, specific interpretations and NPI licensing. The picture that emerges is that while there is little evidence for lower-type interpretations for the unmodified forms of *many* etc., certain modified forms (in particular *fewer than n*, *a few*) do appear to have them. A comparison between English and German further suggests cross-linguistic variation in this area.