

Attributive Quantity Words as Nonrestrictive Modifiers

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The Issue: The occurrence of cardinal numbers and vague quantifiers (henceforth ‘quantity words’) in post-determiner or attributive position (1) has been taken as evidence that these items have the semantics of predicates rather than quantifiers (Hoeksema 1983; Landman 2004). On this view, *the three dogs* receives the analysis in (2), where *three* first combines intersectively with *dogs*, and *the* (interpreted as a supremum operator) takes the resulting set expression as an argument.

What has not been recognized is that (2) treats the quantity word as a **restrictive** modifier. In fact, the underlined words in (1) have **nonrestrictive** interpretations. Thus (1a) does not assert that the set of dogs with three members (as opposed to some other set of dogs) growled menacingly, but rather that the totality of contextually relevant dogs, whose number was three, did so. Furthermore, attributive quantity words exhibit clear parallels to prenominal adjectives on their nonrestrictive readings (e.g. *the industrious Greeks*, where *industrious* characterizes Greeks as a whole). Both can be taken to introduce secondary, backgrounded assertions, as in the paraphrases in (3). Determiners that allow nonrestrictive readings for a subsequent adjective (e.g. *the*, possessive pronouns) can also generally be followed by a quantity word, while those that disallow a nonrestrictive reading for the adjective (e.g. *most*) cannot be followed by quantity words (4,5). Finally, attributive quantity words also pattern with the nonrestrictive readings of prenominal adjectives in allowing relativization only with a *wh*-word, and not with *that* (6,7).

Analysis: I adopt the multi-dimensional framework of Potts (2003) and its extension by Morzycki (2008), in which the content of nonrestrictive modifiers is computed on a separate dimension of interpretation from the primary asserted content. I take the quantity words in (1) to be Quantity Phrases (QPs) situated in the specifier position of a functional head Meas. Semantically, I analyze numerals as denoting degrees (type *d*) and the vague quantifiers *many/few* as denoting quantifiers over degrees ($\langle\langle d, t \rangle, t \rangle$), with Meas introducing a measure function that links the degree argument to the individual argument (8). The crucial compositional rule is given in (9): the QP composes with the remainder of the DP in the ‘conventional implicature’ (CI) dimension (below the •) to produce a fully saturated proposition (type *t*); at the same time, a referential expression (type *e*) remains available for further composition in the ‘at issue’ dimension (above the •). As an example, in (10), *few* is predicated in the CI dimension of the (singleton) set whose element is the number of trees, specifying that this number is less than some standard; the referential expression *the trees* remains available to compose with a sentential predicate. (11), featuring a cardinal number, is analyzed similarly with the exception that the function/argument structure in the CI dimension is reversed: *three* saturates the degree argument of the measure function.

Consequences: This analysis not only aligns the treatment of attributive quantity words to that of nonrestrictive modifiers more generally, but is also superior to the intersective analysis in (2) in accounting for the relevant data. First, the otherwise puzzling determiner restrictions are captured: the determiners that can be followed by a quantity word (e.g. *the*) are those that yield a referential (type *e*) interpretation for Det+NP, which is required to provide an argument of the correct type for the measure function $\mu_{\#}$. Second, the present account, like the intersective analysis, accommodates the predicative uses of *many/few* (12a). I take the subject to have a null MeasP layer (12b), yielding a denotation of type $\langle d, t \rangle$ to serve as the argument of *few* (12c). (Evidence for this is provided by the determiner restrictions in (13): since $\mu_{\#}$ needs an argument of type *e*, only determiners that yield a referential interpretation for the DP are allowed here, just as in the attributive case.) But my account also explains the contrast between (12) and (14): while *many/few* denote predicates (of sets of degrees), numerals do not. Finally, attributive *few* allows a negative polarity item in the subsequent NP (15). This is unexpected on the analysis in (2), where the NPI would not be in the semantic scope of an appropriate licenser; but it is accounted for by the present approach, where the NP as a whole, including the NPI, is within the scope of *few* on the CI level.

An Apparent Exception: Examples such as *some ten people died in the accident* might seem to represent exceptions to the patterns described here (e.g. *some people* is not interpreted referentially). I show that these cases require a different analysis, with *some* as an approximative modifier of the numeral.

Conclusion: The analysis of attributive quantity words as nonrestrictive modifiers provides a more complete account of the facts than existing analyses, while at the same time extending the empirical coverage of Potts’ multi-dimensional framework.

