An argument-structure approach to attributive adjectives

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All languages, apparently, have some way of modifying nouns within noun phrases and this is the canonical function of the adjective class in those languages which clearly have such a class. However, it is very unclear how best to represent the grammatical relation of attributive modification. There are two problems. First, there is a structural mismatch between the usual logical/semantic representation of adjectives and the grammatical relation they bear to the head noun. Semantically, an adjective is just a predicate conjoined with the noun denotation so that *green apple* is roughly ([GREEN(x) & APPLE(x)], but grammatically the adjective is a dependent of the noun (Beck 2002). The second problem is that nouns and verbs are often transposed into adjective forms in order to allow them to modify nouns as attributes (as relational adjectives and as participles respectively). It is far from clear how such transpositions should be handled in most grammatical models. In this talk I present an implementation of an idea proposed in Spencer (1999). Working broadly within an LFG framework I assume a distinct level of argument structure (A-STR, following Manning 1996). In addition to the normal argument list (ARGS) the A-STR representation includes a semantic function role corresponding to each major word class: 'R' for nouns, 'E' for verbs and for adjectives 'A'. The 'A' role is linked to the highest argument on the ARGS list. Attributive modification is represented as coindexing of the 'A' role with the noun's 'R' role:

(1) *green*<A*$_x$<x> *apple*<R*>.

AVM instantiations are shown in (3, 4, 5). A deverbal participle transposition represented as the overlaying of an 'A' argument over the A-STR of a verb (2a). The new 'A' semantic function role is linked to highest element of the ARGS list, and is co-indexed with 'R' argument of head noun it modifies (2b, 6).

(2) Deverbal transposition to adjective = participle
   a. *eating*<A$_x$*<E<x, y>>>
   b. *eating*<A$_x$*<E<x, *apple*>>> *girl*<R*>

Similarly, a relational adjective is formed by adding the 'A' role to the A-STR of a noun (7).

The additional 'A' roles function rather like the semantically vacuous PASS predicate in Manning's A-STR analysis of passive constructions. The representational format which appeals to a level of argument structure provides a simple way of capturing the 'dependency reversal' between semantic and syntactic representations and at the same time provides a simple way of capturing semantically vacuous transpositions.

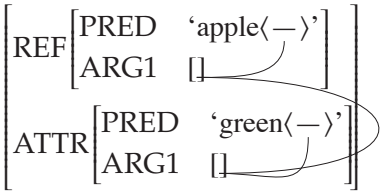
(3) 'apple' cf λx.[apple(x)]

$$\left[\text{REF}\begin{bmatrix}\text{PRED} & \text{'apple}\langle\_\rangle\text{'} \\ \text{ARG1} & [\,]\end{bmatrix}\right]$$

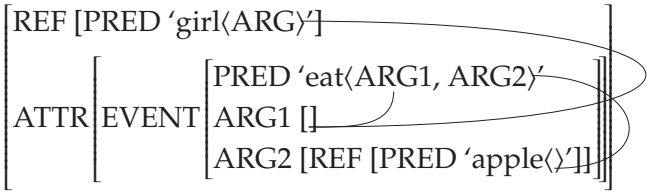
(4) 'green' cf λxλ$\mathcal{P}$[green(x) & $\mathcal{P}$(x)]

$$\left[\text{ATTR}\begin{bmatrix}\text{PRED} & \text{'green}\langle\_\rangle\text{'} \\ \text{ARG1} & [\,]\end{bmatrix}\right]$$

(5) ‘green apple’



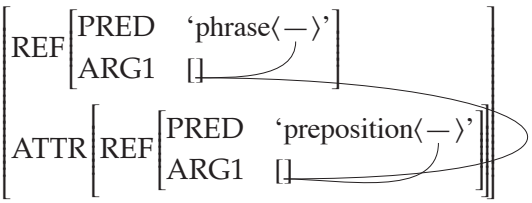
(6) ‘(girl) eating an apple’ (participle)



(7) Denominal transposition to adjective = relational adjective

a. *preposition(al)*<A_R*<R_1>> *phrase*<R_2*>

b. ‘prepositional (phrase)’ (relational adjective)



References

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