ADVERBS AND SEMANTIC INFERENCES

Madis Saluveer

Artificial Intelligence Laboratory, Tartu State University,
78 Tiigi Street, 202400 Tartu, Estonia, USSR

1. L. Karttunen (Karttunen 1970, 1971) demonstrated that
in English there exist six classes of predicates that differ
as for the relationships holding between the predicate and its
sentential complement: factives, positive and negative two-way
implicatives, positive and negative one-way implicatives, and
non-determinatives. H. Õim (Õim 1974) validated the classific-
ation for the Estonian language. K & Õ drew their evidence
from verbs and adjectives. Now a question poses itself: do the
principles underlying their classification hold also for
adverbs, and if yes, do they exhibit any differences in com-
parison with verbs and adjectives.

According to Karttunen the relationship between the
predicate and its sentential complement is determined by the
semantics of the predicate, and it can always be computed if
the semantic class of the predicate is known. Together with
presuppositions semantic inferences form a subclass of infer-
ences with two distinct characteristics (Joshi, Weischedel
1976):

i) they are inferences that need to be made when analys-
ing a sentence, i.e. the problem of when and where to make
what kind of inferences does not arise in case of them;

ii) they do not exhibit a "chain" reaction so character-
istic of other kind of inferences the reason being that they
stem from either the semantic structure of individual words or

the particular syntactic constructs of the sentence, and the relationships hold within the corresponding sentence.

The problem of making inferences has always been a "sore" point in natural language understanding systems. The mechanism of inferences discussed in this paper enables to reduce the amount of computation needed and to make the interpretation of sentences more reliable.

2. With respect to their influence on the relationship between the predicate and its sentential complement three classes of adverbs may be differentiated: manner adverbs, sentence adverbs and complement-oriented adverbs.

2.1. The behavior of manner adverbs (MA) and sentence adverbs (SA) in the sentence is widely different:

i) MA presuppose the truth of the embedded sentence without the corresponding MA:

(1) John quickly ordered the boy to leave
(2) John ordered the boy to leave

Some SA (like "wisely") have the same faculty, some (like "probably" do not:

(3) Wisely, John ordered the boy to leave
(4) Probably John ordered the boy to leave

ii) MA are within the scope of the sentence negation while SA have the negation always within their scope:

(5) John did not answer the question quickly
(6) John answered the question
(7) Shortly, John did not answer the question
(8) John did not answer the question

Thus it can be seen that MA always behave like factives, whereas each SA must have an entry specifying whether it behaves like a factive or like a non-determinative.

2.2. Complement-oriented adverbs (COA) do not function
only to mark the truth value of the compliment (Lehrer 1975)
but also to change that truth value. If from the sentence (9)
Bill accused John of stealing the car it cannot be inferred
whether John really did so or not, then from (10) it follows
that he did so, and from (11) that he did not:

(10) Bill rightly accused John of stealing the car
(11) Bill erroneously accused John of stealing the car

COA are mostly used with non-determinative predicates chang-
ing the non-determined relationship into a determined one:
COA like correctly and rightly function as positive one-way
implicatives presupposing the truth of the complement, COA
like erroneously and wrongly behave as negative one-way
implicatives presupposing the falsehood of the complement.

It must be noticed that not always COA trigger the
change of relationship: triggering depends on the semantic
structure of the predicate (selection restrictions) and
should be given for every predicate separately.

3. To wind up it must be said that adverbs do not poss-
ess all the features characteristic of verbs and adjectives:
they may function as factives (MA and some SA) or as positive
or negative one-way implicatives (COA), and even as such
their paradigm is defective, e.g. as one-way implicatives
they do not have any "neutral" form as the corresponding
verbs and adjectives have.

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