

Resolving scope mismatches in manner modification
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Ever since the introduction of event semantics, sentences like (1), where one manner adverbial scopes over a second manner adverbial, have been excluded from analysis.

(1) John painstakingly wrote illegibly.

Crucially, (1) must be interpreted so that the illegibility of the writing is part of what John took pains to do (cf. Parsons (1972)). In consequence, it cannot be represented in the standard Davidsonian (and Neo-Davidson) way by treating both adverbials as predicates of the same event, connected through conjunction as in (2).

(2) $\exists e [WRITE(John, e) \& PAINSTAKING(e) \& ILLEGIBLE(e)]$

On the contrary, the formalization in (2) gives rise to a contradiction, as it is not possible to predicate PAINSTAKING and ILLEGIBLE of the same event, cf. the odd (3).

(3) ??John wrote painstakingly and illegibly.

In addition, *painstakingly* in (1) is clearly not a higher adverbial, i.e. a subject-oriented or sentence adverbial, as it does not take propositional scope, witness the unsuitable paraphrase in (4).

(4) It was painstaking (of John), that he wrote illegibly. (\neq (1))

Other examples that behave similar to (1) are given in (5) and (6), in English and German, respectively.

(5) a. Joe skilfully closed the door quietly.
b. Jeremy carefully buttered the toast quietly.

(6) a. Fritz hat vorsichtig die Tür leise geschlossen.
F. has carefully the door quietly closed
b. Hans hat geschickt die Frage dumm beantwortet.
H. has skilfully the question stupidly answered

In contrast to the examples considered so far, double un-coordinated manner modification often carries the exact same meaning as the coordinated variant, cf. (7), where (7-c) gives the translation of both (7-a) and (7-b).

(7) a. Hans hat laut die Frage dumm beantwortet.
H. has loudly the question stupidly answered.
b. Hans hat die Frage laut und dumm beantwortet.
Hans has the question loudly and stupidly answered.
c. \approx Hans answered the question loudly and stupidly.

Whether the un-coordinated modification leads to a different reading is not determined by lexical peculiarities of the adverbs used, cf. (8), in which the non-coordinated and coordinated variants lead to the same interpretation, namely the coordinated reading given in the English translation, and the same first adverbial as in (6) is used.

(8) a' Peter hat vorsichtig den Zaun geschickt repariert.

- a'' Peter hat den Zaun vorsichtig und geschickt repariert.
- a''' Peter repaired the fence carefully and skilfully.
- b' Hans hat geschickt die Aufgabe schnell gelöst.
- b'' Hans hat die Aufgabe geschickt und schnell gelöst.
- b''' Hans solved the problem skilfully and quickly.

The data shows two things: Firstly, in the case where we have un-coordinated readings, two events are involved: a first event of which the verbal predicate and the adverbial closest to the verb predicate, and a second event, of which the second adverbial is predicated. The first event is a proper part of the second event. The representation for (1) is given in (9).

- (9) $\exists e_1 [SUBJ(john, e_1) \& WRITE(e_1) \& ILLEGIBLE(e_1)]$
 $\& \exists e_2 [PART_OF(e_1, e_2)] \& [PAINSTAKING(e_2)]$

Secondly, whether we interpret a sentence as involving manner modification of two different events or not is due to the cognitive plausibility of a non-coordinated vs. a coordinated interpretation. For (1), the non-coordinated reading is the only plausible reading, for (7-a), the coordinated reading is the only plausible one, presumably due to the fact that the dimension of loudness is not touched upon by any difference in the event ANSWERING vs. an event of ANSWERING_STUPIDLY. If neither the coordinated nor the non-coordinated interpretation is cognitively plausible, the sentences are semantically ill-formed, cf. (10).

- (10) *Peter hat laut das Lied leise gesungen.
 Peter has loudly the song quietly sung

These two points call for an underspecified approach to the derivation of the two readings, in particular one in which the decision for either the coordinated or un-coordinated reading is kept open as long as possible, so that conceptual knowledge can be used to decide on the correct reading. I use the underspecification mechanism proposed in Dölling (2003), where at each step in the composition of the semantic form where a partial formula of the type $\langle e, t \rangle$ appears, a template containing free parameters is introduced. These free parameters are fixed in the final stages of meaning composition by drawing on all available knowledge, including conceptual knowledge, or by resorting to default values. For the two readings under discussion here, this means that in the prefinal-stage of derivation, cf. the simplified partial representation in (11), only the underspecified relational parameter R remains to be set.

- (11) $\dots \exists e_1 [WRITE(e_1) \& ILLEGIBLY(e_1)] \& \exists e_2 [R(e_1, e_2) \& PAINSTAKING(e_2)] \dots$

For the non-coordinated reading, the parameter is set to PART_OF, for the coordinated reading, it is set to identity.

References

- Dölling, J.: 2003, Flexibility in adverbial modification: Reinterpretation as contextual enrichment, in E. Lang, C. Fabricius-Hansen and C. Maienborn (eds), *Modifying Adjuncts*, Mouton de Gruyter, Berlin, pp. 511–552. 2003.
- Parsons, T.: 1972, Some problems concerning the logic of grammatical modifiers, in D. Davidson and G. Harman (eds), *Semantics of Natural language*, Synthese Library, D. Reidel, Dordrecht, pp. 127–141.