D1 (Uwe Reyle): Representation of Ambiguities and their Resolution in Context: Phase I

Fritz Hamm and Torgrim Solstad

Nov 16, 2008
Aims of D1

The project investigates ambiguous linguistic entities and develops an underspecified representation formalism for them. This formalism makes the type of underspecification explicit and hence gives a clear indication of the kind of properties that have to be specified during the disambiguation process.
A typology of variation in interpretation

- Lexical ambiguity
  - -ung nominalisations.
    - events, objects, states (shared with other SFB projects)
    - locations (in der Reinigung arbeiten ‘work in the cleaning department’)
    - collective body (Führung ‘managing, management’)
  - polysemous prepositions
    - temporal vs. content ambiguity: nach (‘after, according to’)
    - causal, spatial, temporal ambiguity: durch (‘through, during, by, by means of’)
    - reason vs. simple cause: wegen (‘because of, due to’)
  - argument frame alternations
    - CAUSERs vs. AGENTs
      - The wind broke the window vs. Mary broke the window

- Structural ambiguity
  - VP adjuncts, NP adjuncts, adnominal genitives
  - prenominal adjectives
  - coordination

- Information structure ambiguity
  - focus
Disambiguation, Coercion and Underspecification

- Disambiguation and coercion phenomena need to be clearly separated.
- Is all ambiguity alike?
- Homonymy can never be modelled as underspecified with respect to a value, for instance, what is the common denominator between financial institutions and river banks?
Formsalization: First Proposal

Use model states instead of models.

A model state is a semantic notion of disjunctive logic programming meant to represent basic underspecified information.

Consequences and tasks

- Inferences from underspecified representations
- Inferences for constructing underspecified structures
Expressiveness and partial disambiguation

Partial disambiguation

(1) Every child told two teachers some story. It was Alice in Wonderland.

Only two out of six possible readings remain.

Expressiveness: Underspecified formalisms have to provide representations for all possible partially disambiguated structures.
Given the six readings of (1) $\phi_1, \ldots, \phi_6$ underspecify these readings as

$$\{\phi_1, \ldots, \phi_6\} \text{ or as } \phi_1 \lor \ldots \lor \phi_6$$

A representation is called underspecified [...] if it represents an ambiguous natural language sentence or text in a more compact manner than [...] a disjunction of all ist meanings.
Tension between expressiveness and compactness

Theorem (Ebert, p. 128)

Every URF that is constructive and independent of meta-variables is either expressively incomplete or not compact.

These results apply among others to Hole-Semantics, Minimal Recursions Semantics and UDRT.
Ways out

- Find a system which is expressive and compact.
- Give up a *uniform* analysis of ambiguities

Coercion, homonymy, polysemy are not all instances of underspecification as defined by Ebert.

Linguistic constructions involved: Adjectival modification, coordination . . .