A Comparison of HPSG and LFG

Valia Kordoni, Frank Richter

ESSLLI 2000,
Birmingham,
8–18 August 2000

Points of Comparison

- The formalisms:

  Both LFG and HPSG provide very expressive formalisms for designing grammars. In HPSG, Turing machines can be encoded; in LFG, Turing machines can be encoded if the off-line parsability constraint is dropped.

  However, this tells us little about what the advantages and disadvantages of the two grammar formalisms are for writing particular grammars. For example, in LFG it is trivial to write a context-free grammar, since LFG provides a c-structure. In HPSG, it is slightly more difficult (but still fairly easy).

  There might be areas of interest in which the properties of the formalisms differ in a significant way.

- Assumptions about the structure of natural languages embodied in the formalisms:

  In comparison to other frameworks in the Chomskyan tradition, the assumptions are very weak.

- Psycholinguistic plausibility:

  Claims about psycholinguistic reality are weak in HPSG. In LFG, practitioners tried to stay closer to psycholinguistic insights with the architecture of grammars.

- Architectural considerations:

  HPSG: All principles of grammar belong to a single set of potentially very expressive descriptions that must simultaneously be satisfied by the interpreting structure.

  LFG: Several conceptually separated levels of description, no uniform interpreting structure.

- Semantic representations:

  LFG: linear logic as a means to construct meaning representations, motivated by a mapping from flat f-structures to semantic representations.

  HPSG: any common semantic representation language is definable in principle. Traditionally a variant of situation semantics, but there also exist analyses in MRS, DRT, Ty2.

- Computational issues:

  HPSG: special processing tools are built for specific analyses, e.g. linearization analyses. No general solution for everything.

  LFG: Multi-level architecture that takes issues of computation (more directly) into consideration.

- Anaphoric binding