

ABSTRACT

This thesis motivates and describes the Generalized Immediate Dominance/Linear Precedence (GIDL) formalism: a formalism capable of serving as a processing backbone for linearization-based grammars in the Head Driven Phrase Structure Grammar (HPSG) framework. Complementing the work on the formalism, the thesis defines and implements an efficient parsing algorithm for GIDL grammars.

Representing a prominent tradition within HPSG, linearization-based HPSG assumes that the domain of word order can be larger than the local tree. This supports elegant and general linguistic analyses for (relatively) free word order languages, including the possibility of licensing discontinuous constituents.

For processing with an HPSG grammar, most systems depend on parsing algorithms that make use of a phrase structure backbone – a part of the grammar that has been set aside and given a distinguished role in the parsing process – thereby contrasting with those that view parsing as a general constraint solving task, where general methods for logical reasoning are to be applied to the constraints present in an HPSG grammar. Processing backbones support efficient parsing algorithms, but they restrict the class of HPSG theories that can be encoded to those employing a phrase structure backbone, which excludes linearization-HPSG grammars.

The GIDL formalism solves the dilemma between the desire to encode linguistically general and elegant linearization-HPSG analyses and the need for a processing backbone. GIDL allows linguists to specify grammars with linear precedence constraints that operate within explicitly declared word order domains extending beyond the local tree as well as immediate dominance rules in which the grammar writer can arrange the right-hand side as to minimize the number of parsing hypotheses that must be explored. The GIDL parsing algorithm developed in the thesis supports efficient processing by making direct use of linear precedence constraints during parsing.