

Link2Tree: A Dependency-Constituency Converter

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Abstract

Link2Tree is a dependency-constituency converter in PROLOG developed for Link Grammar and ExtrAns. This thesis describes its architecture and functionality in detail. It demonstrates what constraints on link structures make them equivalent to constituent structures. This equivalence makes Link2Tree a deterministic converter, since a linkage corresponds to exactly one constituent tree. However, the linkages may need some preprocessing, which is called ‘relinking’ in Link2Tree, to ensure their equivalence to a particular form of constituent structure. The development and implementation of a conversion algorithm is described.

Link2Tree is a flexible program, which enables users to specify the form of X-bar theory they desire for the constituent structure delivered by the converter. Furthermore, users can freely choose the features they want to use in the constituent output. The possibilities of Link2Tree make it applicable to Government & Binding as well as PSG structures. If its rule set is tuned accordingly, Link2Tree is able to preserve all information that is stored in linkages for the constituent structures it returns.

The thesis is divided into three parts: Part I states the basic theoretical concepts of dependency and link grammar in particular as well as constituency. Part II describes the conversion algorithm as well as the architecture and functionality of the converter. Part III explains how users can develop their own rule set for the converter.