Extensible Dependency Grammar: A New Methodology

Ralph Debusmann
Programming Systems Lab, Saarbrücken

Denys Duchier
LORIA, Nancy

Geert–Jan M. Kruijff
Computational Linguistics, Saarbrücken

Extensible Dependency Grammar

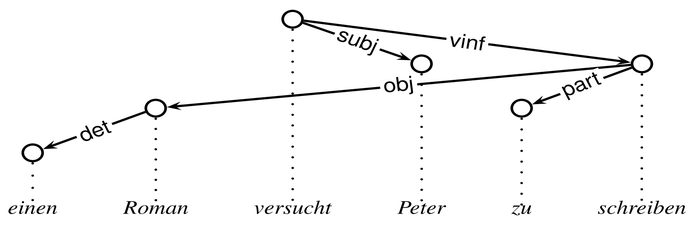
- descendant of Topological Dependency Grammar (TDG) (Duchier/Debusmann 01)
- arbitrary many dimensions
- extensible principle library
- bi–directional syntax–semantics interface (Debusmann et al. 2004)
- comprehensive grammar development kit including solver for parsing and generation

Methodology

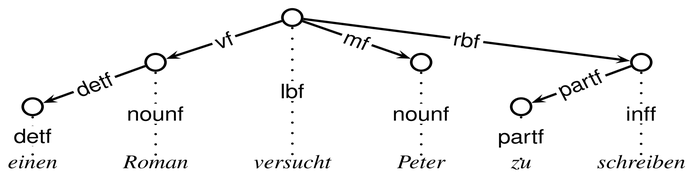
- emergence: phenomena emerge by the interaction of simple principles on the various dimensions
- modularity: linguistic analysis can be factored out into arbitrary many dimensions (e.g. ID, LP, DS, PA, SC, IS)

Example: Dimensions

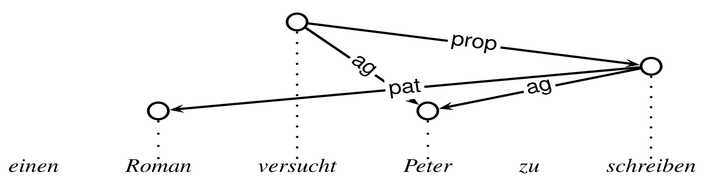
ID



LP



PA



Example: Principles

one–dimensional	multi–dimensional
tree (ID, LP)	climbing (LP/ID)
dag (PA)	linking (LP/ID, ID/PA)
valency (ID, LP, PA)	
government (ID)	
agreement (ID)	
order(LP)	
projectivity (LP)	

Meta Grammar Formalism

- XDG is a meta grammar formalism
- easy to define new instances
- other grammar formalisms can be embedded:
  - TDG (Duchier/Debusmann 2001)
  - CTL (Moortgat 1997): Kuhlmann 2002)
  - TIG (Schabes/Waters 93)
  - TAG (Joshi 1987): (Debusmann et al. 2004)

Grammar Development Kit

http://www.ps.uni–sb.de/~rade/mogul/publish/doc/debusmann–xdk/