Why Use Hand-built Natural Language Grammars?

- Applications
  - Provide better language-processing technology
- Education
  - Teach formal methods and linguistic theory
- Research
  - Develop and test precise hypotheses about language
‘Deep’ grammars can provide semantic precision

- Composition of meaning from words and phrases
  - Grammars encode linguistically motivated analyses
  - Syntax-semantics interface is explicitly defined
  - Lexical entries can reflect idiosyncratic properties

- Spurious results can be avoided
  - Grammars distinguish well-formed from ill-formed input
  - Fine-grained distinctions are encoded along with general principles
  - Same grammar for parsing and generation ensures consistent dialogues
Using grammar implementations for research

• Evaluation
  Test NLP tools/techniques for efficiency, usability, generality

• Hybrid processing
  Provide treebanks for training statistical NLP engines
  Bootstrap semi-automatic annotation of larger corpora

• Formalization
  Precisely describe large collections of grammatical rules
  Test complex interactions among natural language phenomena
  Identify cross-linguistic generalizations
Using grammar implementations for education

• Linguistic theory
  Detailed study of frameworks
  Hands-on dissection of analyses and principles

• Experimentation
  Practice with standard approaches
  Exploration of alternatives

• Language learning
  Automation of error diagnosis (robust parsing)
  Generation of corrected text
Using grammar implementations for applications

- Information extraction, retrieval
  - From the web (mostly unstructured data)
  - From databases (structured data)

- Email auto-response
  - Generic replies
  - Customer-specific data

- Spoken language processing
  - Speech recognition
  - Speech prosthesis for physically disabled people

- Text annotation
  - Precise classification of text
  - Summarization of text

- Machine translation