

Ling 566  
Nov 6, 2012  
Catch-up/review

# Overview

- HW 5
- Example sentence
- The BIG picture
- Ling 567 preview

# HW 5

- 8.4: Coordination and Tense
- 8.6: Arguments in Japanese
- 8.7: Japanese causatives

# Example sentence

*Kim gave books and games to Sandy.*

- What is the lexical type of each word?
- What lexical rule licenses each word?
- Draw a tree with abbreviations on the nodes.
- Describe the chain that links NAMED (for Kim) to GIVER role in the give predication.

# Big picture: Our model

- Describes a set of strings
- Associates semantic representations (and trees) with well-formed strings
- Is stated in terms of declarative constraints
- ... which are order-independent
- Locates most constraints ‘in the lexicon’
- Is stated in a precise fashion

# Parts of our model

- Type hierarchy (lexical types, other types)
- Phrase structure rules
- Lexical rules
- Lexical entries
- Grammatical principles
- Initial symbol

# Pause for reflection

- What have you learned about the nature of human language?
- What have you learned about how linguists think about language?
- How does this model/type of model differ from CFG (with atomic categories)?
- In what applications might (atomic category) CFG be sufficient?
- What applications might benefit from something linguistically more motivated?

# Ling 567: What is Grammar Engineering?

- Implementation of NL grammars in software
- ... which relate surface strings to semantic representations
- Practical or theoretical focus
- Knowledge-engineering approach to parsing



# Ling 567: Goals

- Master the formalism
- Hands-on experience with grammar engineering
- Different perspective on NL syntax
- Practice building and debugging extensible system
- Contribute to on-going research

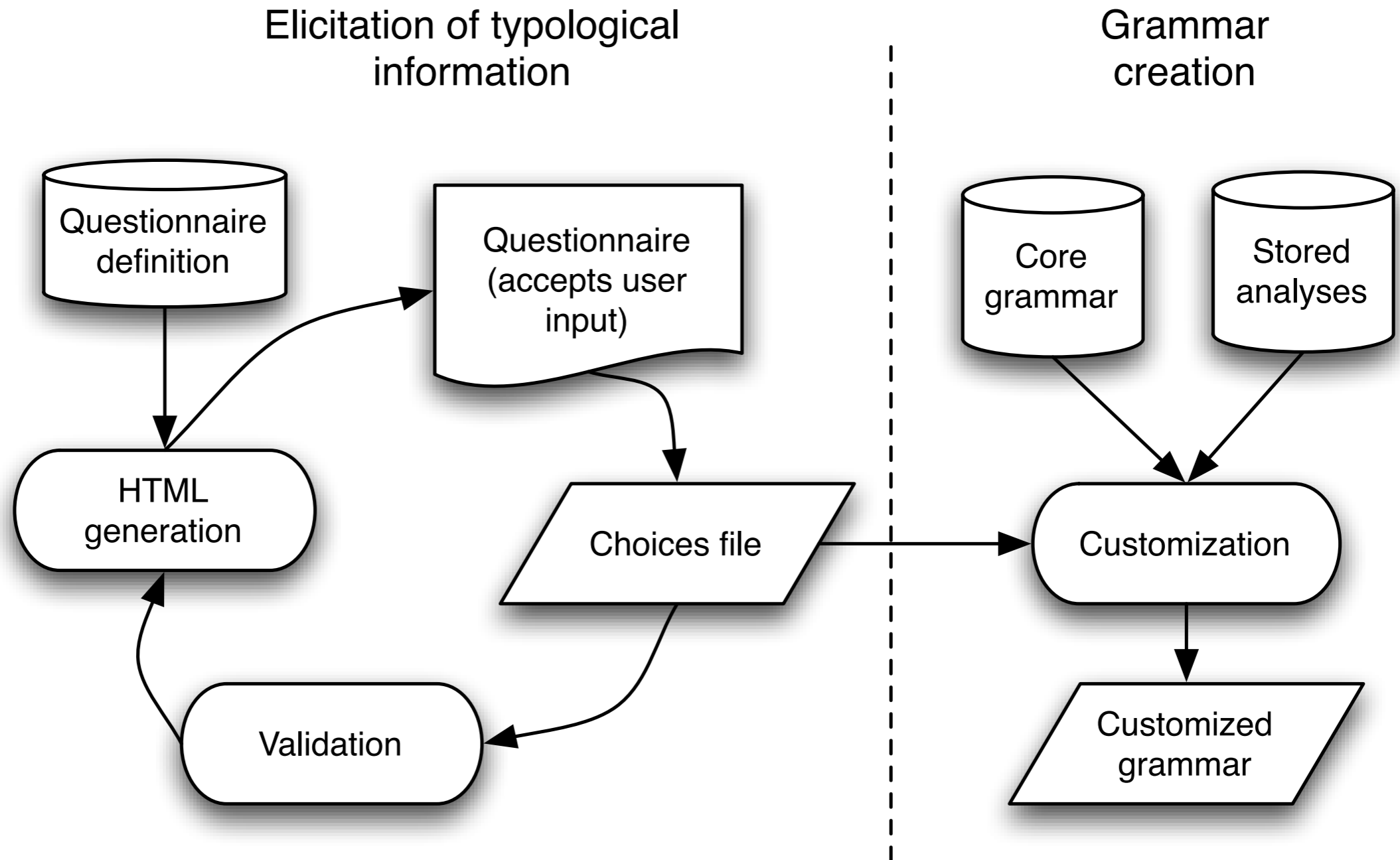
# Ling 567: Course requirements

- Build implemented grammar for a language we haven't worked on before, on the basis of the Grammar Matrix customization system
- Weekly labs (group work): including
  - Test suite development
  - Grammar customization
  - Grammar extension

# Ling 567: Grammar coverage

- Major constituent word order
- PNG, pronouns, agreement (if applicable)
- Case
- Tense/aspect
- Negation
- Argument optionality
- Yes-no questions
- Clausal complements
- Coordination, modification, ...

# What is the Grammar Matrix?



# What is the Grammar Matrix?

Language	Family	Lg-specific types	Matrix types	Head types	Lex rules	Phrasal rules	Choices
ERG	Germanic	3654	N/A	N/A	71	226	N/A
Breton	Celtic	220	413	510	57	49	1692
Cherokee	Iroquoian	182	413	510	95	27	985
French	Romance	137	413	510	29	22	740
Jamamadí	Arauan	188	413	510	87	11	1151
Lushootseed	Salish	95	413	510	20	8	391
Nishnaabemwin	Algonquian	289	413	510	124	50	1754
Pashto	Iranian	234	413	510	86	19	1839
Pali	Indo-Aryan	237	413	510	92	55	1310
Russian	Slavic	190	413	510	56	35	993
Shona	Bantu	136	413	510	51	9	591
Vietnamese	Austro-Asiatic	105	413	510	2	26	362
Average		182.9	413	510	63.5	28.3	1073.5

Table 1: Grammar sizes in comparison to ERG

Bender et al 2010 (ACL posters)

# Grammar Matrix: Languages



Bender et al 2010 (ACL posters)

<http://depts.washington.edu/uwcl/twiki/bin/view.cgi/Main/LanguagesList>

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