

Test suites (continued)

Grammar Customization

Lab 2 Phenomena

Ling 567

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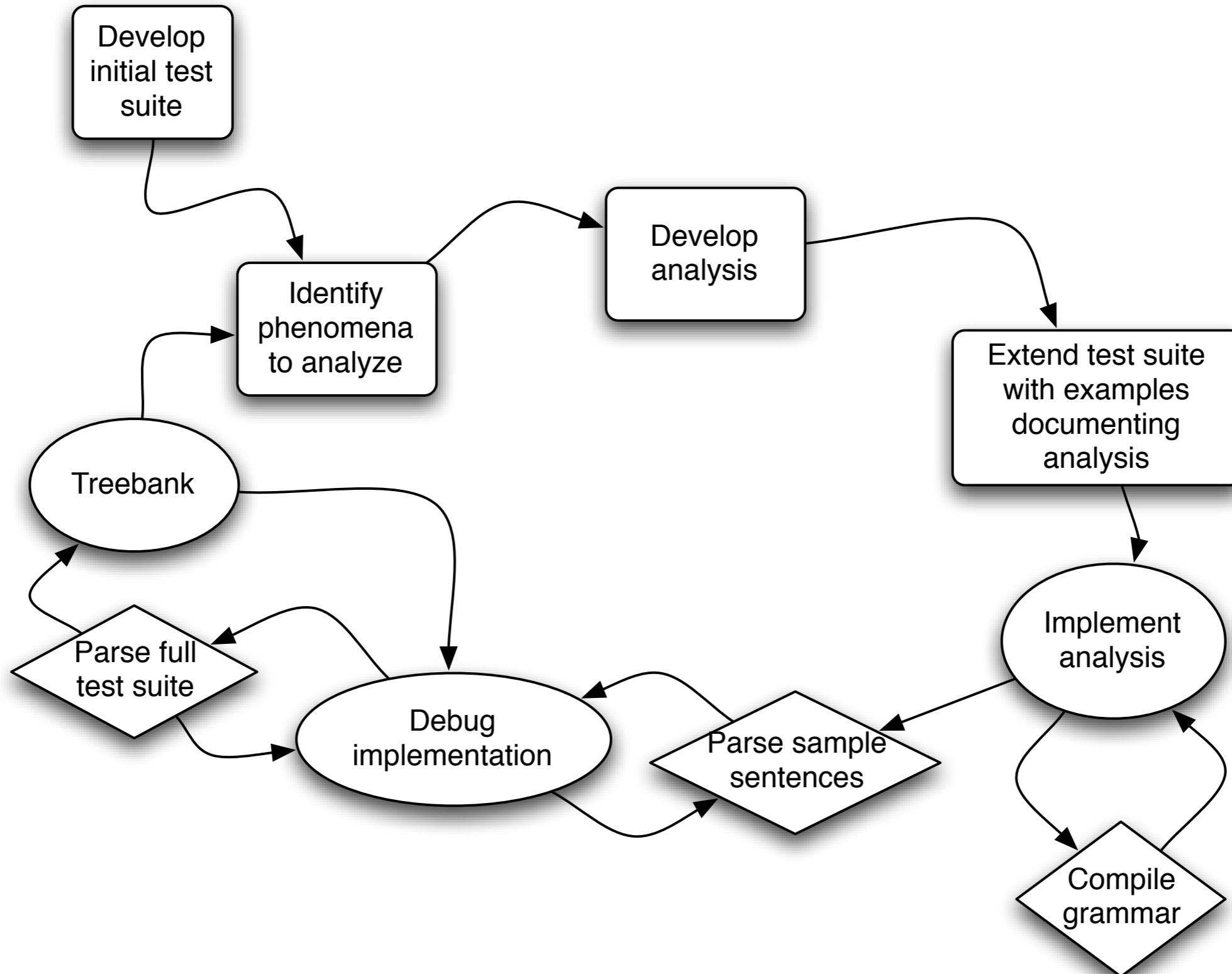
Overview

- Grammar customization
- Testsuites
- [incr tsdb()]
- Word order
- Fullform lexicon
- Tense/aspect
- Wh questions

Uses of test data

- How far do I have left to go?
 - Internal metric
 - Objective comparison of different systems
- Where have I been?
 - Regression testing
 - Documentation

Grammar engineering workflow



Evaluating precision grammars

- Coverage over some corpus
 - Which corpus?
 - Challenges of lexical acquisition
- Coverage of phenomena
 - How does one choose phenomena?
- Comparison across languages

Levels of adequacy

- grammaticality
- “right” structure
- “right” dependencies
- “right” full semantics
- only legit parses (how can you tell?)
- some set of parses including the preferred one
- preferred parse only/within first N

Our test suites

- Map out territory we hope to cover
- Include both positive and negative examples
- Serve as an exercise in understanding the description of the language
 - IGT format
 - Creating examples where necessary

On the importance of simple examples

- Why keep examples simple?
- How simple is too simple?
- What kinds of things make an example not simple enough?

On the importance of simple examples

- Awtuw [awt] (Feldman 1986:67)

(70) Yowmen Yawur du-k-puy-ey
Yomen Yawur DUR-IMPF-hit-IMPF
'Yowmen and Yawur are hitting (someone).' [awt]

- Basque [eus] (adapted from Joppen and Wunderlich 1995:129)

(112) Zuek lagun-ei opari polit-ak ema-ten dizkiezue.
you.PL.ERG friend-PL.DAT present nice-PL.ABS give-IMPF 3A.have.PLA.3PLD.2PLE
'You(pl) always give nice presents to your friends.' [eus]

On the importance of simple examples

- Russian [rus] (Bender 2013:92)

a. Человек укусил собаку.
Chelovek ukusi-l sobak-u.
man.NOM.SG.M bite-PAST.PFV.SG.M dog-ACC.SG.F
'The man bit the dog.' [rus]

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[incr tsdb()] basics

- [incr tsdb()] stores test suite profiles as (plain text) relational databases: Each is a directory with a fixed set of files in it.
- Most files are empty.
- A profile that has not been processed has only two non-empty files: item (the items to be processed) and relations (always the same)
- Once the profile has been processed, the result of the processing is stored in some of the other files (in particular, parse and result)

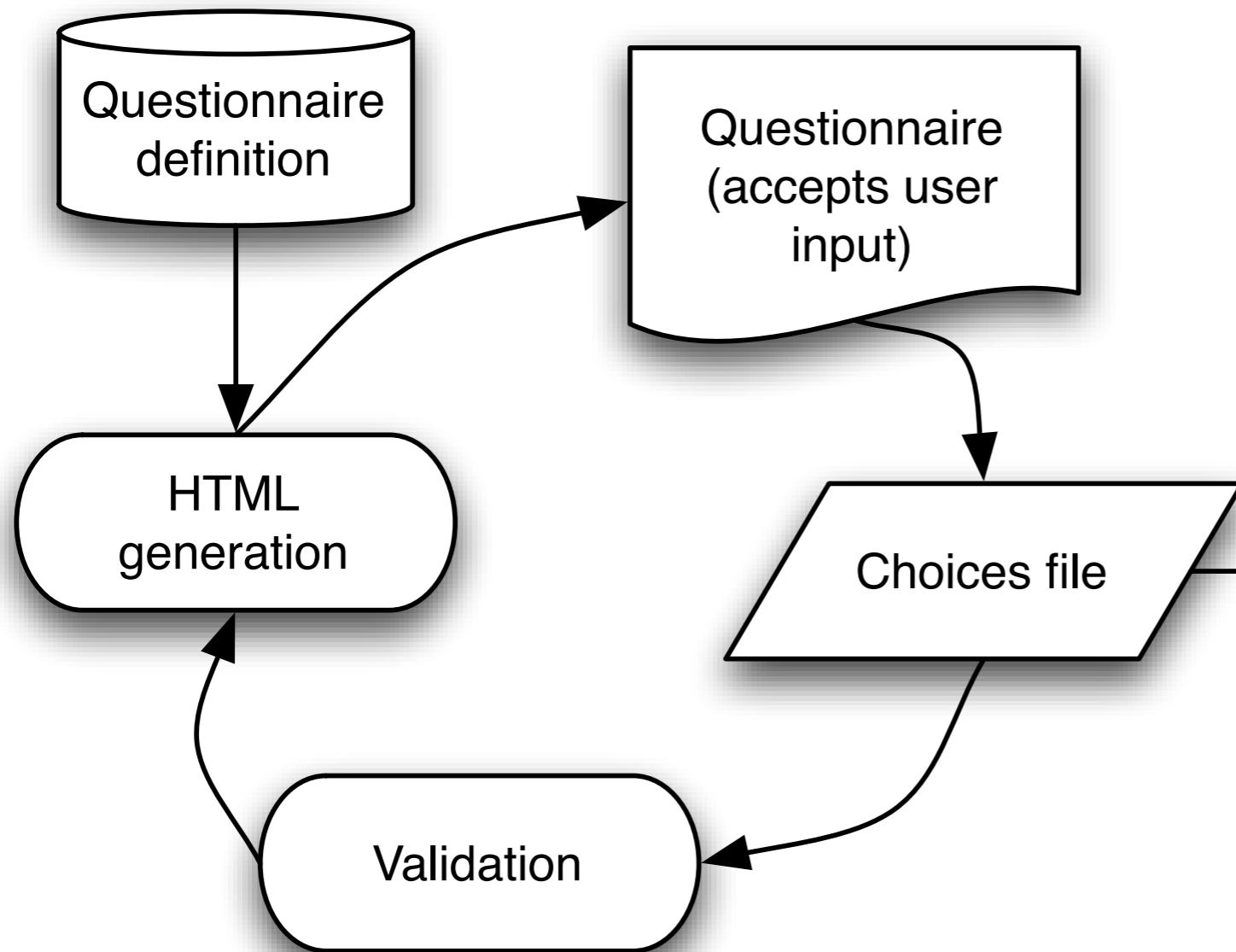
[incr tsdb()] basics

- A test suite *skeleton* consists of just the item and relations files and can be used to create new test suite profiles
- [incr tsdb()] allows the user to compare two profiles to see how they differ
- It can also produce graphs plotting summary data from many profiles to visualize grammar evolution over time
- -> Demo

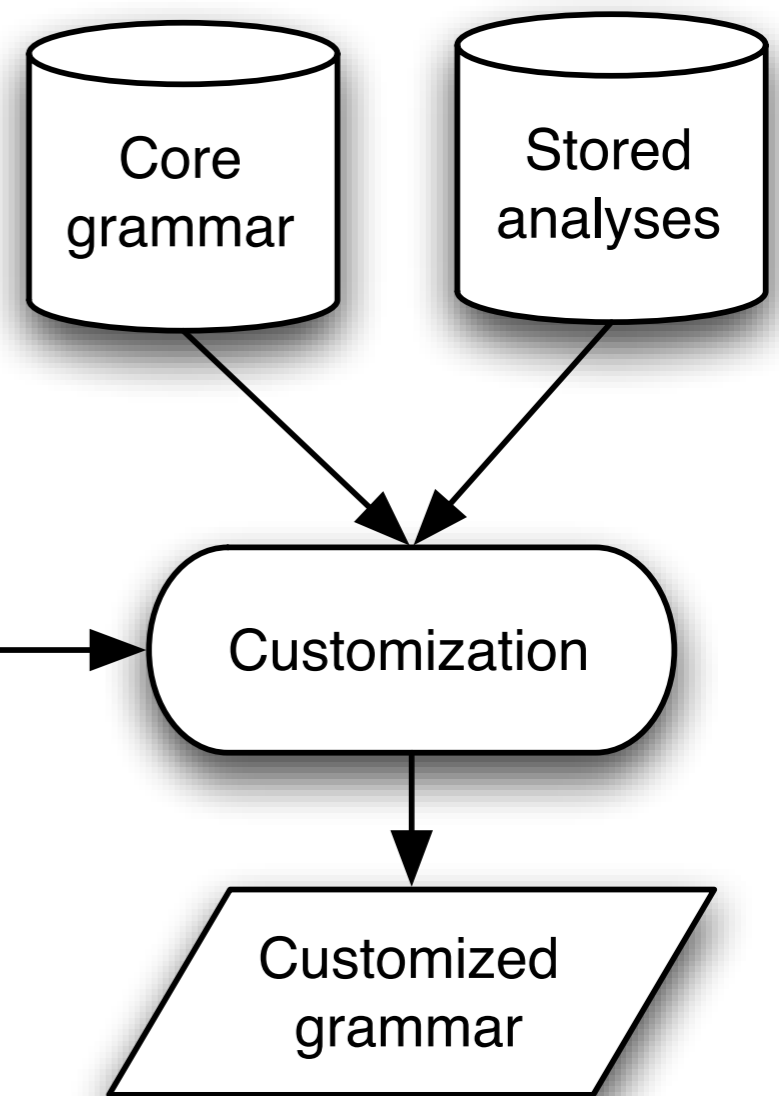
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Elicitation of typological information



Grammar creation



(Bender et al 2010)

Creating a library for the customization system

- Choose phenomenon
- Review typological on phenomenon
- Refine definition of phenomenon
- Conceptualize range of variation within phenomenon
- Review HPSG (& broader syntactic) literature on phenomenon
- Pin down target MRSs
- Develop HPSG analyses for each variant
- Implement analyses in tdl
- Develop questionnaire
- Run regression tests
- Test with pseudo-languages
- Test with illustrative languages
- Test with held-out languages
- Add tests to regression tests
- Add to MatrixDoc pages

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Word order

- Even fixed word order languages have constructions that allow other orders
- Pick a fixed (or more fixed, like V-final) word order if it seems like something special has to be going on to get the other orders
- Pick free word order (or freer, like V-final) if the choice seems to be very flexible / vaguely pragmatically driven

Lexicon

- Full form lexicon: That means separate entries for e.g. *neko-ga* (cat.NOM) and *neko-wo* (cat.ACC).
 - You'll need separate noun types for accusative and nominative nouns
 - For tense/agreement info on verbs, just leave off the constraints (no need to make extra types)
- True clitics are words to the syntax; spell them with = rather than - and instruct the LKB to strip the = but keep -
- In general, make sure the spelling your lexicon & testsuite match

Tense

- Tense encodes the three-way relationship between speech time, event time and an anaphorically determined reference time.
 - Past/present/future
 - Past/non-past
 - Future/non-future
 - Recent/remote past/future

Aspect

- Aspect encodes the description of the internal temporal properties of the event and how it's viewed.
 - Internal temporal properties: Aktionsart or situation aspect
 - How it's viewed: Viewpoint aspect
- Perfective/imperfective
 - NB: Perfective != perfect
- Inceptive, continuative, progressive, habitual, iterative...

Wh questions

- We are interested here in utterances where the whole utterance is a question, and the question concerns the identity of one (or more) of the arguments of the main verb. In the simplest case, there is a single clause and one argument is questioned: *Who did the child see?*
- Ungrammatical examples will depend on what constraints you find, but may involve wh elements in the wrong position, involve wh elements in the wrong form (e.g. case), or hinge on ancillary properties of the construction (e.g. lack of inversion where it is required).
- You do not need to worry about: embedded wh questions or wh questions where the questioned element is an adjunct (*how, why, when, where*).

Wh questions

Find out and then document in your testsuite:

- The shape of the wh words for core arguments. Do these vary with case, animacy, gender, something else?
- The possible positions of wh words: Do they appear where an ordinary argument would? Move to the beginning of the clause? Are both of these possible?
- What happens if the questioned argument belongs to a lower clause (e.g. *Who did the observer think the child saw?*)?
- Are there any other differences between wh questions and declaratives (or yes-no questions)?
- Are there are any differences between wh questions concerning subject and non-subject arguments?
- Optional: What happens with multiple wh elements in the same clause (e.g. *Who saw what?*)

Things to discuss

- Reminders: Test early & test often!
- Keeping the scope manageable, especially in the face of tempting tables and paradigms
- When the customization system can't handle something
 - What should go in the testsuite?
 - What should go in the choices file?
 - What should go in your write up?

Thursday = demo day

- Send me questions by noon on Thursday; all should include:
 - Question
 - Choices file
 - IGT that should parse if we can just fix the thing
 - (Or should stop parsing, if we can just fix the thing, in the case of ungrammatical examples)