Modular HPSG for scaling a DELPH-IN grammar of Thai

Ph.D. Prospectus of Glenn Slayden

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Personal status

- General exam 2015, Passed to Ph.C.

- Summer 2016 teaching (CL fundamentals, Masters level)

- Required dissertation credits satisfied
  - enables (possible, likely) full-time research dedication starting in Autumn

- Ph.D. prospectus forwarded to my chair for review

- Dissertation schedule calls for Spring 2018 defense

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Twin focused dissertation

- *Linguistic contribution*: extend a precision HPSG grammar of Thai towards broad coverage

- *Tools contribution*: a formal proposal towards improved modularity in TFS grammars via ad-hoc metadata

- Dual aims are related and interdependent

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i. HPSG grammar of Thai.

- Matrix-based grammar, began 2009 in UW Ling-567
- Rapid expansion of lexicon:
  - New specific tools for accelerating supervised HPSG ingestion of *thai-language.com* resources
- New linguistic analyses
  - Focus on VP structure and the predicate complex
  - For some analyses, contrast multiple implemented treatments

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i(a). New linguistic analyses

- Interaction of Thai demonstratives with numeric classifiers
- VP complex
    - Auxiliaries, modals, negation
    - Grammatical aspect (3 treatments)
    - Serialization
- Predicative adjectives (2 treatments)
- Exclamatives, topic marker, topic-comment structures
- Always on the lookout for low-hanging fruit toward broad coverage
    - Systematic means of identifying these? …demo!

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ii. Systematic ad-hoc metadata for HPSG

- Deconstruct grammar into a single table of unform atoms
  - Atom: $\langle instance, path, type \rangle$
    - "instance" := "type" | "entry" (after Copestake 2002)
  - Coreferences: bound into single atoms

- Over this table, arbitrarily superimpose any number of "partitions"
  - Each imposes a (total) partition over the atoms

- Per-partition: current activation state (i.e. enabled status)
  - Entailed: modularity, metagrammar features

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Dissertation research questions: (i)

- *What are the syntactic and semantic implications of alternative treatments of Thai grammatical aspect?*

- *What are the syntactic entailments of incorporating Thai adjectives as a proper subclass of verbs? And how "natural" is such a view in accounting for the facts of Thai when compared with adjective predication via syntactic (unary) promotion?*

- *What degree of complexity in declarative structure is required to sufficiently encode the variegated constraints amongst functional positions in the Thai VP?*

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Dissertation research questions: (ii)

- *What benefits accrue from introducing a principled, uniform approach to modularity to the unification grammar regime?*

- *How does a modular approach grammar development affect the grammar engineering task?*

- *How does the introduction of persistent modularity transform the expressive capacity of the grammar artifact itself?*

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Metagrammar features

- Process/workflow benefits
  - Partition as locus for comments, revision history, or any cross-cutting ad-hoc purpose
  - Group development, team participation
  - Ad-hoc, per-partition activation
    - Interactive: immediately see and evaluate minimal contrasts
    - Essential for developing operationally disjoint analyses
    - Convenient for developing operationally conjoint analyses
- Grammar-artifact-persistent benefits
  - Partition as arbitrary axis of implicit structure (self-documentation)
    - Logical isolation/distinction amongst linguistic phenomena (*c.f.* Ned's research)
  - Non-invasive end-user reconfiguration
    - Opens DELPH-IN tools to wider user base (*c.f.* ERS discussion)

Related research

- Prior work
  - The Grammar Matrix - reinterpreted
  - CLIMB (procedural, declarative)

- Future work: the distant dream of "live" grammar editing
  - Full "formalism-aware" editing
  - Far beyond the scope of this dissertation
  - This work: a useful baby step in this direction

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Thank you!

I welcome your questions and feedback.

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