Language acquisition

• becoming a competent language user
• representations and learning mechanisms
• a process with waypoints
  – Daddy give! [omission]
  – I fell it [overgeneralization]
• my dissertation:
  – usage-based approach
  – computational cognitive model
  – restricted to lexical/grammatical level
How does it work?

Model

- receives input item: pair of utterance & situations
- tries to analyze using processing mechanisms & existing representations
- updates representations using best analysis of utterance-situation pair

1. Syntagmatize: ‘chunk’ two partial analyses together
2. Paradigmatize: update the overlap of best analysis and previously learned patterns (abstraction)
prior insights, basic results

• some prior pluses (chapter 2):
  – can do both comprehension and production
  – acquires both lexical and grammatical representations simultaneously
  – learning is a by-product of processing (aim local, optimize global)

• basic result / sanity check (chapters 5 & 7):
  – model learns to do both comprehension and production well
  – including developmental waypoints of truncation and overextension
major finding #1

- **UB**: wysiwyg, no competence-performance distinction
- **L.Acq.**: production underestimates knowledge
- **Model**: competence-performance distinction is **natural consequence** of complex system:
  - lexical and grammatical constructions are learned at the same time,
  - production may be affected by a lag in either
  - productive ditransitive pattern is weak, so stronger transitive `outcompetes` it, `sacrificing` one argument
major finding #2

- **UB**: learners start with big, holistic representations and only slowly abstract
- **Model**: early abstraction (late lexicalization)
  - following UB theory closely ...
  - ... the model abstracts early (after few instances)
    - E.g., [S+V+DO+to+IO]
  - instead: more lexical constructions later, as product of experience
    - E.g., [X give it to me]
    - Congruent with Ramscar et al. (2014)
major finding #3

• **Everybody**: adult mental grammars must be v. similar (if not identical)

• **Model**: individual differences
  – different simulations, with roughly the same input, learn different representations of the grammar
    • [A ___ C], [B] vs
    • [ ___ B ___ ], [A], [C] vs
    • [ ___ ___ ___ ], [A], [B], [C]
  – without communicative breakdown
  – congruent with Dąbrowska’s work on individual differences.
“Future” research

• poor representation of conceptual semantics in (any) model

• current work:
  – deriving geometric semantic representations from cross-linguistic data
  – using that to simulate errors in word-meaning acquisition

• shameless self-promotion:
  – Monday @ 13:30 talk in Leiden, Matthias de Vrieshof 4 room 005
Thanks,
Arie & Rens!
(and LUCL & ILLC!)
Thank you