

# Constructions Emerging



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# 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

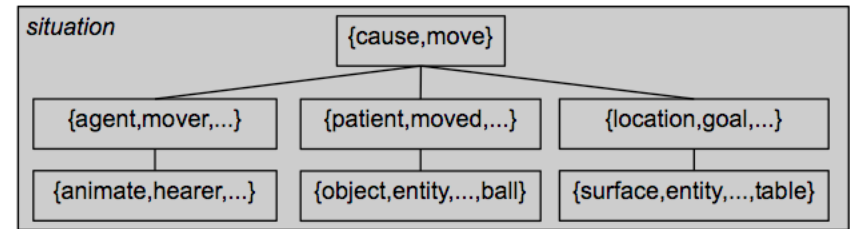


# How does it work?

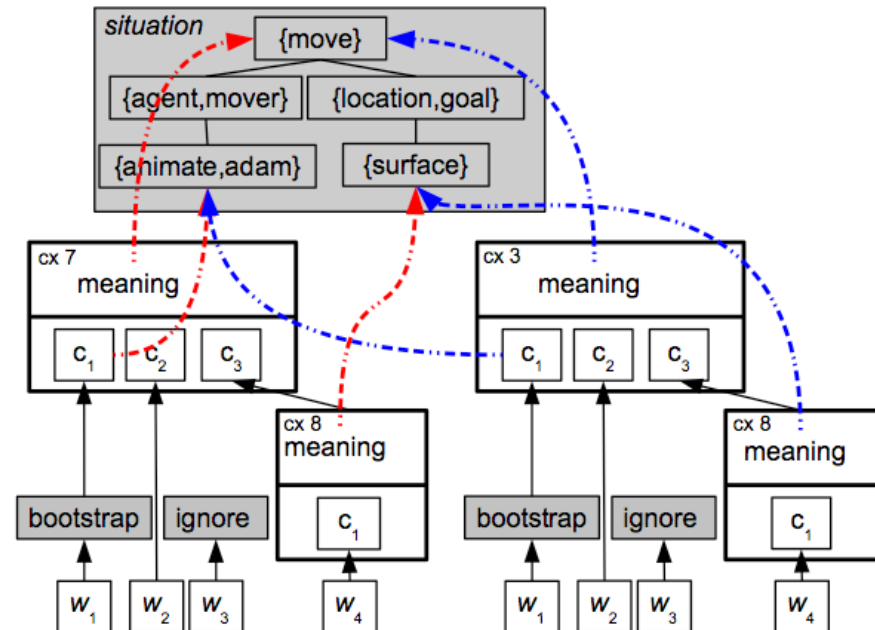
## Model

- 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)

[1]  
*you put ball on table.*



[2]



# 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