
Universal Grammar

And it's role in Computational Models of Language Acquisition

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References

Pearl 2021

Theory and Predictions for development of morphology and syntax: A
Universal Grammar + statistics approach

Intro + 2.1

Overview

- What is Universal grammar
- UG+Stats, what gives?
- Why model these proposals?

Whats is Universal Grammar?

- Poverty of Stimulus paradox
- Despite apparent inadequacy of available data, children efficiently identify the correct linguistic knowledge (jealous!)

Answer

- An innate capacity to learn language: an internal bias that enables language acquisition to succeed. (i.e., Innate & Language Specific)
- Universal Grammar solves the paradox rather nicely

Kaitlin - There are studies that potentially back this up! E.g., Children are much better than adults at distinguishing phonetic sounds not in their language.

- Example Study (Kuhl et al. 2006) Japanese and American infants (acquired distinctiveness vs acquired similarity) - what does this imply?

Parameters

- UG provides a way to structure hypothesis space with respect to linguistic knowledge.
- Linguistic parameters - Linguistic building blocks
 - Children use these building blocks to construct and test hypotheses about a languages system from data.

Vicente - There is an innate faculty that solves paradox, but it's domain general. How would you label this position? Anyone Concur? Anyone Contest?

Another Question: Do we need Universal Grammar?

Statistics (Brief)

Universal grammar provides the space, but then how do children learn?

- Domain general “counting” - a nice complement to UG that allows for navigation through hypothesis space to identify effective ones.
- Statistics alone - what to count?
 - UG can identify what to count by establishing the hypothesis space. Stats can parse through the information in the space.
- Siena: What about usage based theories, do they completely contradict UG? Are they compatible with Stats as well? Larger initial Hypothesis space?

Tie in to Modeling

- Implementation: (i) embed the relevant prior knowledge and learning mechanisms. (ii) Realistic input. (iii) Generate output that connects to children's behavior.
- How do we know what Hypothesis space we're working in?
- Why model?: Modeling these proposals allows for creating of specific predictions that are testable by empirical data.

Food for thought

- Is there a definite dependency on stats for UG proposals? Can they stand alone and still be sufficient? What other things could replace statistical learning's role, if any?
- Is something as abstract and innate as UG able to be implemented in a computational model? Do UG proposals provide enough specificity to be testable through computational modeling?

Maddux: Does the success of the model necessarily imply it's accuracy to emulating the human brain?

- Any Questions, Opinions, or points?