

# The Puzzle of Language Acquisition

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## Neural vs Computational Cognition

How to simulate language acquisition processes in connectionism models??

### ① Setting the empirical landscape

Animals with  
LANGUAGE

- Humans

Animals without  
LANGUAGE

- The rest

~ 3.000.000.000 years to learn  
as GPT5

What do need to learn?

- ☐ Produce phonemes
- ☐ Learn words
- ☐ Learn grammar
- ☐ Learn how to communicate

## The word-referent mapping problem



glorp

Half of the time ~~see~~ child look at the correct "GLORP" (interpret the speaker behaviour)

→ The extension problem

Glorp = a cat  
≠ a dog



[Cross linguistic differences in the extension problem]

### ③ Learn grammar

The dog bit the man

Der Hund beißt den Mann

Den Mann beißt der Hund

## ④ Learn how to communicate

I Feel like pizza → like "having pizza"



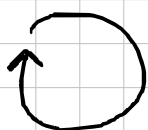
Like lack some common sense

## Possible solutions that don't work

- 1) PreFormism  → HOMUNCULUS THAT KNOWS LANGUAGE
- 2) Simple Imitation (1957) → we GENERATE  
"Colourless green ideas sleep furiously"
- 3) Explicit Teaching  
• CAVEAT: Recant seem to work
- 4) Instantaneous Parameter setting

## Possible solutions that may work

### 1) A Framework



- MULTIMODAL INPUT
- STRUCTURE BUILDING
- ACTIVE, ADAPTIVE LEARNING
- DYNAMIC, DEVELOPMENTAL CHANGE

## Innatism?

Chomsky vs Skinner

Tommasello vs Pinker

... more like CONSTRAINTS!

