The Linking Problem

Pearl 2023a (3.2.4.4) and 2023b (2.1)

The Linking Problem

Mapping between semantic roles and syntactic positions.

Subject Object

“The penguin breaks the ice.”

Agent Patient

Why is it important for children to group verbs?

How does linking positions and roles help them do that?

“So this means that children don't learn syntax in isolation, but also use verb meaning to figure out thematic roles. Meaning helps define possible roles and syntax helps assign those roles in the sentence.”

Maria

“This suggests that early language acquisition is as much about conceptual logic as it is about syntactic structure.”

Kevin

“Is linking knowledge dependent on this understanding of animacy? If a child was generally unable to understand the difference between an animate object and a toy version of it, would it impact their ability to solve the linking problem?”

Teresa

Two strategies
UTAH and rUTAH

Subject -> Agent-ish

Object -> Patient - ish

Oblique -> Other roles

Subject -> Highest

Object -> Next highest

Oblique -> Next highest

UTAH

rUTAH

The Model Child

Experimental questions:

- Do children use UTAH or rUTAH?
- Do they already know it (UG?) or do they learn it over time?

The Model Child

Features (Acquisitional intake):

- Syntactic frame
- Animacy
- UTAH or rUTAH (was this a feature or a way of inferring over the input?)

“A modeled child who didn’t have linking theory knowledge would then simply track where the thematic category appeared syntactically (e.g., PATIENT-ish or HIGHEST in subject for The ice broke); a modeled child who had linking theory knowledge would instead note if the thematic categories appeared where they were expected to or seemed to have moved (e.g., PATIENT-ish in subject is unexpected for UTAH, while HIGHEST in subject is expected for rUTAH).”

Results

1. Both UTAH and rUTAH explain child behavior!

   3 year olds-> rUTAH

   4 year olds -> UTAH

   5 year olds -> Both

2. The model learned verb classes best when it **didn’t** already have built-in linking theories!!!