



# THE LINKING PROBLEM



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# STATISTICAL LEARNING + UG

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UG

Hypothesis  
space for  
linking  
theory





# LINKING THEORIES

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We link ARGUMENTS to THEMATIC ROLES based on a verb's lexical semantics and the verb's syntactic frame

- ❖ Impose links even without verbs lexical semantics
- ❖ *The little girl blicked the kitten on the stairs.*
- ❖ *Helps us learn verbs*



# UNIFORMITY OF THETA ASSIGNMENT HYPOTHESIS

*UTAH vs rUTAH*

UTAH

- ❖ Assigned thematic roles
- ❖ AGENT-ish, PATIENT-ish, OTHER-ish
- ❖ AGENT  $\leftrightarrow$  *subject*



rUTAH

- ❖ Hierarchical structure
- ❖ AGENT > PATIENT
- ❖ *Subject* = highest syntactic position





## R-UTAH

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- ❖ Generate complex linking patterns easier from input
- ❖ Can be generalized from English children's input using Tolerance and Sufficiency principles





BAYESIAN INFERENCE W  
LINGUISTICALLY DEFINED  
HYPOTHESIS SPACE PROVIDES  
INSIGHT INTO ACQUISITION.

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# A MORE COMPLEX THING: MOVEMENT

## Raising vs Control structures

### ❖ Raising -subject moves

- *Jack seemed to kiss Lily.*
- Jack – AGENT of *kiss*

### ❖ Control – subject does *not* move

- *Jack wanted to kiss Lily.*
- Jack -- connects two thematic roles
- Instead, insert PRO *Jack wanted PRO to kiss Lily*
- Jack – AGENT of *wanted* PRO – AGENT of *kiss*





## STATISTICAL LEARNING

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"CHILDREN NEED TO IDENTIFY WHICH VERBS ALLOW WHICH TYPES OF STRUCTURES (E.G., *SEEM* IS A SUBJECT-RAISING VERB, *WANT* IS A SUBJECT-CONTROL VERB AND ALSO AN OBJECT-RAISING VERB, AND *ASK* IS A SUBJECT-CONTROL VERB AND ALSO AN OBJECT-CONTROL VERB)."

# PREDICTIONS AND EVALUATIONS

- Bayesian approaches predicts sorting into verb classes by clustering \*
- Sorting is checked against behavioral data
- Ex: Does *want, like, and need* belong to the same verb class?
- Separate into variants and test each one!
- \* Seems promising when considering conceptual/ thematic/ syntactic features





THANK YOU

