

Adjunct control and the poverty of the stimulus: availability vs. evidence

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LAGB

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Acquisition

- What?
 - When?

Adjunct control

(1) *John₁ called Mary before PRO₁ running to the shop*

- Non-adultlike as late as 6-7
- **How?**
 - Evidence in the input?

Why?

- how?
- adjunct control

How?

Complex structure → behavior 



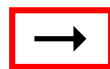
grammar 



prediction:
behavior 2 ✓



grammar



grammar

Adjunct control

(1) *John₁ called Mary₂ before PRO_{1/*2} running to the shop*


Adjunct control

(1) *John*₁ called *Mary*₂ before *PRO*_{1/*2} running to the shop



Adjunct control

(1) *John*₁ called *Mary*₂ $\left\{ \begin{array}{l} \text{before} \\ \text{after} \\ \text{while} \\ \text{without} \\ \dots \end{array} \right\}$ *PRO*_{1/*2} running to the shop



Adjunct control

(1) *John*₁ called *Mary*₂ before *PRO*_{1/*2} running to the shop

Available interpretation(s):

Adults: Subject control

4-6 yo: Subject control

Object control

Sentence internal

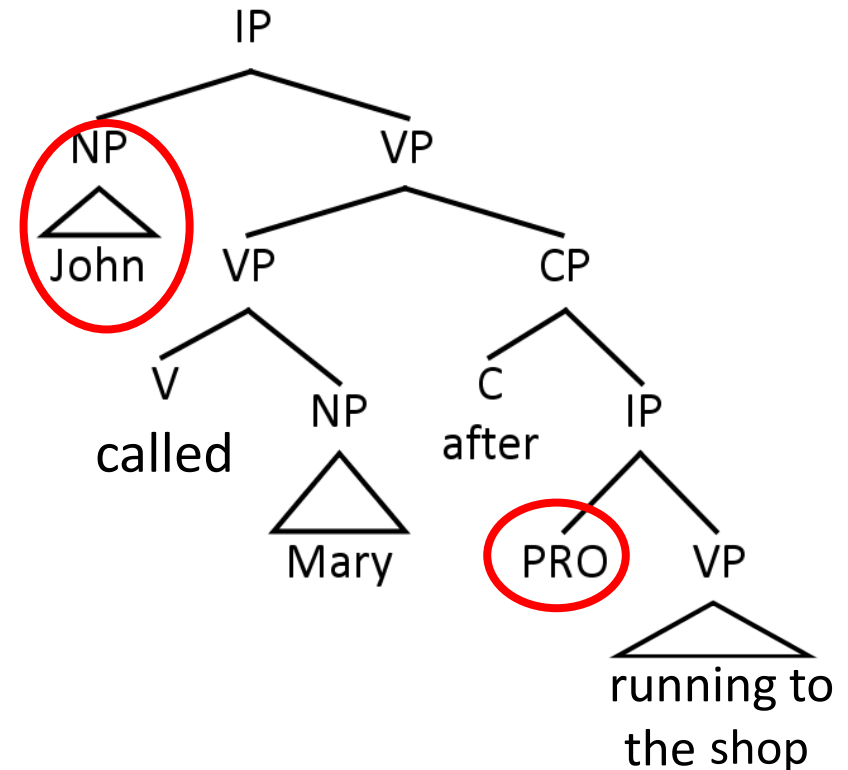
Free reference



Adjunct control

Adult grammar

- Attachment height
- Closest c-commanding NP



Adjunct control

Adult grammar

- Attachment height
 - Closest c-commanding NP
- broader implications for dependencies

Case study: how?

Adult grammar

Attachment height

Closest c-commanding NP

H1. From the input

- a. Inferred from direct observation (direct input)
 - b. Generalization from a similar structure (generalize)
- domain specific or domain general

Case study: how?

Adult grammar

Attachment height

Closest c-commanding NP

H1. From the input

- a. Inferred from direct observation (direct input)
 - b. Generalization from a similar structure (generalize)
- domain specific or domain general

H2. Not from the input (UG)

→ poverty of the stimulus

- Implications for
 - Input
 - Other dependencies

H1. Evidence in the input

a. Direct evidence:

- attachment height
- closest c-commanding NP

b. Generalization

- Complement control
 - (2) a. *John wanted PRO to run to the store*
 - b. *John told Mary PRO to run to the store*

- Finite adjuncts

(3) *John called Mary before* $\left\{ \begin{array}{l} \textit{he} \\ \textit{she} \\ \textit{Bill} \end{array} \right\}$ *ran to the store*

a. Direct evidence

(4) *John₁ called Mary₂ before PRO_{1/*2} running to the shop*

Available interpretation(s):

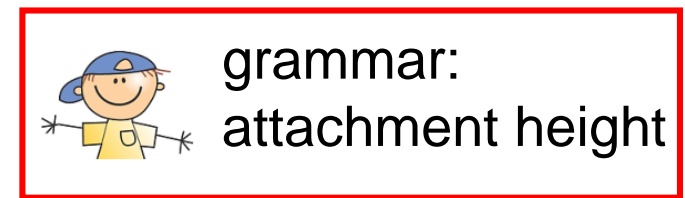
Adults: Subject control

4-6 yo: Subject control

Object control

Sentence internal

Free reference

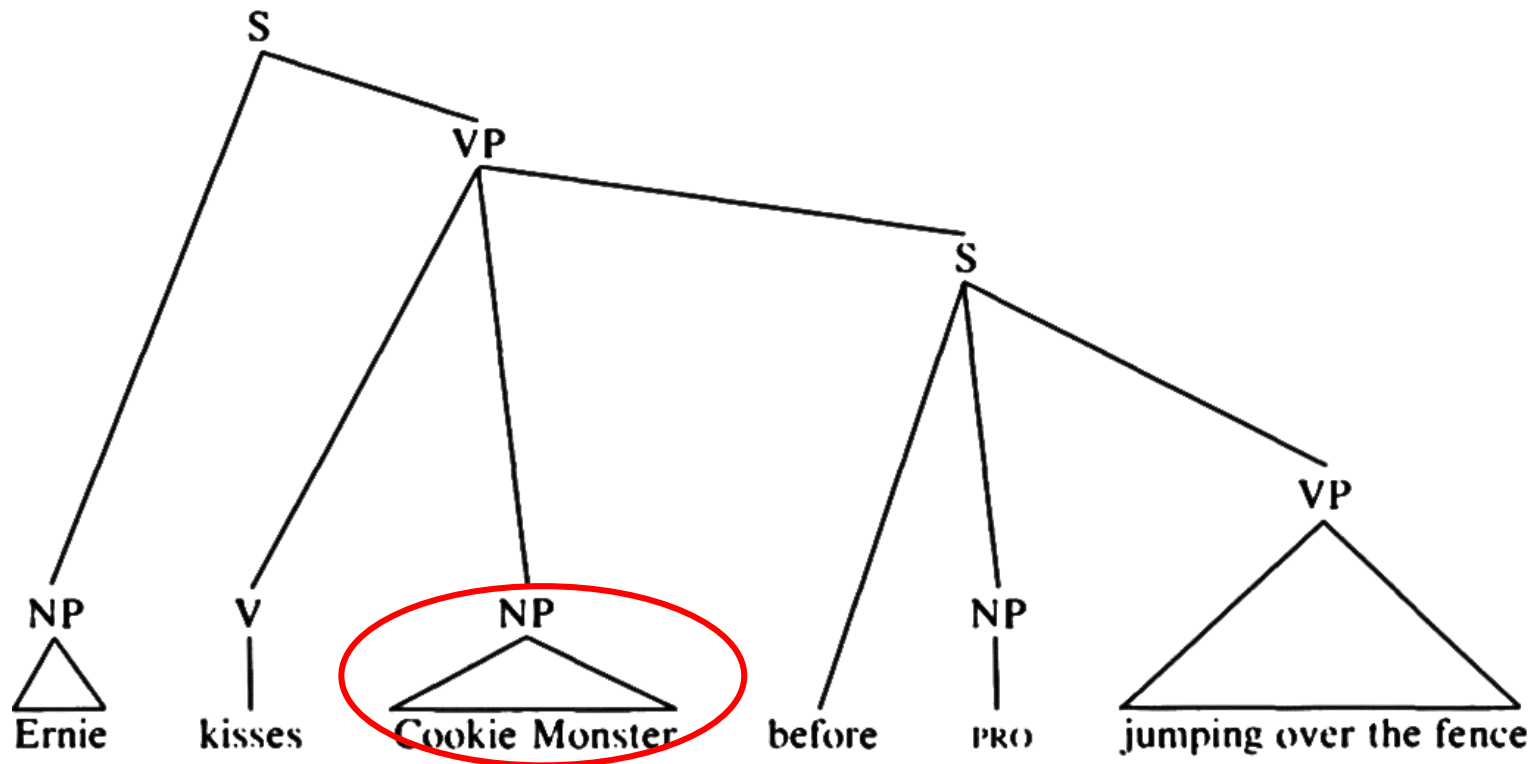


Goodluck & Behne (1992), Goodluck (1998)

Goodluck (1981), Hsu et al (1985), McDaniel et al (1991), Cairns et al (1994), Adler (2006)

Attachment height

- Non-adultlike grammar: Variable attachment
 - Object control



Evidence: binding across clauses

(5) John called her₁ before PRO meeting Mary₁ at the shop

If evidence, assumes:

- binding principles already learned
(or don't need to be learned)

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- processing resources to maintain both clauses in memory
- frequent enough in the input
→ children's perception (intake vs input)

Evidence: binding across clauses

→ **Domain specificity**

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If evidence, assumes:

- binding principles already learned
(or don't need to be learned)
- processing resources to maintain both clauses in memory
- frequent enough in the input
→ children's perception (intake vs input)

a. Direct evidence

(4) *John*₁ called *Mary*₂ before *PRO*_{1/*2} running to the store

Available interpretation(s):

Adults: Subject control

4-6 yo: Subject control

Object control

Sentence internal

Free reference



grammar:
attachment height



grammar: closest
c-commanding NP

Goodluck & Behne (1992), Goodluck (1998)

Goodluck (1981), Hsu et al (1985), McDaniel et al (1991), Cairns et al (1994), Adler (2006)

Evidence for adultlike PRO?

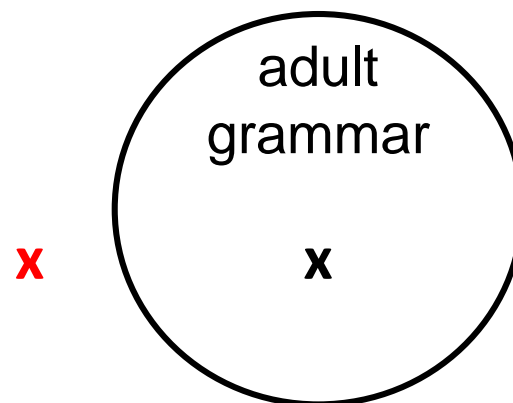
- Not direct
 - Single instance likely consistent with many possibilities
- (1) **John** called Mary before PRO running to the shop
- subject, sentence-internal, agent, discourse
1. Adjunct control: subject
 2. Closest c-commanding NP

Evidence for adultlike PRO?

- Not direct
 - Single instance likely consistent with many possibilities
- (1) **John** called Mary before PRO running to the store
- subject, sentence-internal, agent, discourse
1. **Adjunct control: subject**
 2. Closest c-commanding NP

Evidence that PRO = subject?

- Previous studies: non-adultlike (4-6 year olds)
 - Subject control
 - **Object control**
 - Sentence internal
 - Free reference

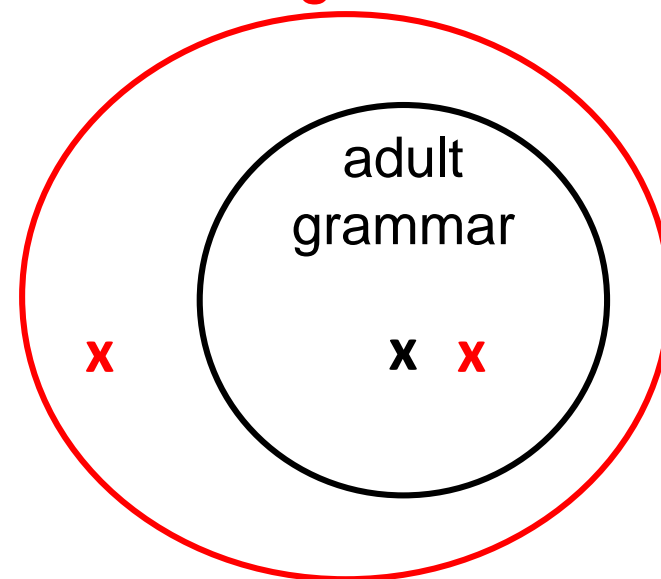


Evidence that PRO = subject?

- Previous studies: non-adultlike (4-6 year olds)
 - Subject control
 - Object control
 - Sentence internal
 - Free reference

→ evidence for non-adult grammar

non-adult grammar



H1. Evidence in the input

Adult grammar

Attachment height

Closest c-commanding NP

- ✗ a. Inferred from direct observation
- b. Generalization from a similar structure

b. Similar structures

Adult grammar

Attachment height

Closest c-commanding NP

- Complement control

(6) a. *subject: John wanted PRO to run to the shop*

b. *object: John told Mary PRO to run to the shop*

- Finite adjuncts

(7) *John called Mary before* $\left\{ \begin{array}{l} he \\ she \\ Bill \end{array} \right\}$ *ran to the shop*

Complement control

(6) a. *subject: John wanted ___ to run to the shop*

b. *object: John told Mary ___ to run to the shop*

(8) *John called Mary before PRO running to the shop*

→ Form (null)

→ Closest c-commanding NP

- Adultlike behavior observed before adjunct control

→ infer antecedent from complement control, then generalize?

Complement control

→ infer antecedent from complement control, then generalize?

issues

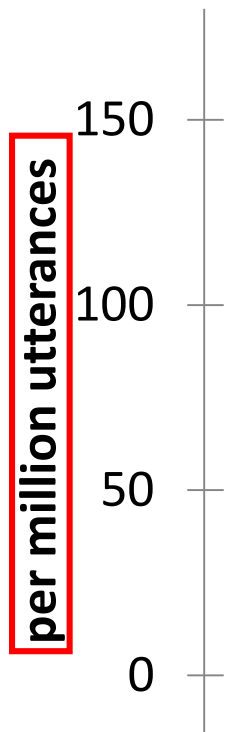
- non-adultlike behavior for complement control
 - evidence for non-adult grammar
- assumptions
 - inference for complement control only
 - complement control → adjunct control
 - antecedent, but not e.g. verb form

Finite adjuncts

(7) *John called Mary before* $\left\{ \begin{array}{l} \textit{he} \\ \textit{she} \\ \textit{Bill} \end{array} \right\}$ *ran to the shop*

- Attachment height?
 - Same learning problem as adjunct control
 - Finite \rightarrow non-finite
- Linguistic input?
 - Non-finite vs finite adjuncts

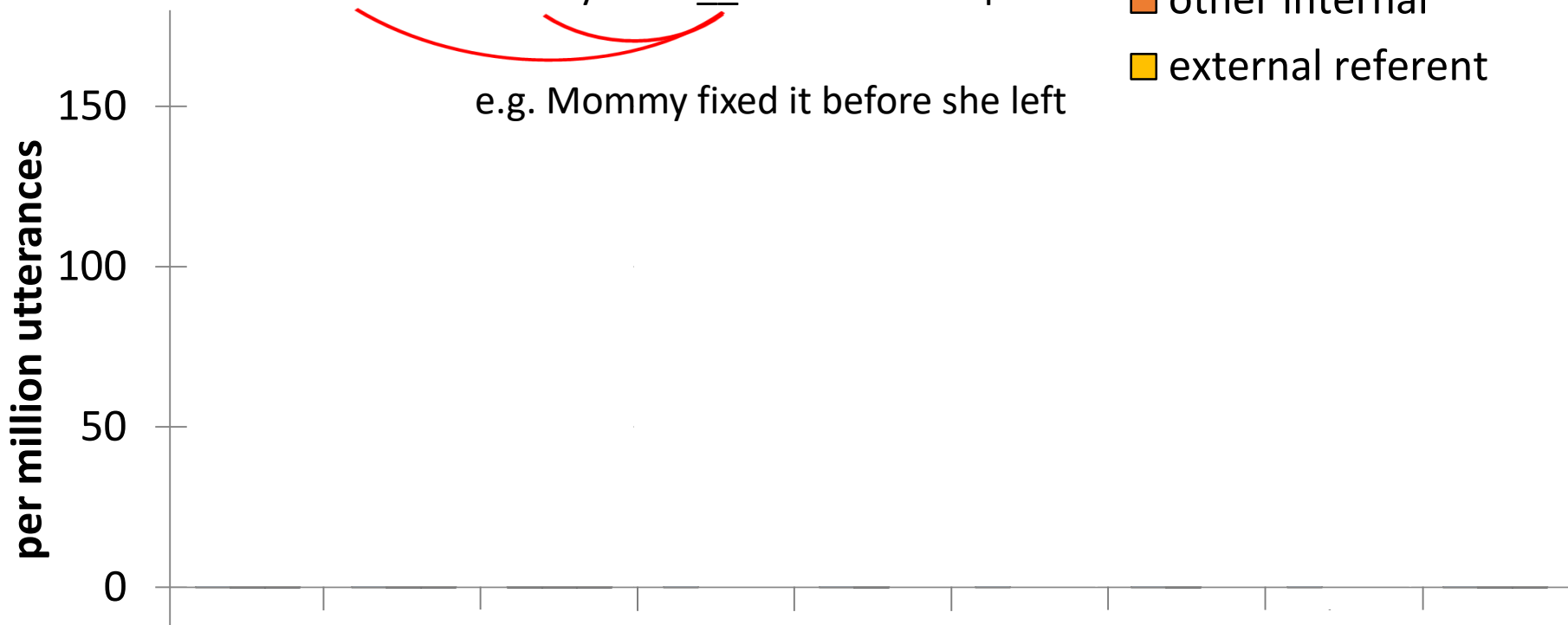
Linguistic input



Linguistic input

John called Mary after ? ran to the shop

e.g. Mommy fixed it before she left



Linguistic input

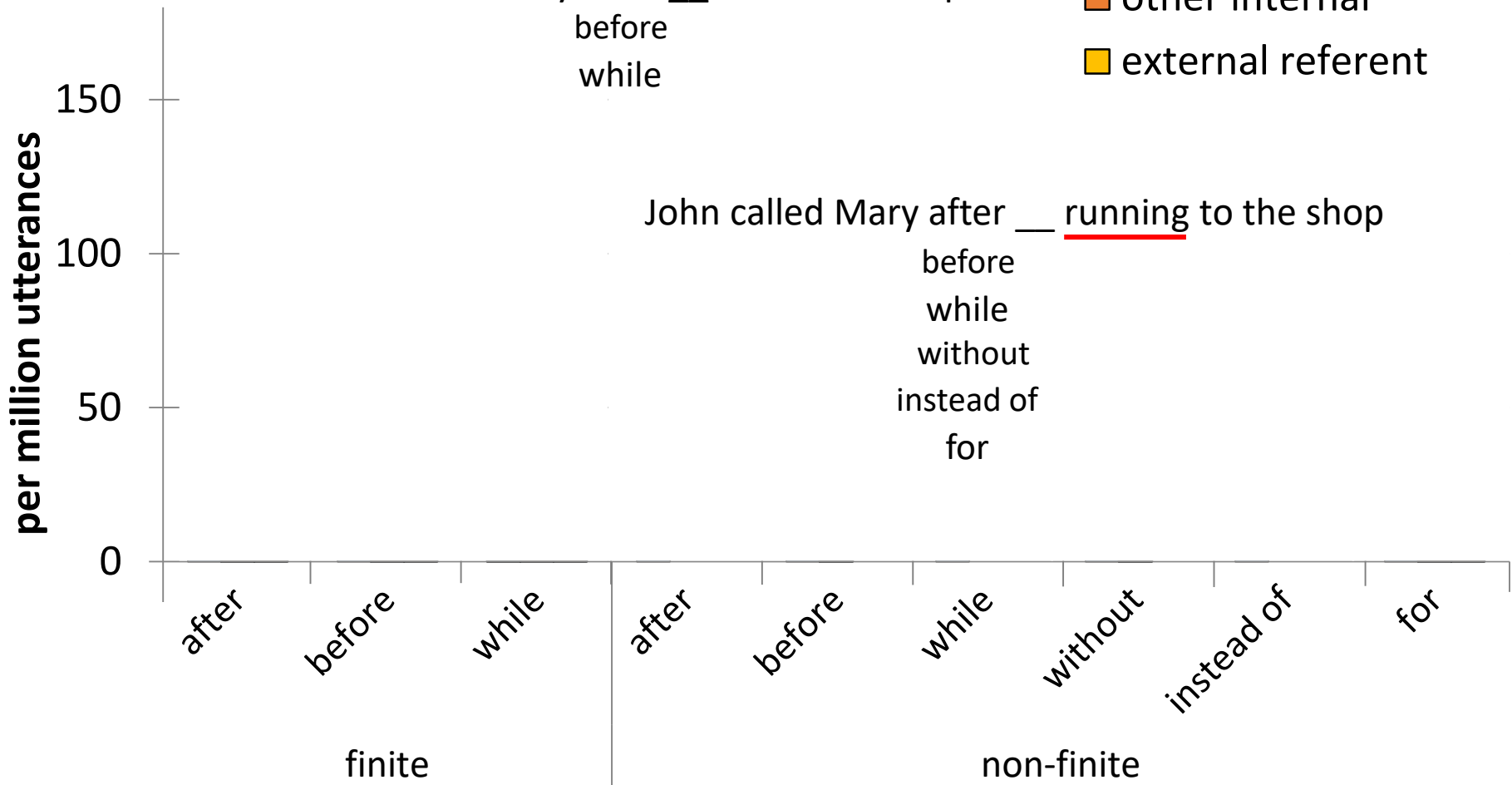
John called Mary after ? ran to the shop
 before
 while

Antecedent

■ main clause subject

■ other internal

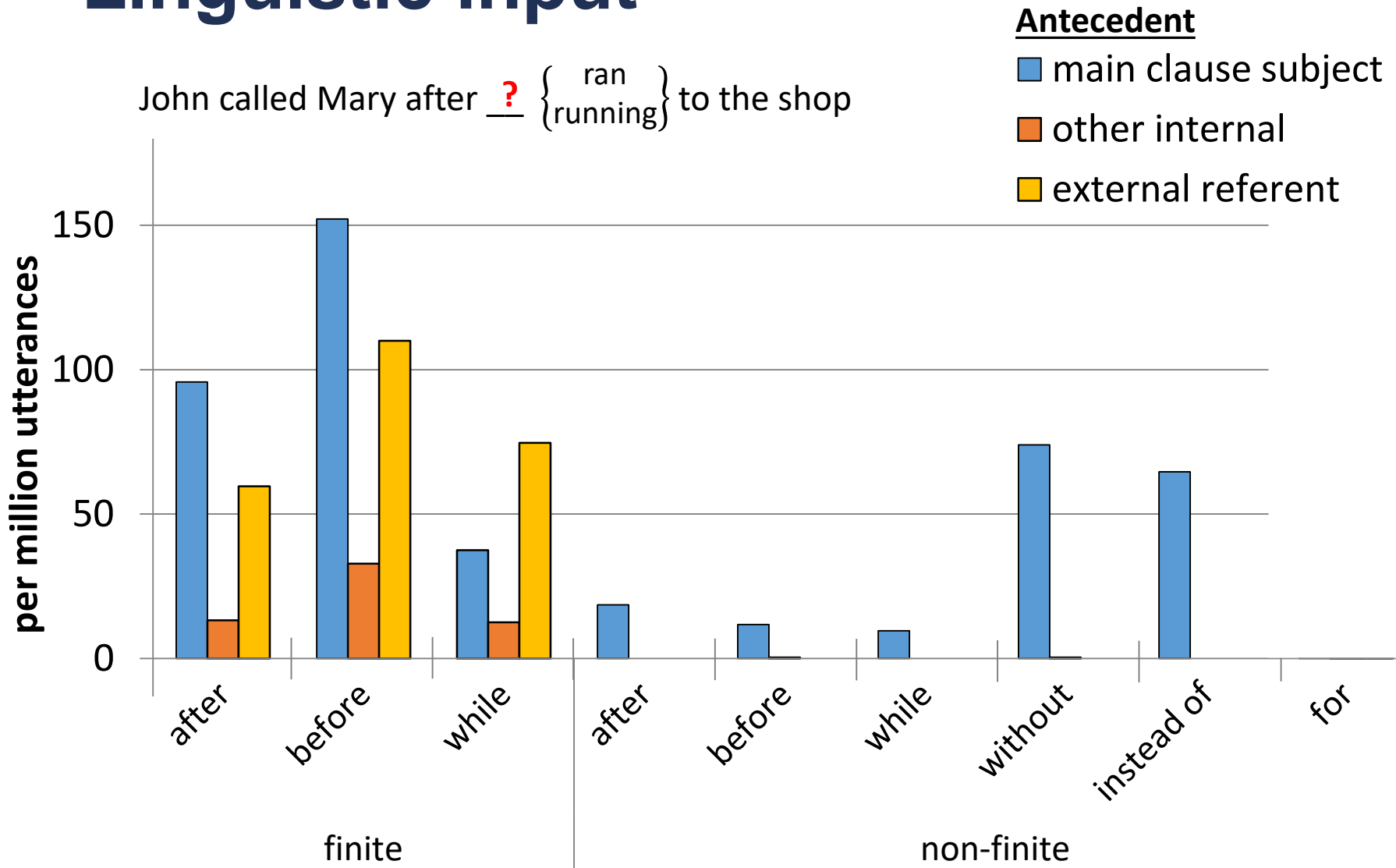
■ external referent



John called Mary after running to the shop
 before
 while
 without
 instead of
 for

Linguistic input

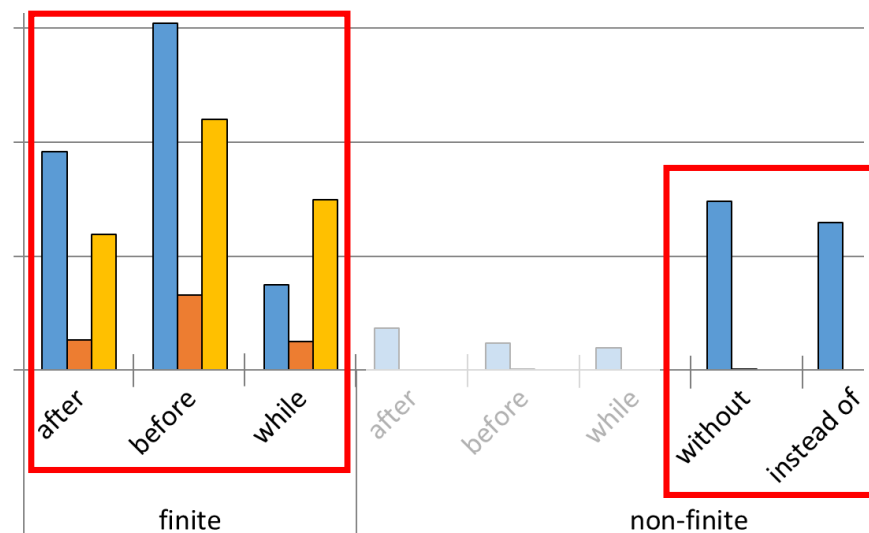
John called Mary after ? $\left\{ \begin{array}{l} \text{ran} \\ \text{running} \end{array} \right\}$ to the shop



Generalization?

Antecedents

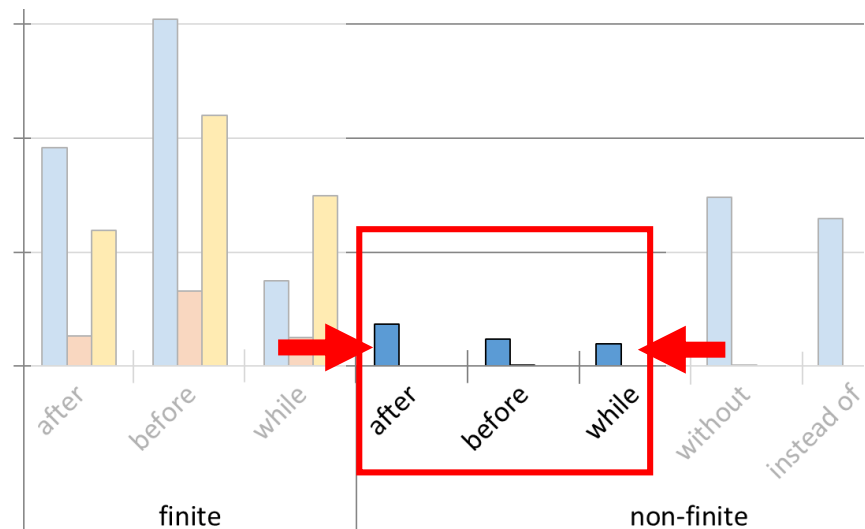
- ~~frequent~~ ↔ frequent



Generalization?

Antecedents

- ~~frequent~~ ↔ frequent
- infrequent ← frequent?



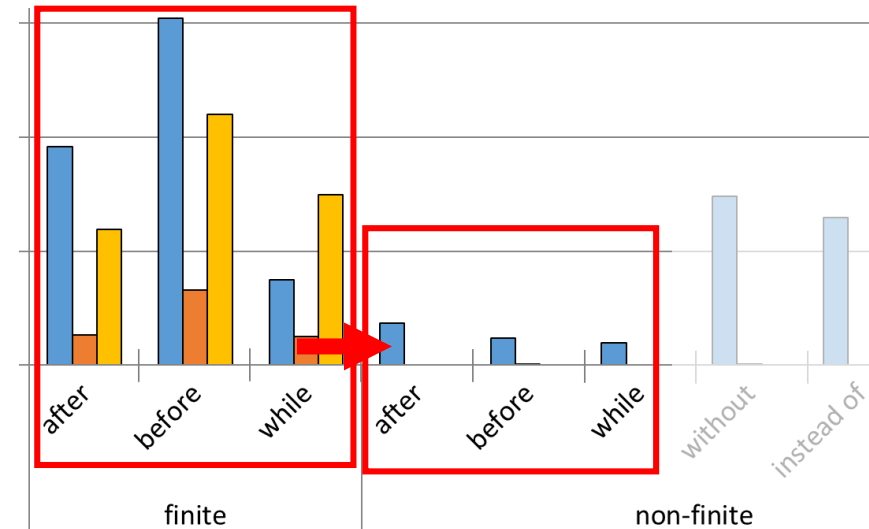
Generalization?

Antecedents

- ~~frequent~~ ↔ frequent
- infrequent ← frequent?

Issues:

- Finite: free reference



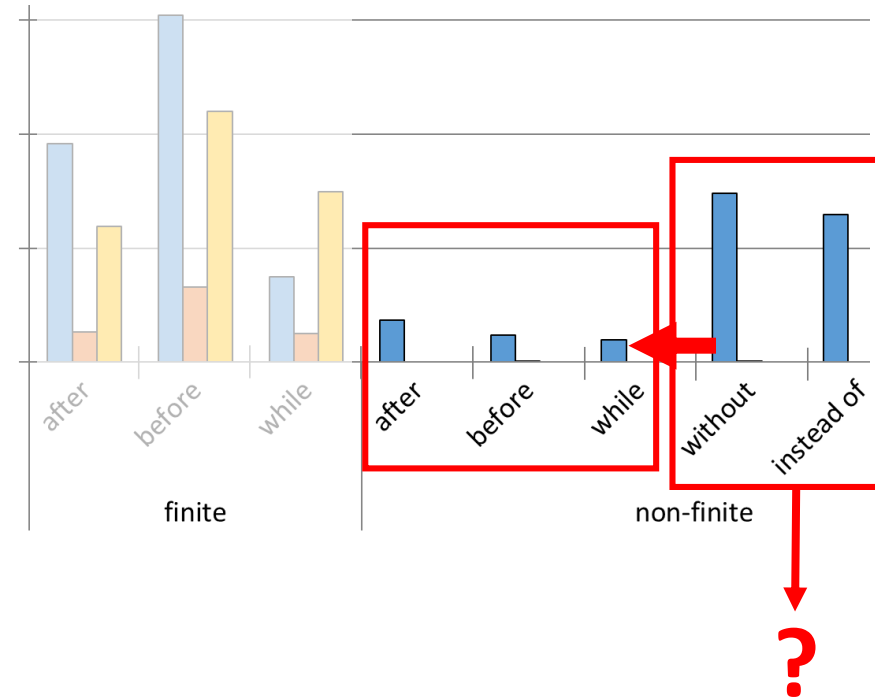
Generalization?

Antecedents

- ~~frequent~~ ↔ frequent
- infrequent ← frequent?

Issues:

- Finite: free reference
- Non-finite: non-answer



b. Generalization summary

Adult grammar
Attachment height
Closest c-commanding NP

- Problematic
 - Complement control: antecedent
 - Finite adjuncts: attachment height
 - Finite adjuncts: antecedent
 - Non-finite adjuncts: non-answer

H2. Universal Grammar

- Universal principles
 - Adult grammar
 - Attachment height
 - Closest c-commanding NP
- Poverty of the stimulus
 - Structure present, but evidence not available
- Implications for
 - input
 - acquisition

Input

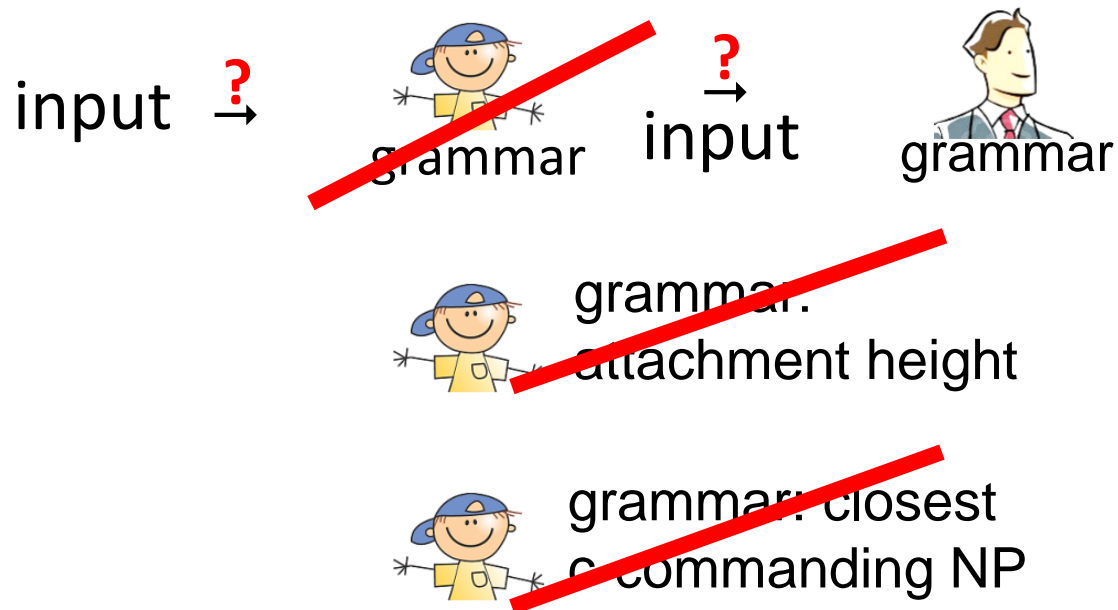
- Abstract principles → cross-linguistic variation
 - finiteness
 - complementizer
 - after, before, while, ... : finite and non-finite
 - without, despite, ... : non-finite only
→ English

Input

- Abstract principles → cross-linguistic variation
 - finiteness
 - complementizer
- Evidence
 - overt morphemes
 - frequency

Acquisition

- Role: mapping overt \rightarrow abstract
 - vs. learning abstract



Prediction: exceptions

- e.g. 'for'

(9) a. Active:

*John₁ called Mary₂ after PRO_{1/*2} going to the shop*

b. Passive:

*John₁ was called by Mary₂ after PRO_{1/*2} going to the shop*

(10) a. Active:

*John₁ thanked Mary₂ for PRO_{*1/2} going to the shop*

b. Passive:

*John₁ was thanked by Mary₂ for PRO_{1/*2} going to the shop*

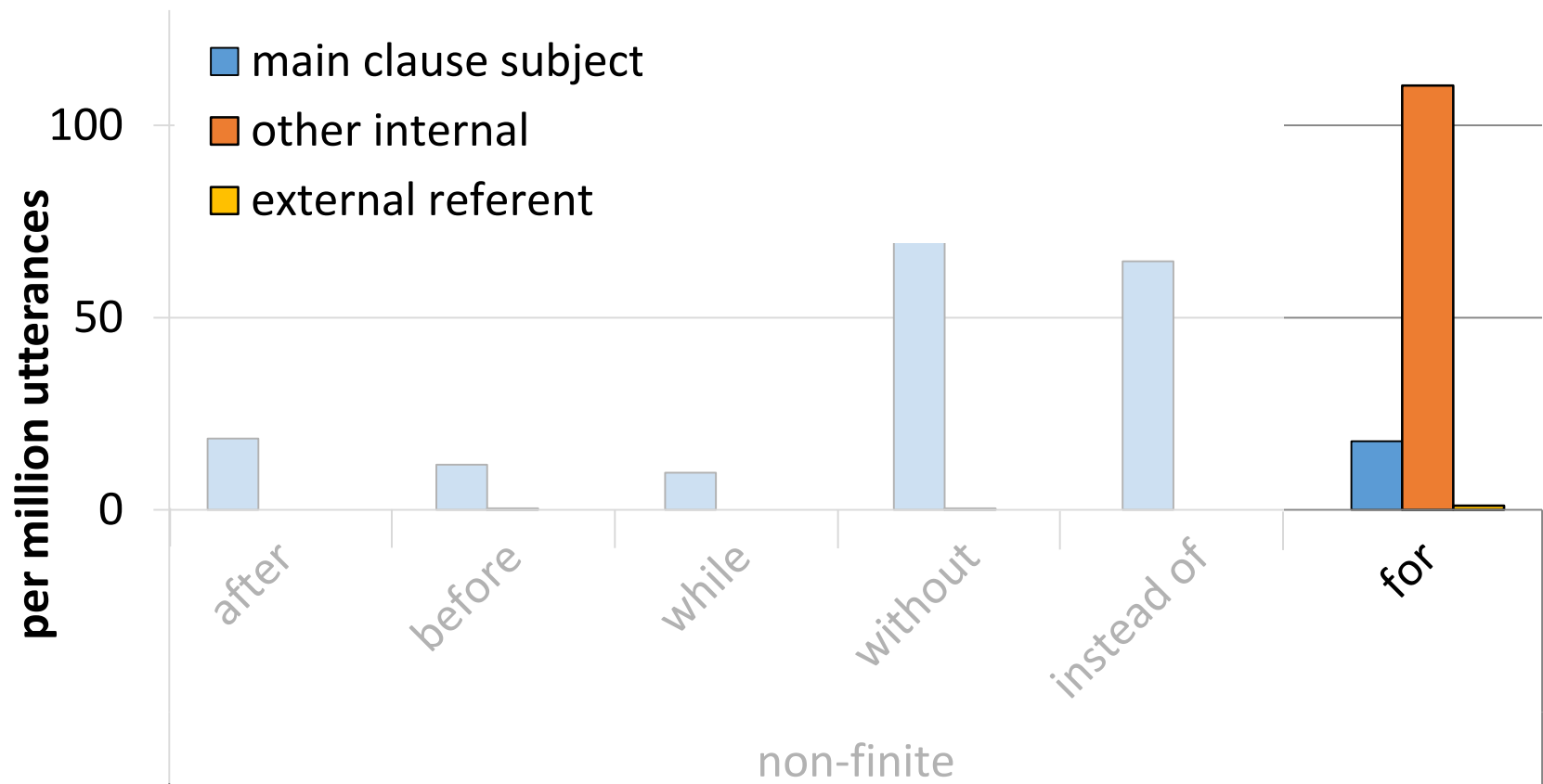
→ salient in the input?

Prediction: exceptions

- (10) a. *John₁ thanked Mary₂ for PRO_{1/*2} going to the shop*
 b. *John₁ was thanked by Mary₂ for PRO_{1/*2} going to the shop*

- e.g. ‘for’

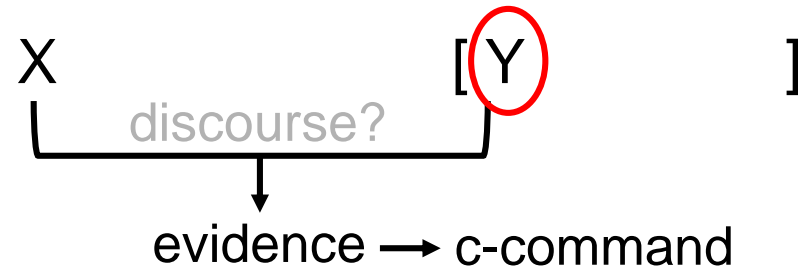
→ 70% “thank you for ___ ing” frame



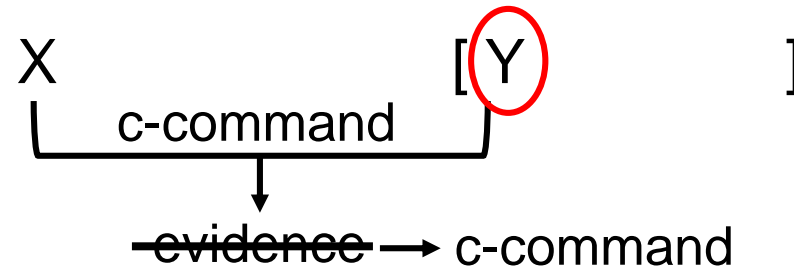
Implications

- **How** is adjunct control acquired?
 - Indirectly
 - Not inferred from input
- Implications
 - Other dependencies, constraints
 - Non-adultlike stages

Other dependencies



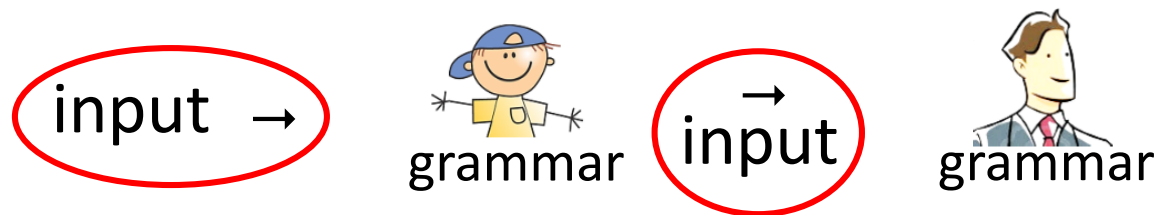
Other dependencies



- Variation?
 - Long-distance
 - Logophors
 - Aspect

Non-adult stages

- Poverty of the stimulus
 - no evidence → not acquired from the input
- Logic for non-adult grammar



- no evidence → not acquired from the input

Conclusion

- Availability vs evidence
- Implications for other dependencies

Thanks!

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