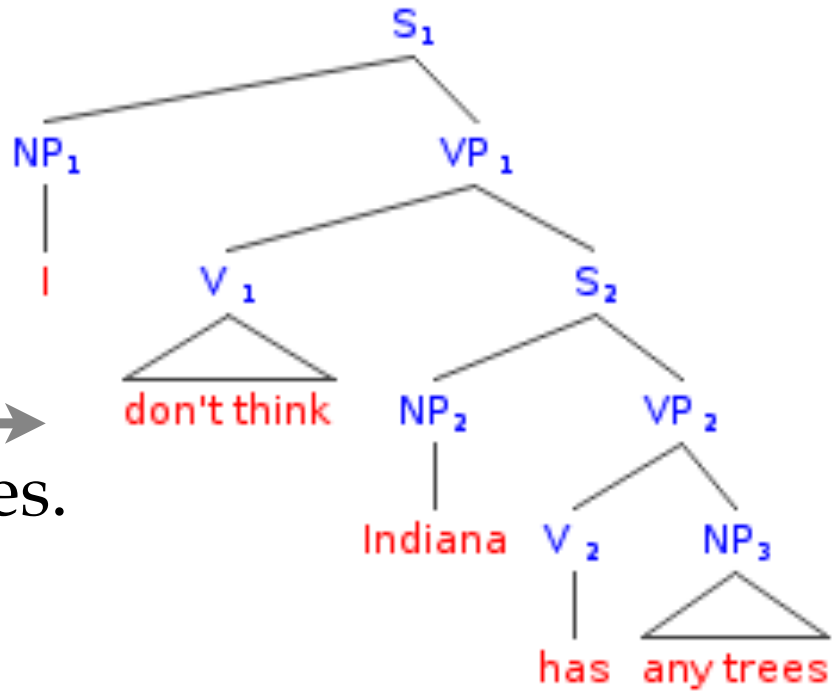
UCSD

Syntactic Priming in American Sign Language

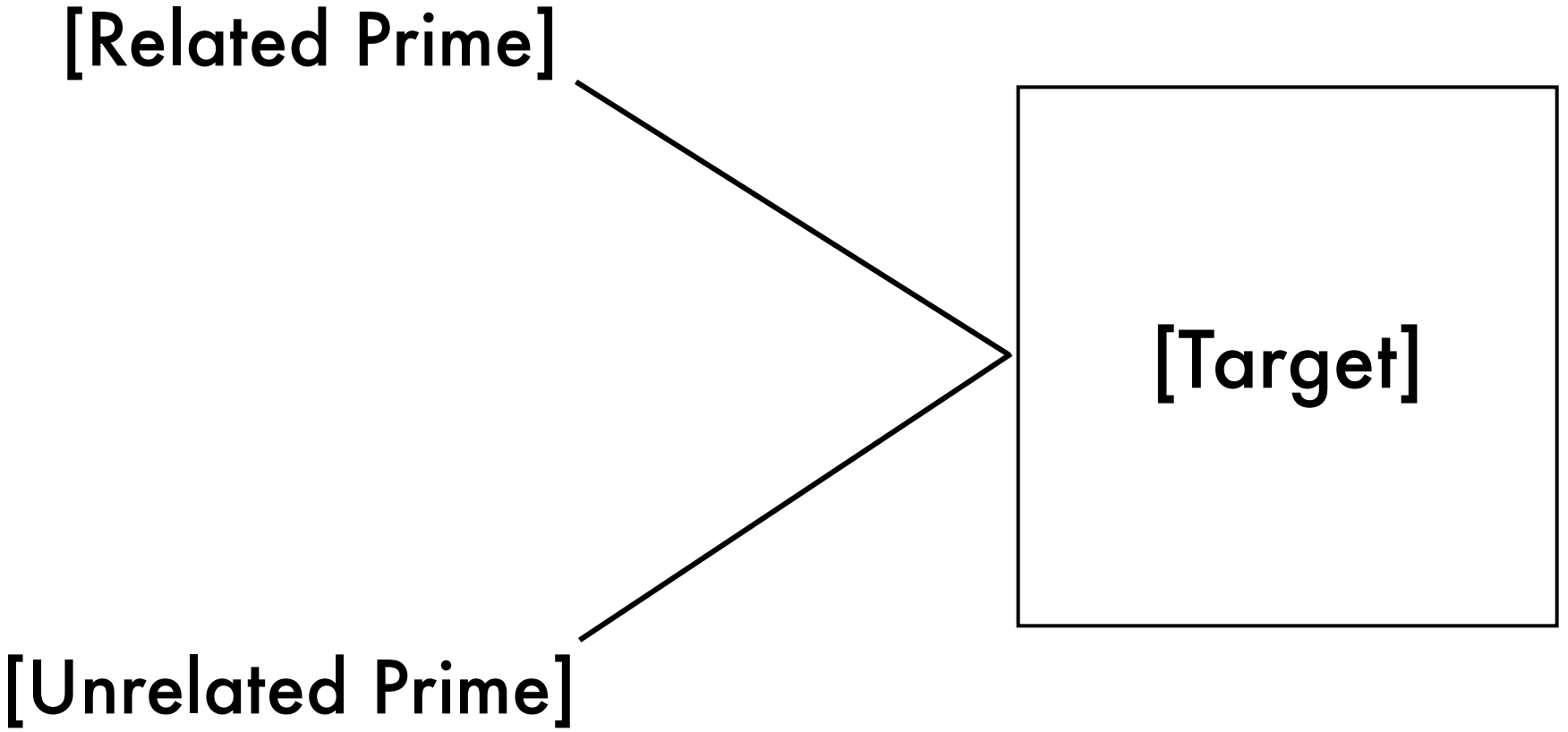
Matthew L. Hall, Rachel I. Mayberry, & Victor S. Ferreira

Syntax is invisible.

- I don't think Indiana has any trees.



Priming



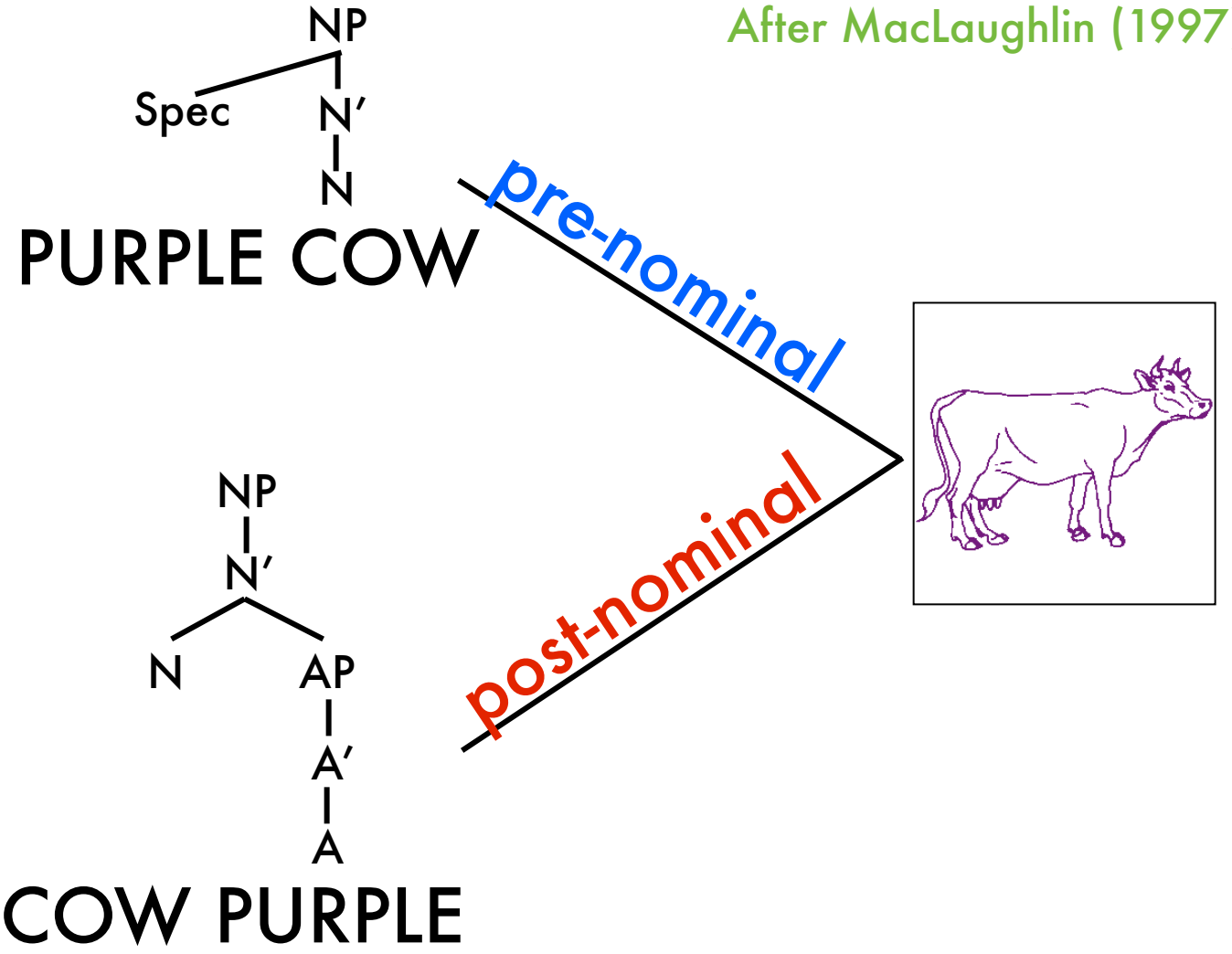
Syntactic Priming

The speaker gave some papers to the interpreter.

The speaker gave the interpreter some papers.

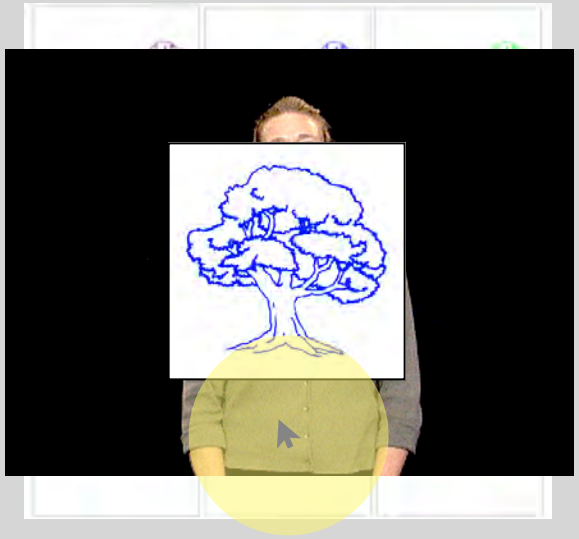
An ASL Alternation

After MacLaughlin (1997)

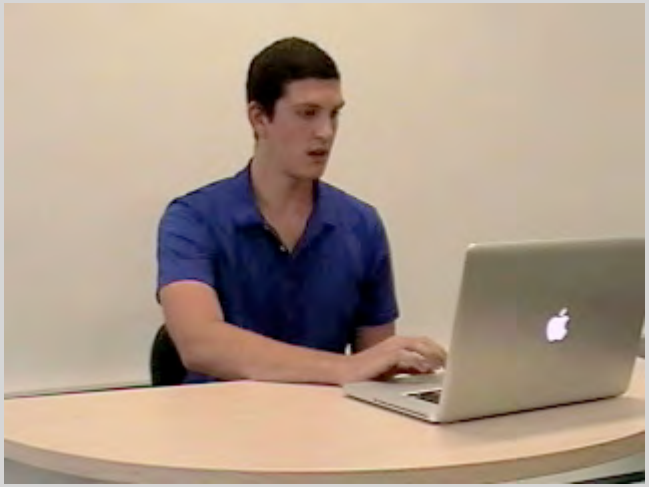


Sample Trial

Participant's View



Experimenter's View

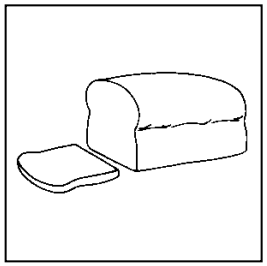


Semantic boost?

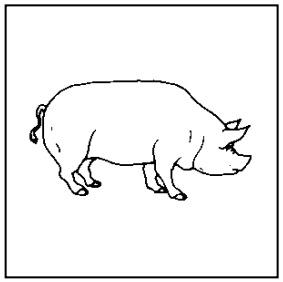
Prime

After Cleland & Pickering (2003)

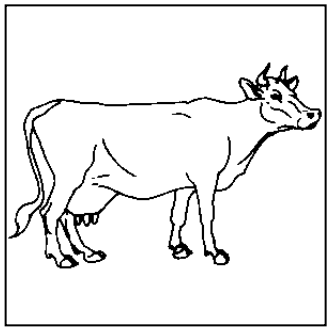
unrelated



related

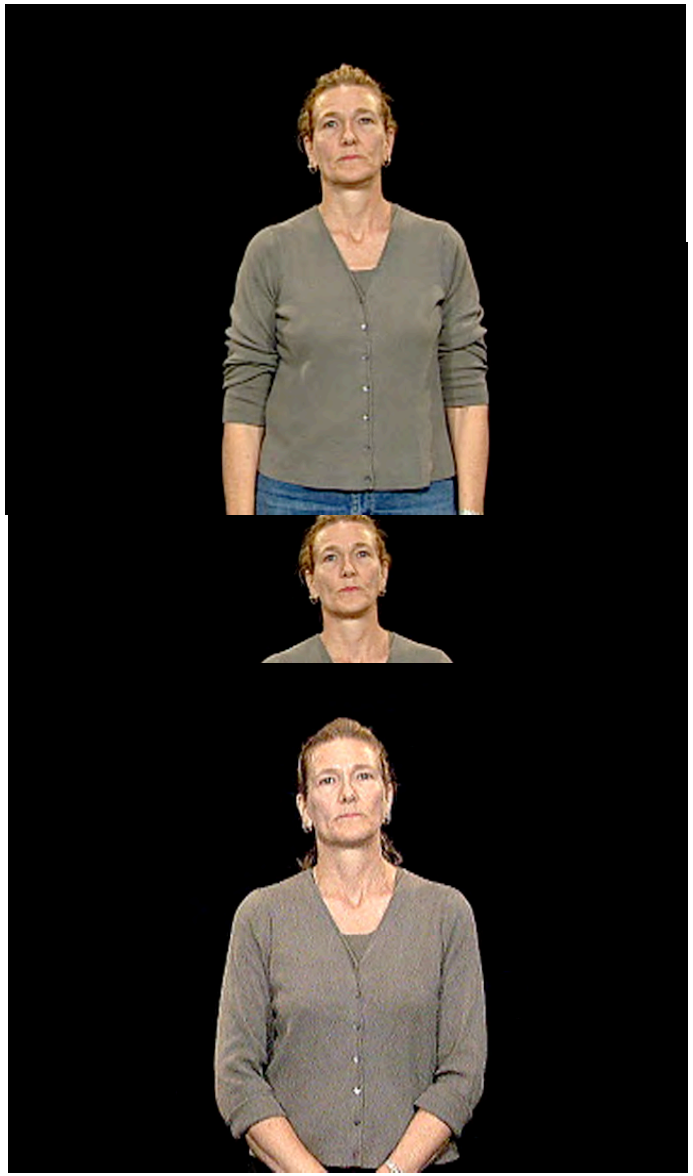


Target



Boost

Semantic Boost?



related

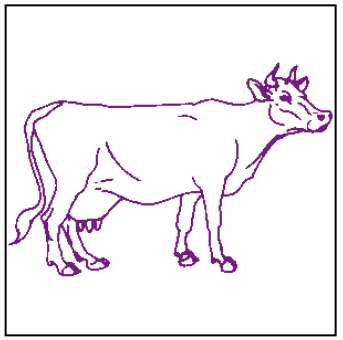
unrelated

related

unrelated

pre-nominal

post-nominal



Phonological boost?

ENGLISH

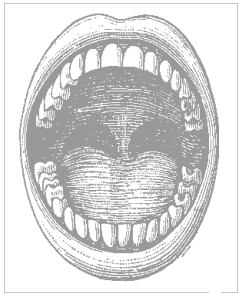
ASL

unrelated

unrelated

Target

minimal pair



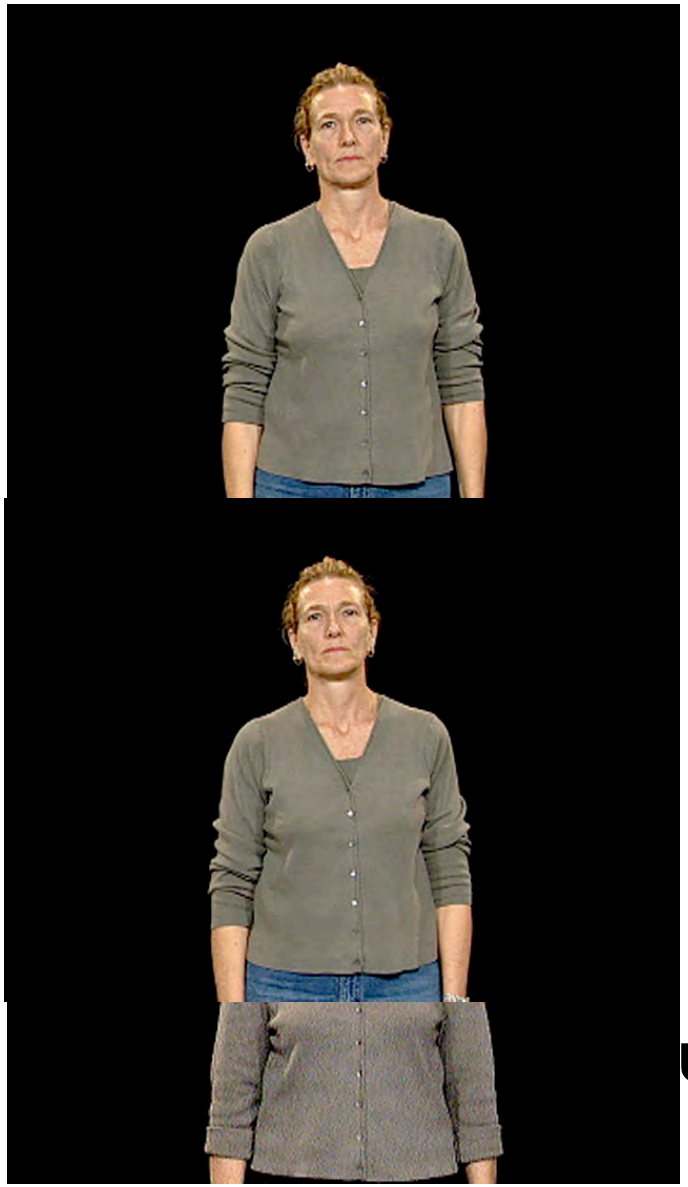
minimal pair

NBoost.

homophone

homophone

Phonological Boost?



related

unrelated

pre-nominal

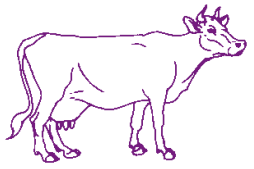
related

unrelated

post-nominal

Experiment 1: Design

After Cleland & Pickering (2003)

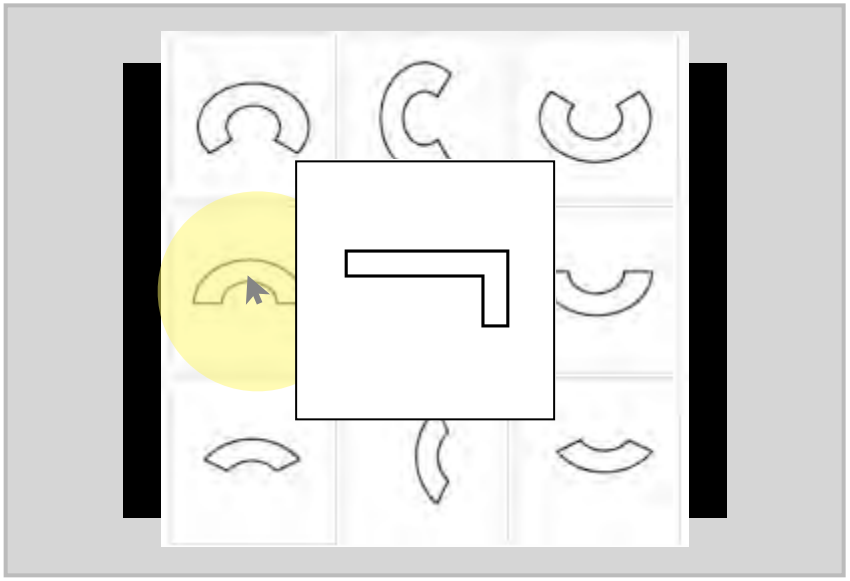
ASL Prime	Prime Structure	Stimulus Set	Relatedness	Target
PURPLE BREAD	Pre-nominal	Semantic	Unrelated	
BREAD PURPLE	Post-nominal	Semantic	Unrelated	
PURPLE PIG	Pre-nominal	Semantic	Related	
PIG PURPLE	Post-nominal	Semantic	Related	
PURPLE FORK	Pre-nominal	Phonological	Unrelated	
FORK PURPLE	Post-nominal	Phonological	Unrelated	
PURPLE STAR	Pre-nominal	Phonological	Related	
STAR PURPLE	Post-nominal	Phonological	Related	

48 critical trials

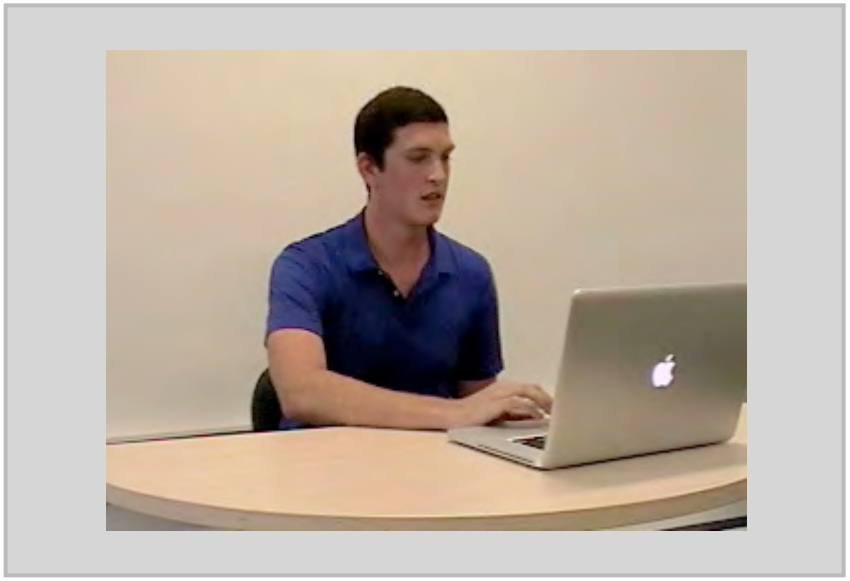
24 fillers

Distractor Task

Participant's View



Experimenter's View



Participants

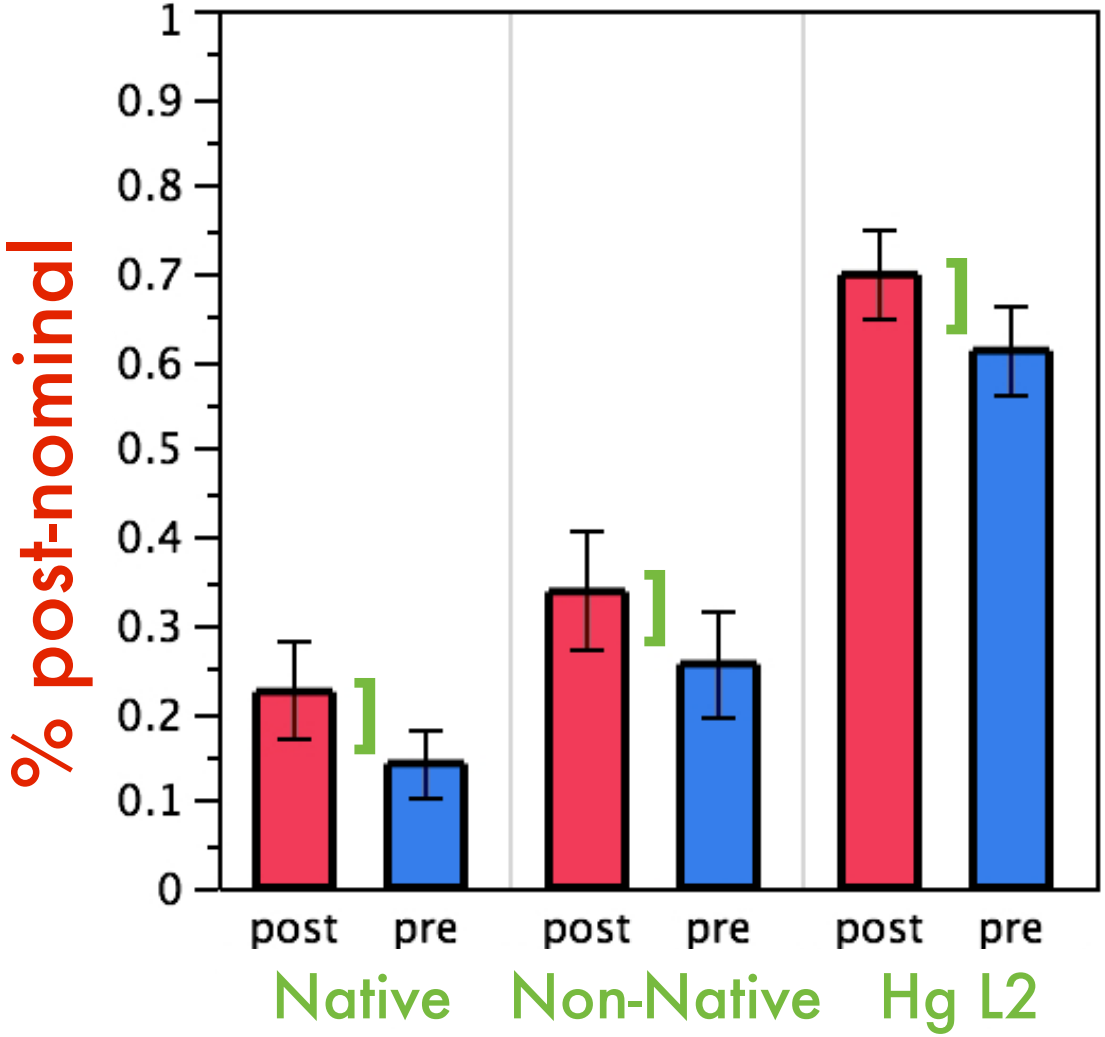
- Deaf Native (DN): n = 10, AoA ≈ birth
- Deaf Non-Native (DNN): n = 10, AoA ≈ 7
- Hearing L2 (HL2): n = 16, AoA ≈ 16

Experiment 1

- Do signers show evidence of syntactic priming?
- Does syntactic priming vary as a function of early language experience?
- Is there a semantic or phonological *boost* to syntactic priming?

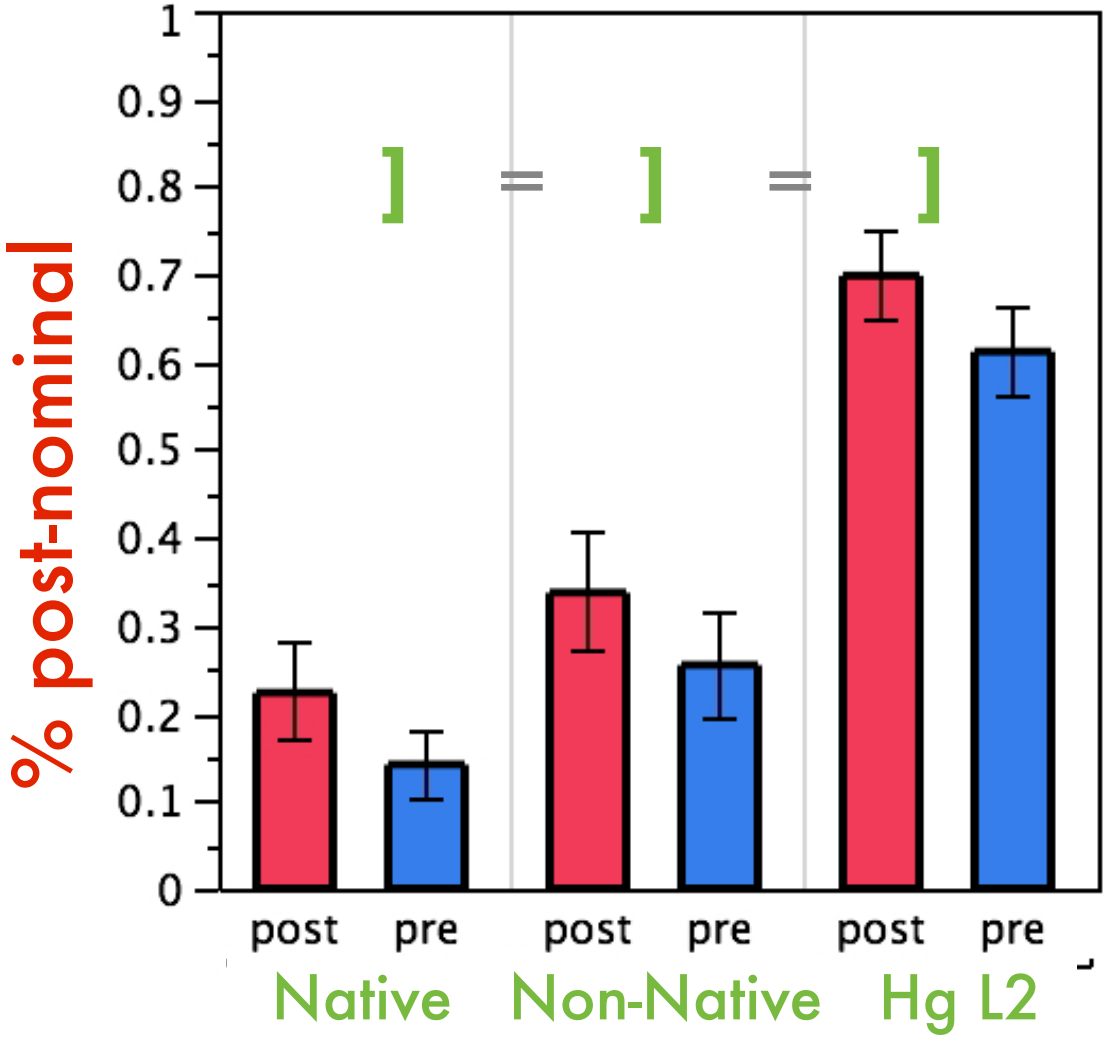
Signers do show priming

Main Effect of Prime Type:
F(1,33) = 7.17, p < .02



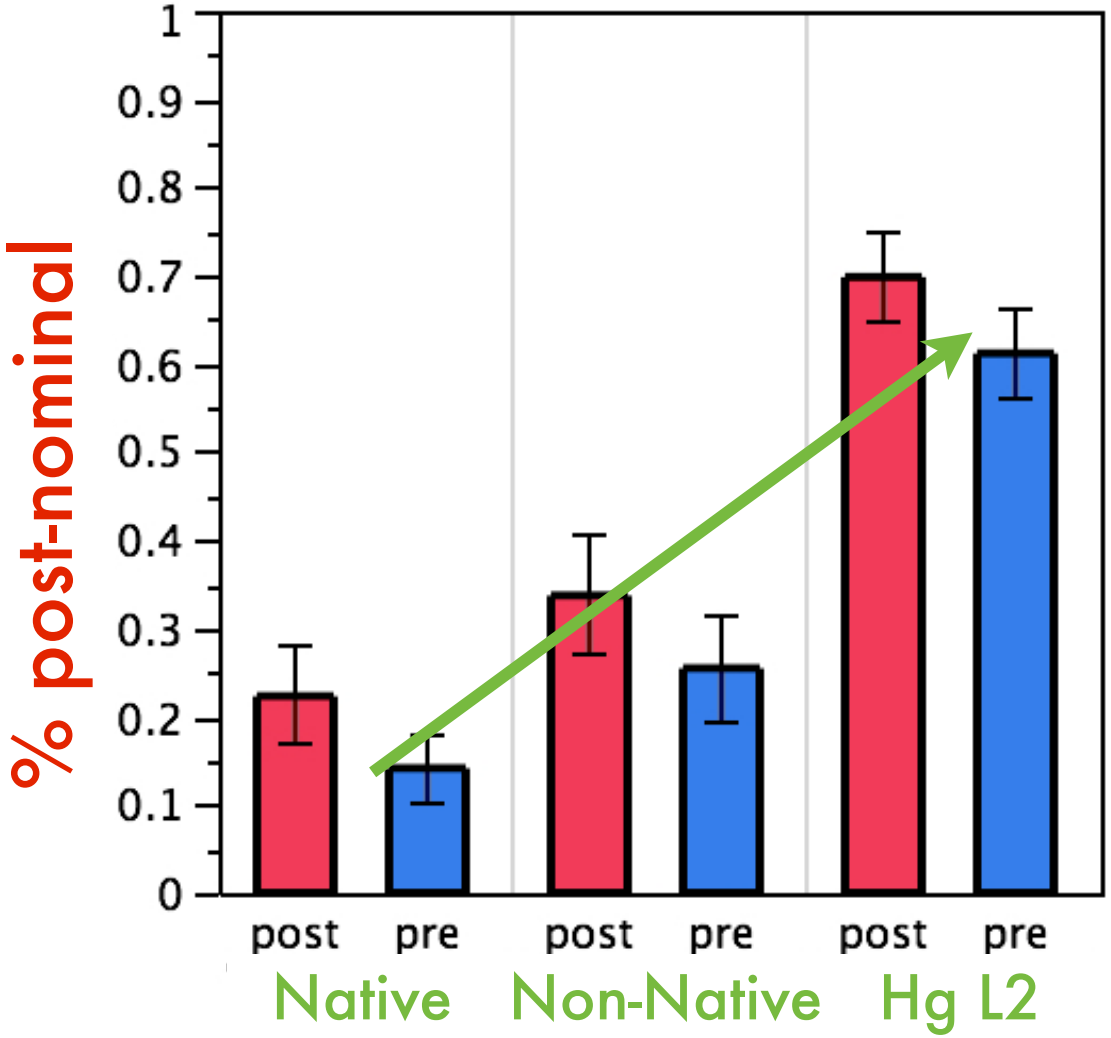
Signers do show priming

No Group x Prime Type Interaction:
F(2,33) = .002, p < .997



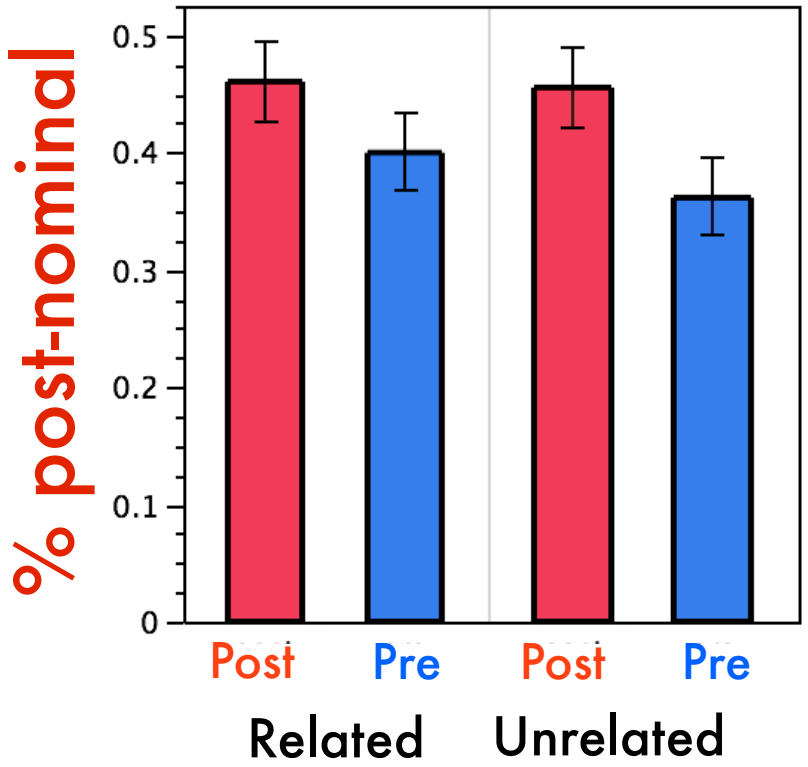
Signers do show priming

Main Effect of Group: $F(2,33) = 5.82$, $p < .01$



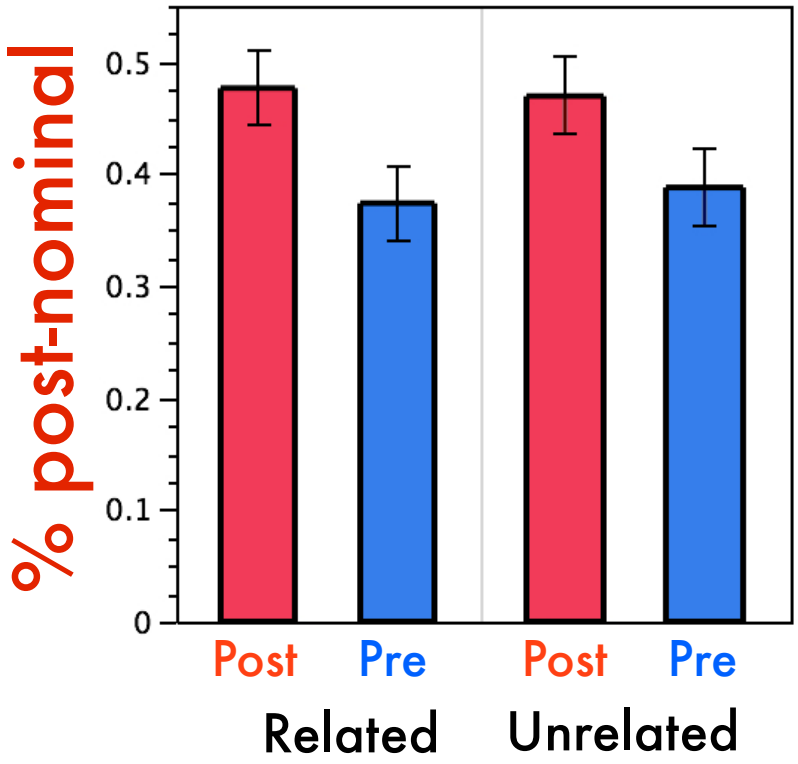
No Boosts

Semantic Items



No interaction: F(1,33) = 1.18, p = .18

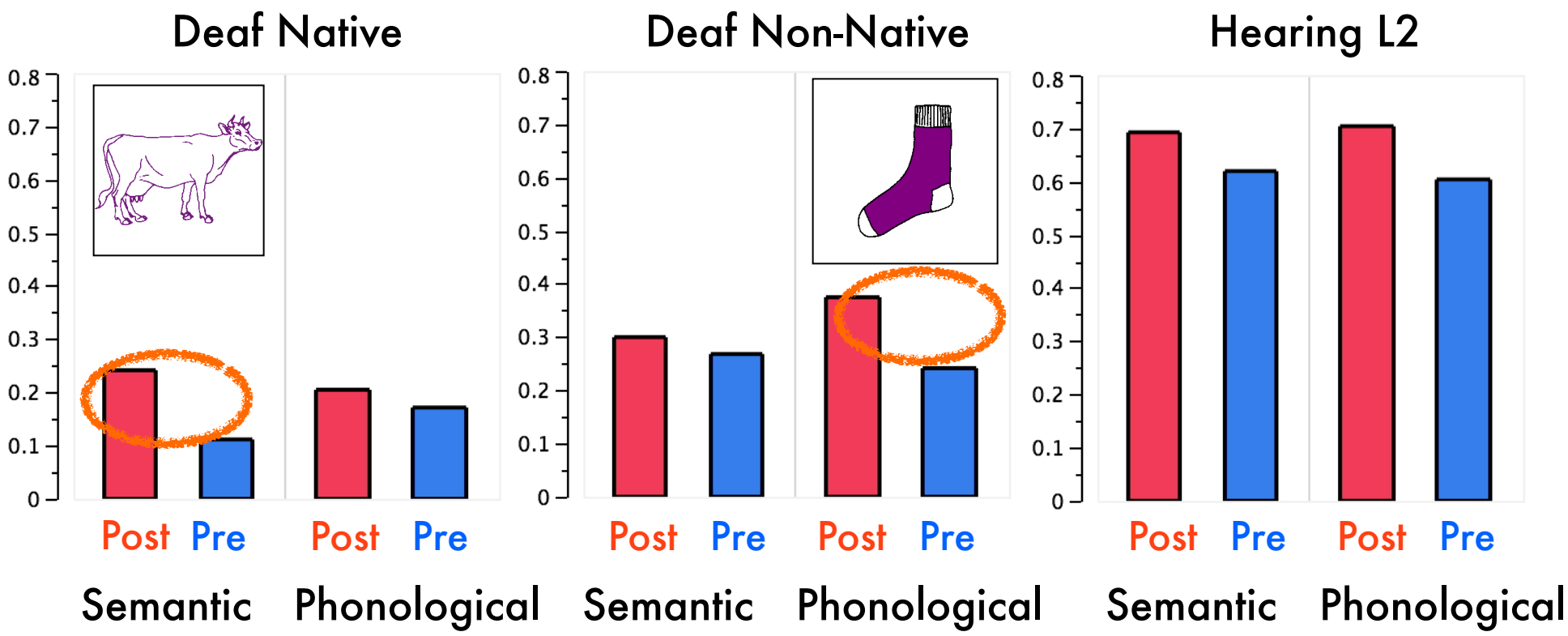
Phonological Items



No interaction: F(1,33) = .81, p = .45

Unexpected effect

Prime Structure x Stimulus Class x Group: $F(2,33) = 4.05$, $p < .03$



NOT about Relatedness

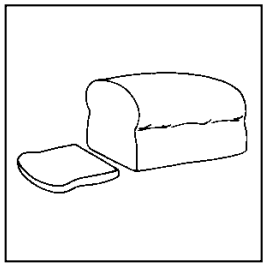
Experiment 1: Discussion

- Signers *do* use abstract syntax, like speakers
- Early language experience did *not* modulate priming
- Why no semantic boost?

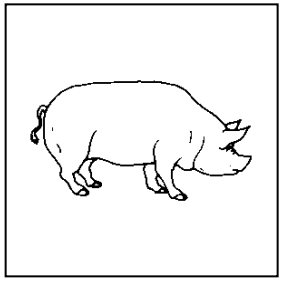
Lexical boost?

Prime

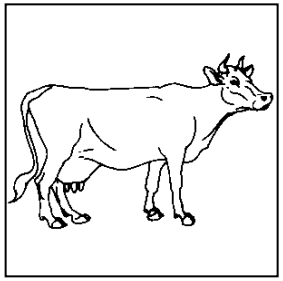
unrelated



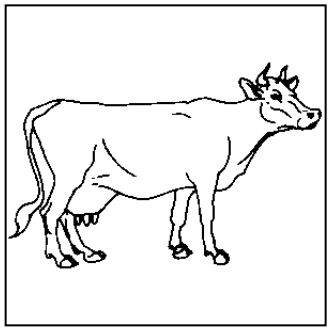
related



same



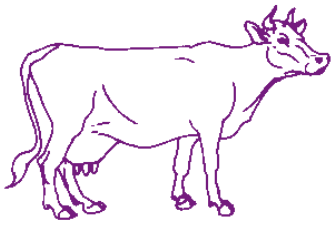
Target



strong boost!

Experiment 2

Hearing L2 Signers: n = 16

ASL Prime	Prime Structure	Noun Type	Target
GREEN BREAD	Pre-nominal	Different	
BREAD GREEN	Post-nominal	Different	
GREEN COW	Pre-nominal	Same	
COW GREEN	Post-nominal	Same	

48 critical trials

24 fillers

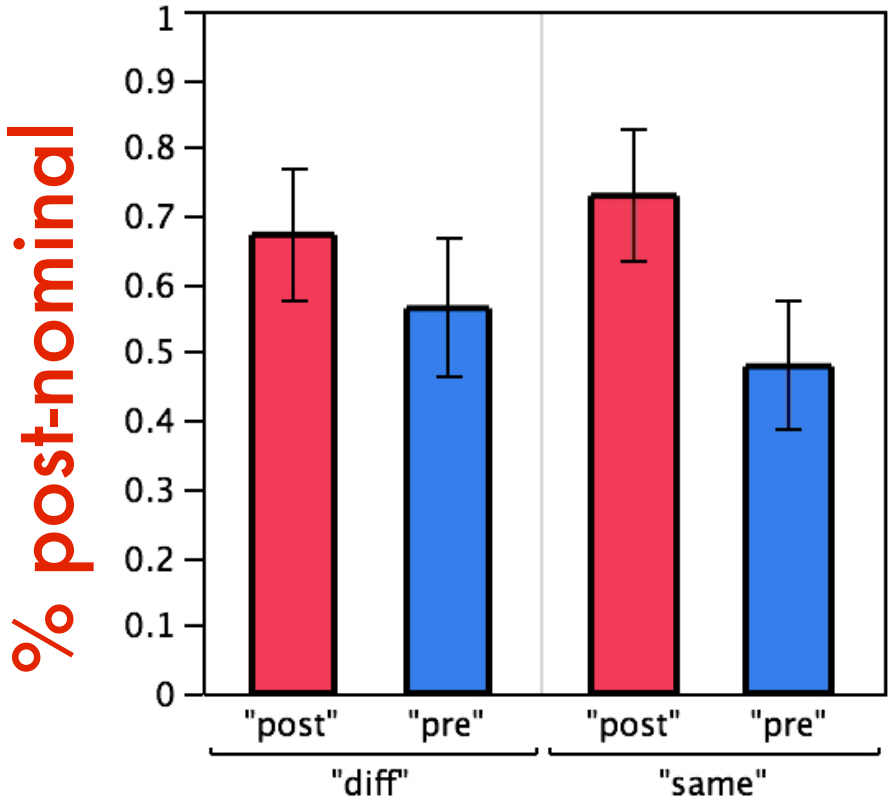
Lexical Boost

Main effect of Prime Structure:

$F(1,15) = 15.00, p < .01$

Prime Structure x Noun Type:

$F(1,15) = 8.29, p < .02$



Summary & Conclusions

- Do signers use abstract syntactic representations? YES.
- Do early language experience modulation syntactic priming? NO.
- Are the same mechanisms involved in priming for sign and speech? PROBABLY.

Thanks!

- UCSD Division of Social Sciences
- NIH Grant HD015030
- Marla Hatrak
- Deaf Community Services of San Diego
- Language Production Lab
- Laboratory for Comparative Language Acquisition