



Focus Particles Strongly Draw Attachment

Torianne Crouch & Joe Castle; mentor Dr. Katy Carlson (Department of English)



Background

- Our research focuses on how unimpaired individuals understand spoken language in order to help language-impaired individuals in the future.
- Consider an ambiguous sentence like (1):
 - (1) Sammy heard that Bill had called # on Monday.
 - a. Sammy heard something on Monday. [high attachment]
 - b. Bill called on Monday. [low attachment]
- A prosodic boundary before the PP increases high attachments, if it is the largest boundary in the relevant area (Carlson, Clifton, & Frazier 2001; Watson & Gibson 2005).
- A contrastive accent on Verb1 (*heard*) instead of Verb2 (*called*) also draws high attachment (Carlson & Tyler 2017).

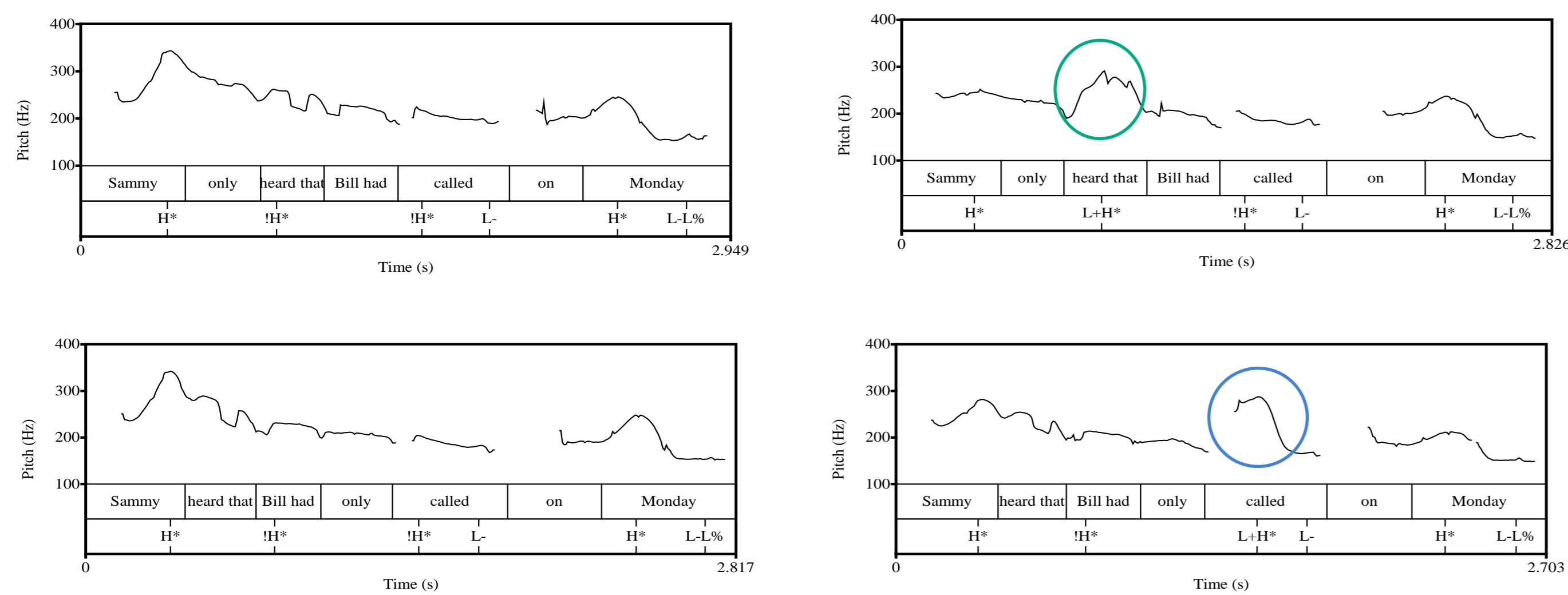
Prediction:

- If accent effects on attachment are due to the accented attachment sites being focused, and therefore important to the sentence:
 - then we would expect that other focus-marking strategies, like focus particles, would also affect attachment.

Experiment 1

- What if attachment sites are focused using a focus particle (*only*) in addition to/instead of accents? Do particles draw attachment?
- Ambiguous adjunct sentences as in (2) were produced with *only* alone, or *only* and accents, on Verb1 or Verb2.
- An ip boundary preceded the PP. *Monday* also bore a H* accent.

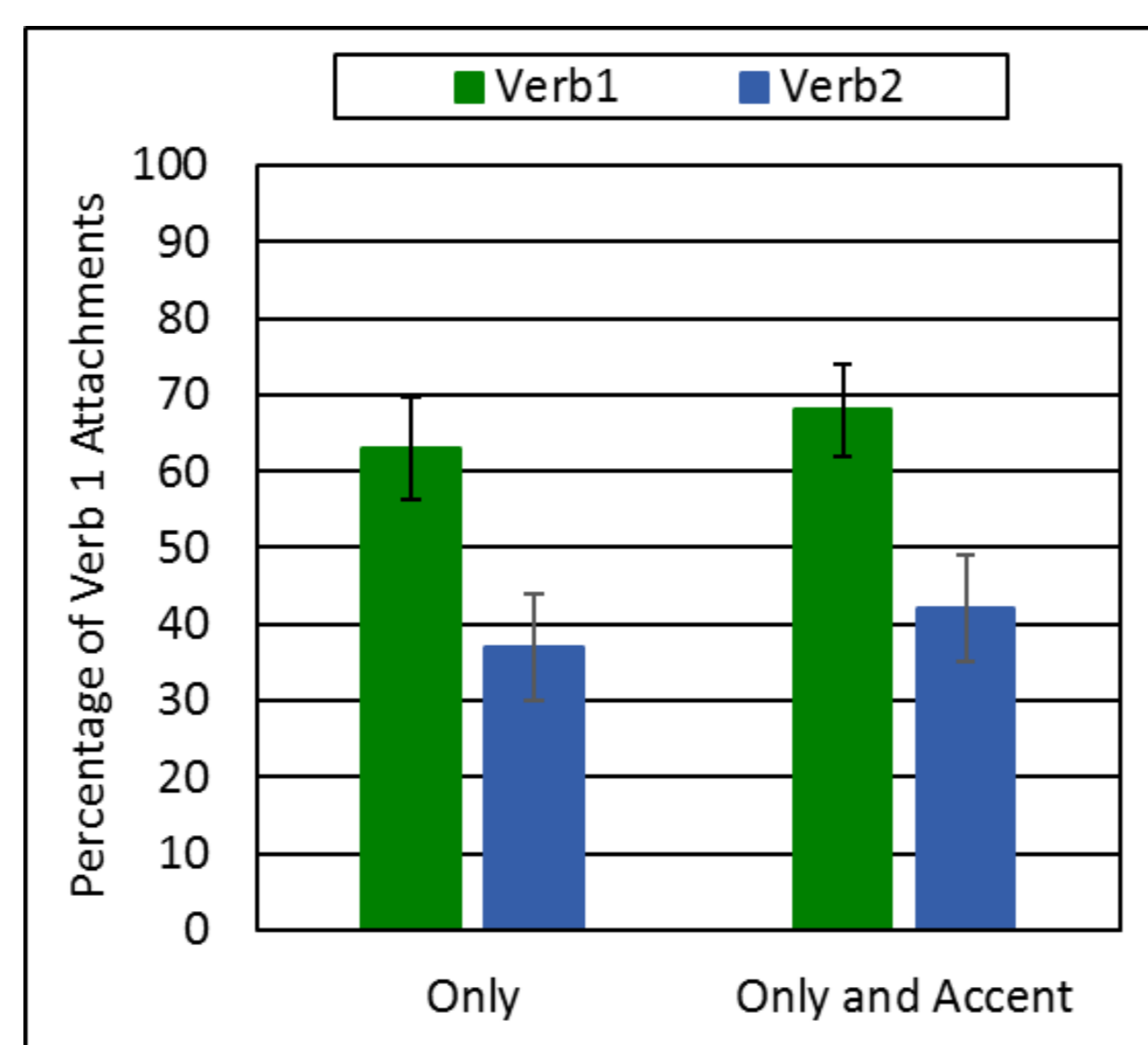
- (2) a. Sammy *only* heard that Bill had called ip on Monday.
- b. Sammy *only* HEARD that Bill had called ip on Monday.
- c. Sammy heard that Bill had *only* called ip on Monday.
- d. Sammy heard that Bill had *only* CALLED ip on Monday.



- Participants were asked "What happened?" and given choices as in (3):
 - (3) a. Sammy heard something on Monday. [high attachment]
 - b. Bill called on Monday. [low attachment]
- 52 participants on AMT, 20 items, among 79 filler items.
- In previous studies, these sentences got 10%-30% high attachment responses, higher with a pre-PP boundary and higher with V1 accent.

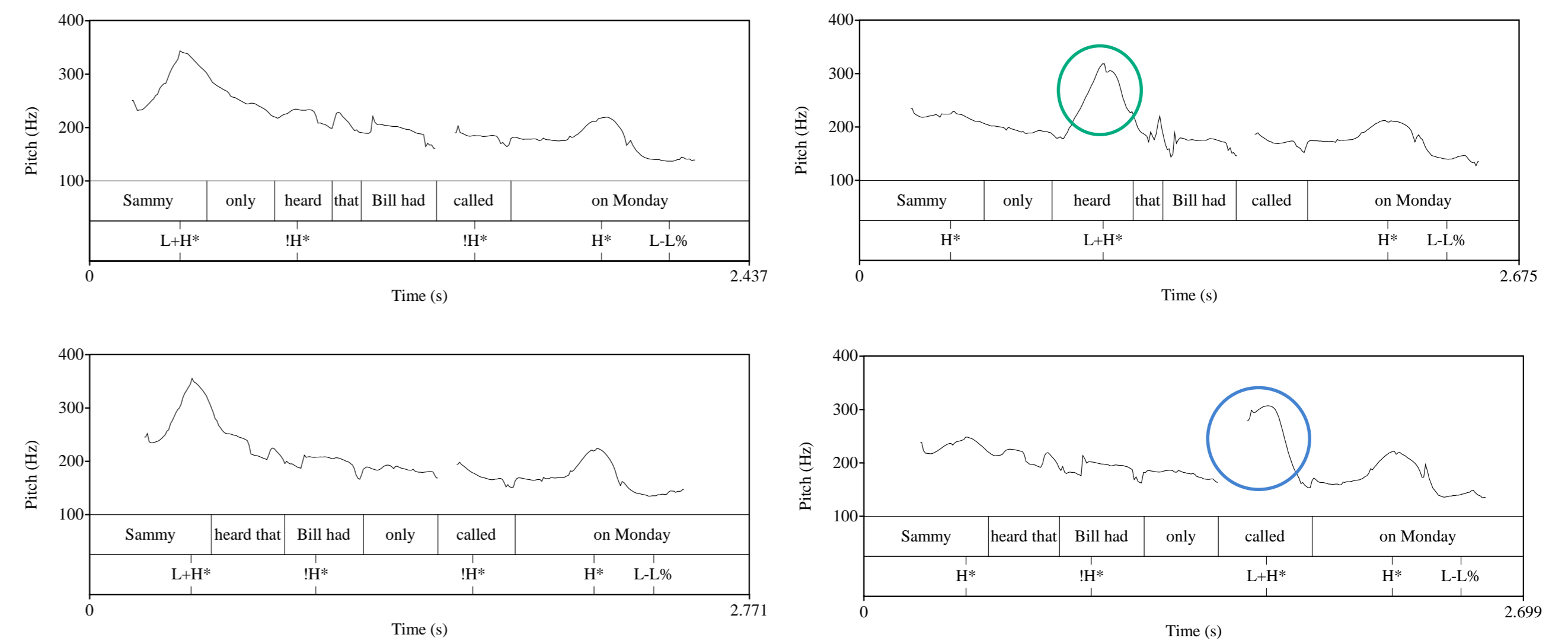
Results for Experiment 1

- Significant effect of focus particle position on attachment: *only* before Verb1 increased high attachments ($\beta = -0.26 \pm 0.05$, $\chi^2 = 22.69$, $p < .001$).
- Accents on either verb increased high attachments numerically ($\beta = -0.05 \pm 0.03$, $\chi^2 = 3.41$, $p < .065$; no significant interaction).
- Effects of *only* in the same direction but larger than previous effects of accent on verbs (5-10%).
- Only* before V1 seems to associate with V1 regardless of accent. It is less clear what *only* before V2 is doing, given relatively high rate of V1 attachments.



Experiment 2

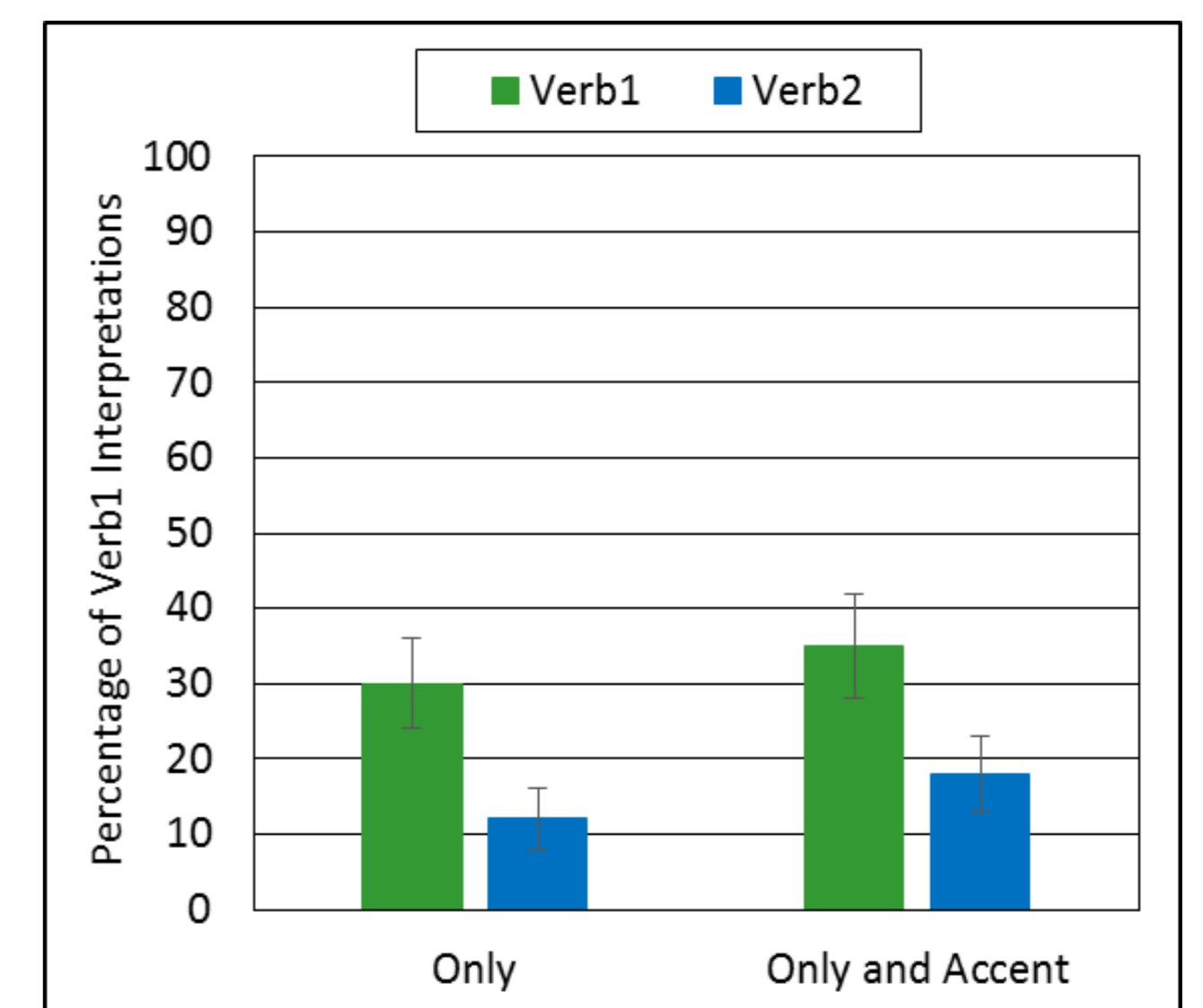
- Did the prosodic boundary in Experiment 1 unfairly bias toward high attachments? Do focus particles still draw attachment in the absence of a prosodic boundary?
- Ambiguous adjunct sentences as in (4) were produced with *only* alone, or *only* and accents, on Verb1 or Verb2; no prosodic boundary preceded the PP.
 - (4) a. Sammy *only* heard that Bill had called on Monday.
 - b. Sammy *only* HEARD that Bill had called on Monday.
 - c. Sammy heard that Bill had *only* called on Monday.
 - d. Sammy heard that Bill had *only* CALLED on Monday.



- Participants were asked comprehension questions with the same paraphrase answers as (3).
- 52 participants on AMT, 20 items, amidst 79 filler items (not the same participants or fillers as Experiment 1).

Results for Experiment 2

- Significant effect of *only* position on attachment: *only* before Verb1 raised high attachments ($\beta = -0.18 \pm 0.04$, $\chi^2 = 15.68$, $p < .001$).
- Accents on either verb slightly raised high attachments ($\beta = -0.06 \pm 0.02$, $\chi^2 = 5.27$, $p = .022$; no interaction).
- As expected, lack of prosodic boundary lowered overall rate of high attachments.
- Effects of focus particle still relatively robust, and V2 accent still didn't increase low attachments.



Conclusions

- Experiments 1-2 show that the focus particle *only* influences attachment. Effects were larger than effects of accent (Carlson & Tyler 2017).
 - Accenting a verb marked with *only* did not lead to additive effects of focus marking. Accents were almost redundant with *only* present.
- The results support the Focus Attraction Hypothesis (Schafer et al. 1996; Carlson & Tyler 2017): Attachment sites that are focused attract ambiguous modifiers because focus makes their phrases important to the main assertion of the sentence.
- Following research will test additional conditions of *only* placement and accent placement in order to tease apart effects of particle placement and association with focus effects.

- Carlson, K., Clifton, Jr., C., & Frazier, L. (2001). Prosodic boundaries in adjunct attachment. *Journal of Memory and Language*, 45, 58-81.
- Carlson, K., & Tyler, J. (2017). Accents, not just prosodic boundaries, influence syntactic attachment. *Language and Speech*, 1-31.
- Lee, E.-K., & Watson, D. G. (2011). Effects of pitch accents in attachment ambiguity resolution. *Language and Cognitive Processes*, 26, 262-297.
- Schafer, A. J., Carter, J., Clifton, C., Jr., & Frazier, L. (1996). Focus in relative clause construal. *Language & Cognitive Processes*, 11, 135-163.
- Watson, D., & Gibson, E. (2005). Intonational phrasing and constituency in language production and comprehension. *Studia Linguistica*, 59, 279-300.

Celebration of Student Scholarship, Morehead State University (Spring 2018)

Research Support: NICHD 2R15HD072713-02, NIH 5P20GM103436-13

Thanks to Lyn Frazier, David Potter, and Chuck Clifton for discussion of these results, and to David Potter for statistical analyses.

Thanks to Katherine Griffiths for assistance with experiments.