

Comparing Off- and On-line Measures of AAE- and SAE-speaking-children's Comprehension of SAE Tense

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Abstract:

In this project we investigate how 1st and 2nd grade speakers of African American English (AAE) and Standard American English (SAE) comprehend and process SAE tense morphology. We found that when correct comprehension depended on an understanding of SAE tense morphology, SAE-speakers show higher comprehension than AAE-speakers. This suggests that AAE- and SAE-speaking children utilize the morphological markers of their native linguistic system. Data from the eye-tracking study show that SAE-speakers rapidly and successfully integrate SAE past tense –ed, and future tense contracted –l during sentence comprehension, whereas an understanding of present tense 3rd person –s is still developing between 1st and 2nd grade in SAE-speakers.

Introduction:

This project investigates how 1st and 2nd grade speakers of African American English (AAE) and Standard American English (SAE) comprehend SAE tense morphology. Although AAE and SAE share many phonological forms, they differ substantially in their morphosyntax (Labov, 1972). Of relevance here, SAE 3rd person singular present –s, future contracted –l, and past allomorphs –t/d do not regularly appear in the surface form of AAE. It is not clear whether these SAE morphemes are simply not part of AAE or occur but function differently. In either case, it is likely that SAE tense markers are not processed as tense markers by AAE-speakers during comprehension. Thus, we would expect to see differences in the meanings AAE- and SAE-speakers assign to sentences when comprehension hinges on understanding SAE tense morphology. In contrast, we would not expect these differences when overt lexical cues to tense are available, as words like *yesterday* and *tomorrow* occur and have the same meanings in AAE and SAE.

Research Question:

How do AAE- and SAE-speakers make use of SAE tense morphology (i.e., past tense –ed, 3rd person present tense –s, and future tense contracted –l)?

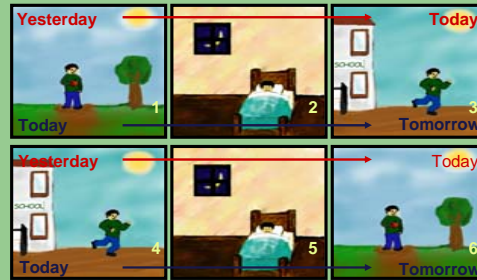
Two studies examine this question. **Study 1**, an off-line picture selection task, investigates the overall meaning that AAE- and SAE-speaking children extract from sentences containing lexical and morphological temporal information. **Study 2**, an eye-tracking study, investigates the on-line processing of lexical and morphological cues to tense in SAE-speaking children. (Data collection with AAE-speaking children is just beginning.)

Study 1:

Participants: 23 1st graders (11 AAE; 12 SAE) and 22 2nd graders (11 AAE; 11 SAE)

Task: Participants are asked to select the picture from a set that best matches a spoken SAE sentence. In test sentences the only information about time is SAE tense morphology (e.g., –ed). Control sentences contain overt lexical temporal words (e.g., *yesterday*, *tomorrow*) in addition to the tense morphology. The dependent variable is picture choice.

Stimuli: Participants are presented with picture sets containing 3 pictures: The left and right pictures show different activities (e.g., carrying and running) separated by a picture of sleeping. Participants are trained that sleeping marks the boundary between yesterday (left) and today (right) in the past/present condition, and the boundary between today (left) and tomorrow (right) in the present/future condition. See above for an example picture set and example sentences (past/present is represented in red and present/future is represented in blue).



He carried the apple.

(Target = 1, Action Competitor = 6, Time Competitor = 4, Incorrect = 3)

He'll run from school.

(Target = 3, Action Competitor = 4, Time Competitor = 6, Incorrect = 1)

Results – Study 1:

• All participants performed significantly better on control versus test items ($t(1,39) = 10.60, p < .001$). (Data not shown. All groups > 77% on control items.)

Past –ed & Future –ll:

• 1st & 2nd grade AAE-speakers have significantly lower comprehension scores than 1st and 2nd grade SAE-speakers (–ed : $F(1,39) = 7.31, p < .05$; –ll, $F(1,39) = 18.83, p < .001$)

Present –s:

• No significant difference between 1st grade SAE & AAE speakers ($F(1,33) = 0.09, p = ns$)

• 2nd grade SAE-speakers have significantly higher comprehension scores than 2nd grade AAE-speakers ($F(1, 39) = 7.34, p < .05$)

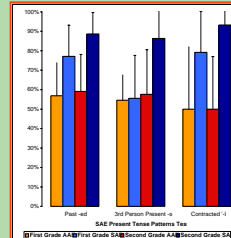


Figure 1: Mean percentage correct for AAE and SAE speakers by grade level and affix tested

Study 2:

Participants: 5 1st graders and 3 2nd graders (all SAE)

Task and Stimuli: The same as in Study 1, but here participants are eye-tracked using ASL Eye-Trac Model 6R during picture selection. Participants are also asked to give a behavioral response to score trials as correct and incorrect.

Results – Study 2:

Past –ed:

• Both 1st and 2nd graders have significantly more looks to target than action and time competitors by 500 ms after the point of disambiguation (PoD) (–ed start)

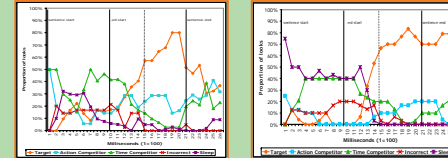


Figure 2: Mean proportion of looks by 1st grade SAE-speakers for –ed Target v. Action Competitor ($t(1,4) = 3.51, p < .05$) and Target v. Time Competitor ($t(1,4) = 3.26, p < .05$)

Figure 3: Mean proportion of looks by 2nd grade SAE-speakers for –ed Target v. Action Competitor ($t(1,3) = 3.51, p < .05$) and Target v. Time Competitor ($t(1,4) = 7.06, p < .05$)

Future –ll:

• Both 1st and 2nd graders have significantly more looks to target than action and time competitors by 900 ms after the PoD (verb start)

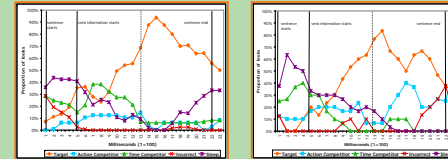


Figure 4: Mean proportion of looks by 1st grade SAE-speakers for –ll Target v. Action Competitor ($t(1,4) = 3.1, p < .05$) and Target v. Time Competitor ($t(1,4) = 5.06, p < .05$)

Figure 5: Mean proportion of looks by 2nd grade SAE-speakers for –ll Target v. Action Competitor ($t(1,3) = 7.06, p < .05$) and Target v. Time Competitor ($t(1,4) = 13.12, p < .05$)

Present –s (Correct Trials):

• 1st graders have significantly more looks to target than time competitor by 700 ms after the PoD (–s start) and action competitor by 1300 ms after the PoD (s-start)

• 2nd graders have significantly more looks to target than action and time competitors by 700 ms after the PoD (–s start)

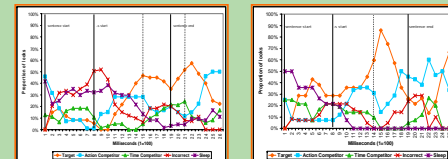


Figure 6: Mean proportion of looks by 1st grade SAE-speakers for correct –s trials (Target v. Action Competitor ($t(1,4) = 4.57, p < .05$) and Target v. Time Competitor ($t(1,4) = 2.90, p < .05$))

Figure 7: Mean proportion of looks by 2nd grade SAE-speakers for correct –s trials (Target v. Action Competitor ($t(1,3) = 3.56, p < .05$) and Target v. Time Competitor ($t(1,3) = 5.06, p < .05$))

Results – Study 2 (cont.):

Present –s (Incorrect Trials):

• For incorrect trials, 1st and 2nd graders do not look at the target significantly more than the action and time competitors

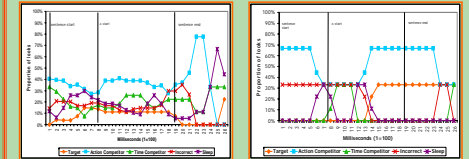


Figure 8: Mean proportion of looks by 1st grade SAE-speakers for incorrect –s trials

Figure 9: Mean proportion of looks by 2nd grade SAE-speakers for incorrect –s trials

Conclusion:

Study 1

• 1st and 2nd grade AAE- and SAE-speakers utilize their native morphological system during comprehension

• Understanding of SAE 3rd person present –s is still developing for SAE-speakers during this time (See also Johnson, deVilliers, & Seymour, 2005)

Study 2

• 1st and 2nd grade SAE-speakers rapidly integrate SAE –ed and –ll information during sentence comprehension

• 1st grade SAE-speakers appear to be sensitive to SAE 3rd person present tense –s information:

Differences in the looking patterns between 1st graders present –s correct and incorrect trials suggest that:

(1) comprehension errors are not random: when participants are already looking at the action competitor they fail to integrate –s information, in contrast, when looking elsewhere –s information is successfully integrated

(2) –s may not be as strong a cue as –ed and –ll

References and Acknowledgements:

- Johnson, V.E., de Villiers, J.G., & Seymour, H.N. (2005). Agreement without understanding? The case of third person singular /s/. *First Language* 25(3), 317-330.
- Labov, W. (1972). *Language in the inner city: Studies in the Black English Vernacular*. Philadelphia: University of Pennsylvania Press.
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