

Misinterpretation of African American English Bin by Adult Speakers of Standard American English

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Abstract: *African American English (AAE) and Standard American English (SAE) share many cognates (forms similar in phonology and function) while differences are often masked by false cognates (forms similar in phonology but different in function). Because false cognates are interpretable via a listener's own variety, this likely impacts performance on language-based tests. This study investigates how adult SAE- (n = 24) and AAE-speakers (n = 24) process BIN, an AAE tense/aspect marker. In AAE, stressing BIN indicates the remote past; when unstressed, been indicates the recent past. Results show that while both AAE- and SAE-speakers can perceive and produce the phonetic cues that differentiate BIN and been, only the AAE-speakers accurately infer that BIN corresponds to the remote past.*

Keywords: African American English, BIN, Quasi-foreign Language Situations, False Cognates (Camouflaged Forms), Educational Equity

1. INTRODUCTION.

African American English (AAE) and Standard American English (SAE) are two varieties of English spoken in the United States. These two linguistic systems are closely related and share many lexical items (Green, 2002) and basic sentence structure (Martin and Wolfram, 1998). Despite surface similarity, there are systematic and consistent differences between AAE and SAE (see e.g., Green, 2002; Rickford, 1999, for a summary of these differences). In particular, not all shared forms are cognates – lexical items similar both in form (phonology) and function (meaning, syntactic behavior). Rather, camouflaged forms are false cognates, which, while similar in form, differ in their function in each variety.¹ Mufwene et al. (1998) and Winford (1992) independently describe the relevant historical and linguistic circumstances through pidginization and creolization that gave rise to AAE, which resulted in unique grammatical interpretations of selected SAE items as camouflaged forms, such as come (Spears, 1982), steady (Baugh, 1984), be (Rickford, 1996), and done (Labov, 1972), in addition to BIN, the focus of the present paper.

Unlike non-cognates, which do not have the same form or function in both varieties, false cognates can go unnoticed or simply be ignored, resulting in unresolved structural conflict: an interference in both language production and language comprehension that stems from a mismatch between linguistic structures (Labov, 1972). Because of these characteristics, Stewart (1964) referred to AAE as a quasi-foreign language situation when describing how best to teach SAE to students who spoke Nonstandard English.

Much prior research has focused on how linguistic differences between AAE and SAE impact language processing, and in particular whether AAE-speakers, when compared to SAE-speakers, are negatively affected when processing SAE.

When false cognates are described in the second language (L2) literature, camouflaged forms are also described as faux amis (i.e., false friends), because L2 learners often equate the meaning of the word (i.e., the false friend) from the L2 with a word that likely shares an identical spelling from their first language (L1). For example, gift, is a faux amis for a German learner of English, as Gift in German (L1) means poison, while in English (L2) it does not.

This work is often targeted at understanding whether linguistic differences contribute to the educational difficulties many AAE-speakers face (e.g., Beyer and Hudson Kam, 2012; de Villiers and Johnson, 2007; Labov, 1972, 1995; Roy, 1987). While the majority of prior research shows that AAE-speakers typically perform worse with SAE than their SAE-speaking peers, this work faces two potential criticisms. First, any differences in performance can be dismissed (unfairly) as stemming from underlying differences in ability. Second, the lower performance by AAE-speakers implicitly reflects a notion of deficit, as AAE-speakers are assessed on SAE forms and compared to SAE-speakers. In the current study, we address both issues by flipping the script to examine how SAE-speakers interpret AAE as compared to AAE-speakers.²

Flipping the script is important because although most studies examining the role of linguistic differences attempt to equate AAE- and SAE-speakers at the group level, it is nearly impossible to do so perfectly. Thus, although studies have observed linguistic factors impacting performance, it remains unclear whether (or how) that performance may have been further influenced by other possible between-group factors – such as racism, stigma, or SES. In order to claim that language itself is the critical force driving the differences in performance, it would be necessary to also observe SAE-speakers performing worse, relative to AAE-speakers, on AAE-based tasks. Here, we capitalize on the fact AAE's grammar differs in systematic ways from SAE to investigate precisely that question. In this way, we are able to rule out the impact of other, possibly confounding, factors and investigate exclusively the impact of linguistic differences on language processing in a quasi-foreign language situation.

1. Language processing in a quasi-foreign language situation: theory and implications for education³

In true foreign language situations, where there is little, if any, similarity between the languages, learners may not initially be able to interpret or produce any aspects of the second language (L2). L2 is thus viewed, and acquired, as a separate linguistic system. This is very different from what is observed in quasi-foreign language situations, which introduce a unique set of language processing challenges due precisely to the high degree of similarity between the linguistic systems involved.

The more closely related two linguistic systems are, the more difficult it may be to keep the systems apart: overlapping structures may be merged and minor differences may be ignored (Lin, 1965; Shuy, 1971; Wolfram and Schilling-Estes, 1998). Because the differences that do exist between the systems are often masked by false cognates, this may lead to interference (negative transfer) in which confusion arises between the two varieties, resulting in the forms of one variety being used inappropriately in the other variety (Ellis, 1994).

Such confusion is often observed with AAE and SAE. Separating the two varieties may be particularly problematic for AAE-speakers, as AAE uses some aspects of SAE, which may lead AAE-speakers to mistakenly assume that they already know SAE. In a quasi-foreign language situation actual language distance may therefore not be as important in language learning as psychotypology – a speaker's perception about the distance – and whether they believe there are differences to be learned (Kellerman, 1977). Thus, educators and students alike may be using seemingly identical forms, but with different intended functions. Worse, the similarities between AAE and SAE may prevent AAE-speaking students from even realizing that some SAE forms encountered in the classroom are functionally different from the AAE forms used at home. Because these subtle misinterpretations can go unnoticed, they may result in only partial understanding, a phenomenon referred to as pseudo-comprehension (Stewart, unpublished remarks, cited in Roy, 1987).

The implication is that while speakers may be aware that some differences exist, pseudo-comprehension can mask how these differences function in each variety. For instance, when SAE-speakers attempt to speak AAE, they typically use features that are stereotypically associated with AAE (e.g., absence of copula) but do so in incorrect or inappropriate ways (Bucholtz, 1999). Similarly, although AAE-speaking children have been shown to decrease the number (but not types) of AAE morphosyntactic (e.g., absence of copula) and phonological features (e.g., consonant cluster reduction) between kindergarten and 3rd grade (Craig et al., 2003; Craig and Washington, 2004), it is unclear whether this decrease in AAE features is coupled with an increase in understanding how SAE features function (see e.g., Beyer and Hudson Kam, 2012). Instead it could be that the grade-related shift described by Craig and colleagues reflects a child's transition to using features appropriate of adolescent and adult AAE, and not an actual decrease in AAE (Green, 2011). Thus, it remains unclear whether AAE-speaking children are actually shifting away from AAE or are simply acquiring more sophisticated rules on what features are to be used in what linguistic environments. In other words, speakers may attempt to speak the other variety by learning new pronunciations or features, yet continue to use them according to their existing linguistic system.

Williams (1972) flipped the script by creating the Black Intelligence Scale of Cultural Homogeneity (BITCH). The BITCH-100 is a standardized, culture-specific test which examines knowledge of, and familiarity with, African American culture and language. When administered to European American and African American participants, performance was bimodal such that the African Americans, as a group, scored significantly higher than the European Americans. This provides strong evidence that the linguistic system a test deems "correct" can alter performance at the group level.

2 The type of quasi-foreign language situation described in this paper is also referred to as bidialectalism in the literature (see e.g., Mordaunt, 2011; Roy, 1987; Sledd, 1969). Bidialectalism refers to using two dialects (e.g., AAE and SAE) of the same language (e.g., English), and more specifically in this context, the view that SAE should be systematically taught to children who speak non-standard dialects, such as AAE (see e.g., Sledd, 1969). While bidialectalism and quasi-foreign language situation are somewhat synonymous in this context, the term quasi-foreign language situation is used in this paper in order to more clearly juxtapose the language learning situation of bidialectal individuals and those learning a foreign language.

2. PERFORMANCE IN THE OTHER VARIETY.

Previous studies that have examined how linguistic differences influence performance have typically focused on the systematic differences between the AAE and SAE tense and aspect systems. In addition, most studies have investigated how young AAE-speaking children interpret SAE. This is because researchers are interested in how linguistic differences impact the educational success of young AAE-speaking students as they encounter SAE in the learning environment. However, this also means that we know very little about how SAE-speakers produce and interpret AAE, the focus of the current study. The following sections outline prior research on how differences in the tense and aspect systems of AAE and SAE influence performance for speakers of the other variety.

2.1. PERFORMANCE IN SAE BY AAE-SPEAKERS.

Previous research has mainly investigated how SAE tense morphemes – past tense –ed (He played ball), 3rd person presents (He plays ball), and the contracted form of will (–'ll; He'll play ball) – impact performance. While these tense morphemes are

obligatory in SAE, they are not required in AAE and only variably appear in its surface form, if at all (Ball, 1994; Fasold and Wolfram, 1970; Green, 2002; Labov, 1972; Torrey, 1972). Such differences may lead to pseudo-comprehension for AAE speakers – while specific tense morphemes may be different, the lexical items that they modify are more or less shared between the varieties. Because only a few morphemes in the utterance differ, the main content of the utterance may be understood, while details of when or how it occurred remain misunderstood.

In order to assess how AAE-speakers comprehend spoken SAE, researchers typically use picture-choice tasks in which participants are presented with SAE sentences and asked to select the picture(s) that best matches the sentence. When SAE tense morphology is necessary for correct picture selection, young AAE-speakers perform worse than their SAE-speaking peers (see e.g., Ball, 1994; Beyer and Hudson Kam, 2012; de Villiers and Johnson, 2007; Johnson, 2005; Nelson and McRoskey, 1978; Torrey, 1972).

A similar trend is found for the production of SAE in sentence imitation tasks. When sentences are presented in SAE and contain features that contrast in the two varieties (e.g., tense morphology), SAE-speakers usually repeat the sentences verbatim, while AAE-speakers generally change such sentences to be more congruent with AAE grammar and phonology (Baratz, 1969; Beyer and Hudson Kam, 2012; Charity, Scarborough, & Griffin, 2004; Piestrup, 1973). This calls into question the productive control young AAE-speakers have of specific SAE grammatical features.

2.2. PERFORMANCE IN AAE BY SAE-SPEAKERS.

In comparison to SAE, the AAE tense and aspect system makes more numerous and fine-grained distinctions and often uses different morphemes or aspectual markers (Fasold and Wolfram, 1970; Green, 2002; Labov, 1972; Rickford, 1999). For example, in AAE one can indicate that an activity or state began in the remote past by adding prosodic stress to the word ‘been’ as in “He BIN playing ball” (Green, 1998; Labov, 1972; Rickford, 1975; Stewart, 1964). This version of ‘been’ is referred to as stressed BIN, or simply BIN, to distinguish it from the same word produced without prosodic stress (unstressed been or been; Green, 1998; Rickford, 1975). Because the remote past is relative, BIN can refer to 10 min or 10 years ago (Green, 1998). In addition to denoting that an activity or state began in the remote past, BIN can also indicate that an activity or state has continued for longer than is expected or appropriate (Green, 1998). BIN therefore differs phonetically and semantically from been as in (1):

- (1) a. Chad BIN using that cell phone.
‘Chad has been using that cell phone for a long time’
- b. Chad been using that cell phone.
‘Chad has been using that cell phone’

As the glosses demonstrate, SAE can only convey a remote past reading by including time adverbials (e.g., for a long time, a long time ago) in the utterance. In contrast, AAE can convey a remote past reading simply by using BIN, which generally contraindicates the use of any time adverbials (Green, 1998; Rickford, 1975). Adding stress to BIN is therefore phonemic, altering the meaning of this word in AAE, but not in SAE (Rickford, 1975). The remote past meaning of BIN is likely an original reinterpretation of “been” that incorporated phonemic stress from the African languages spoken by slaves who first encountered “been” (Rickford, 1975). Thus, although BIN captures a meaning that SAE can encode, SAE-speakers may not grasp this meaning when they encounter BIN in the absence of time adverbials.

Indeed, Rickford (1975) reports that when presented with sentences that contain BIN, 87% of AAE-speakers interpret these sentences to indicate the remote past, but only 37% of SAE-speakers do. In a more recent study, Green and Roeper (2007) tested the comprehension of BIN in 3- to 5-year-old AAE-speaking children by presenting them with scenarios in which some characters were in a state, or engaged in an activity, for a longer time than other characters. When asked who BIN in the state/activity, even the youngest AAE-speaking children understood that BIN corresponded to the remote past, and this understanding increased with age (Green and Roeper, 2007). In addition, AAE-speaking children spontaneously produce BIN in appropriate ways by age 5 (Green, 2011).

3. THE PRESENT STUDY.

This study was designed to expand previous research in two main ways. Unlike most previous work, this study investigates how adults, not children, interpret AAE. This is important because poor performance in children can be attributed in part to the fact that they are still in the process of acquiring their linguistic system(s) (see also Green, 2011). For example, even 6-year-old SAE-speaking children have difficulty in interpreting some SAE tense morphemes such as 3rd person presents (Beyer and Hudson Kam, 2009; Johnson et al., 2005). Thus, previously observed difference in performance may be due to linguistic differences, maturational differences in how well children can use the adult model, or some interaction between the two. For this reason we test AAE- and SAE-speaking adults who should have internalized their respective adult systems.

Secondly, as discussed above, this study flips the script, asking how SAE-speakers process AAE relative to AAE-speakers. Specifically, we investigate how adult AAE- and SAE-speaker process BIN, a tense marker that exists in AAE, but not SAE. We assessed whether participants could perceive, produce, and comprehend the difference between BIN and been. If linguistic

differences are indeed a main driving force in how the other variety is processed, we expect SAE-speakers to perform worse relative to the AAE-speakers. While both AAE- and SAE-speakers should be sensitive to phonetic differences in terms of perception and production, it is unclear whether SAE-speakers are able to detect that stress is phonemic when used with *been*. If our findings show that only AAE-speakers accurately infer that sentences containing BIN refer to the remote past, then SAE-speakers will be shown to be unaware that stress actually alters the meaning of this word in AAE.

4. METHODS.

4.1. PARTICIPANTS.

Forty-eight adults participated in this study. Participants self-identified into one of two language groups: the AAE-speaking group (speaks AAE, may or may not identify as an SAE-speaker), and the SAE-speaking group (speaks SAE, does not identify as an AAE-speaker). There were 24 participants in the AAE-speaking group (8 males, 16 females, $M_{age} = 26.79$), and 24 participants in the SAE-speaking group (9 males, 15 females, $M_{age} = 20.25$). Of the AAE-speaking group, 22 identified as African American/Black, 1 as Mixed/Multi-racial, and 1 as Other. Of the SAE-speaking group, 15 identified as White, 1 as African American/Black, 2 as Asian, 1 as Hispanic/Latino, 1 as Native Hawaiian/Other Pacific Islander, 3 as Mixed/Multi-racial, and 1 as Other.

Participants were recruited from the University of Puget Sound subject pool and from the surrounding community via flyers and personal contacts. Participants from the subject pool received course credit; off-campus participants received \$20 in compensation for their time.

4.2. STIMULI.

Seventy-two sentences (36 test, 36 filler) were created for the various experimental tasks; please see the Appendix for a representative set of sentences. The test sentences contained the word *'been'* while the fillers did not. In the test sentences, *'been'* was always followed by a verb in the progressive to constrain the possible interpretations of the sentence (see Green, 1998, for a discussion on how predicate type can influence how BIN is interpreted). We employed phonological masking so that when spoken, all sentences were grammatical in both AAE and SAE; please see the Appendix for details. Because of phonological masking, any behavioral differences can be attributed to how participants interpreted the sentences and not issues of grammaticality. In addition, time adverbials were appended to the end of each sentence. For the test sentences, time adverbials corresponded to the remote past (e.g., three years ago) or the recent past (e.g., yesterday). For the fillers, time adverbials corresponded to the present (e.g., today), near future (e.g., tomorrow), or distant future (e.g., in three years).⁴

All sentences were recorded in a single two-hour recording session by a 20-year-old female who self-identified as a balanced bidialectal speaker (i.e., as a native speaker of both AAE and SAE). Prior to recording, the speaker familiarized herself with the sentences and provided feedback to make the sentences sound more natural from an AAE perspective. While the speaker reported feeling comfortable using both varieties, she used more AAE features in her speech during conversation and during recording. In order to make the recording more natural, the speaker was asked to first produce a context sentence (e.g., "Oh, since when does Collette dance salsa?") followed by a test or filler sentence and corresponding time adverbial. Although BIN is usually restricted from co-occurring with time adverbials, it can co-occur with time adverbials if a prosodic break separates BIN and the time adverbial (Green, 1998; Rickford, 1975). We therefore instructed our speaker to insert a prosodic break between the main clause and the time adverbials in order to record both BIN and time adverbials in the same sentence (e.g., "Collette BIN dancing salsa, for 15 years."). The speaker was also instructed on how to use phonological masking to ensure that sentences were grammatically correct in both AAE and SAE. The speaker was asked to produce each context-test/filler sentence pair twice.

Neither AAE nor SAE differentiates near future and distant future in terms of tense morphology; these sentences can only be differentiated by time adverbials in both varieties. The reason we broke "future" into near and distant future categories was to mimic the division of "past" into the remote and recent categories and therefore reduce any overt attention to that differentiation.

After recording, all sentences were spliced from the larger sound file. For each sentence pair, we selected the version that sounded clearest and most natural and filtered it to eliminate any background noise. We then used the prosodic breaks between the main clause and the time adverbials to create two sentence pairs: one without a time adverbial, and one with a time adverbial. The tasks outlined below each used a subset of these sentences in various ways.

4.3. PROCEDURE.

After providing consent, participants completed a production task, followed by either a perception or comprehension task (the order of the tasks was counterbalanced), and finally a language background questionnaire. A SAE-speaking researcher tested participants individually on campus in a single, 60-min session. Computerized tasks were programmed using Inquisit.

4.3.1. PRODUCTION TASK.

Participants' abilities to produce BIN and been were assessed by comparing productions in a baseline task relative to a shadowing task. For the baseline task, participants read 21 sentences from a sheet of paper. Of these, 12 were test sentences that contained the word 'been'. The remaining 9 filler sentences did not contain the word 'been'. The order of the sentences was randomized and time adverbials were not appended to any sentence. Because there was no overt mention of time and because there were no orthographic differences for the word 'been' (i.e., BIN versus been), we did not expect participants to spontaneously produce any phonetic characteristics that would lend stress to 'been'. In contrast, we did expect participants to produce BIN and been in the shadowing task.

In the shadowing task, participants heard 36 pre-recorded sentences over headphones and were asked to repeat the sentences as they heard them. Of these, 18 were test sentences and contained 'been' (9 BIN, 9 been; 12 of these were repeated from the baseline task; 6 BIN, 6 been). The remaining 18 filler sentences did not contain 'been'. The order of the sentences was randomized for each participant.

Productions for the baseline and shadowing tasks were audio-taped using an Olympus DS-30 for later analysis. This allowed us to compare whether participants add stress to BIN relative to been and to the baseline task.

4.3.2. PERCEPTION TASK.

This task assessed participants' abilities to differentiate BIN and been tokens. Participants heard four types of pairs presented over headphones: (1) same been-been token (n ¼ 18), (2) same BIN-BIN token (n ¼ 18), (3) tokens that differed between category (been-BIN; n ¼ 9, BIN-been; n ¼ 9), and (4) tokens that differed within category (different been-been tokens; n ¼ 9, different BIN-BIN tokens; n ¼ 9). After hearing each pair, participants were instructed to indicate, via a button press, whether the two items were the same or different.

These pairs were constructed by splicing individual been and BIN tokens from the sentences recorded by the native AAE-speaker. Once individual tokens were spliced, they were combined into pairs and separated by 1000 ms of silence.

4.3.3. COMPREHENSION TASK.

In order to assess how participants interpret BIN and been, they were presented with 72 sentences over headphones and asked to decide when the action in the sentence started. The set of 72 sentences consisted of 36 test sentences and 36 fillers. Of the test sentences, 18 contained BIN and 18 contained been. Within each set of 18 sentences, 9 contained time adverbials (e.g., three years ago, yesterday), while the other 9 did not. The 36 filler sentences were comprised of 12 sentences corresponding to the present and 24 to the future (12 near future, 12 distant future). Half of the filler sentences contained time adverbials.

Recall that the same test sentence containing 'been' was recorded once with BIN and once with been by our speaker. In addition, the speaker appended time adverbials to each sentence. This resulted in four possible combinations for the same basic sentence based on whether BIN or been appeared and on the presence/absence of time adverbials. We counter-balanced the possible combinations for the test sentences and this resulted in four unique orders. Each participant completed one of these four orders; stimuli were randomized within each pre-determined order for each participant by Inquisit.

Prior to completing the actual comprehension task, participants completed three training phases. First, participants were instructed that they would listen to sentences and that they should indicate when the action in each sentence started as quickly and accurately as possible using a timeline provided on the computer screen. The timeline was split into 5 demarcations: (1) long time ago, (2) recent past, (3) today, (4) tomorrow, and (5) long time in the future. The button that corresponded to each demarcation was also shown. Participants were asked to familiarize themselves with the timeline, its demarcations, and corresponding buttons. This timeline was present on the computer screen for the duration of the comprehension task.

Next, participants were asked to listen to 10 practice sentences, all of which contained time adverbials. The purpose of this training phase was to familiarize participants with the timeline and provide practice at responding as quickly and accurately as possible. The final training phase consisted of 5 sentences that did not contain time adverbials. This training phase allowed participants to become familiar with listening to cues within each sentence that give information about when the action started. Once the training phases were completed, participants heard the 72 pre-recorded sentences over headphones. This task was self-paced; after making their selection participants moved to the next trial via a button press.

4.3.4. LANGUAGE BACKGROUND QUESTIONNAIRE.

This questionnaire assessed basic demographics (age, gender, ethnicity), as well as participants' self-reported ability to produce and comprehend AAE and SAE on a 7 point scale (1 ¼ poor, 7 ¼ excellent). In addition, participants were asked to indicate whether they had heard of BIN and used it in their daily speech.

5. RESULTS.

5.1. LANGUAGE BACKGROUND QUESTIONNAIRE.

Participants' self-reported language abilities and knowledge of BIN by language background are presented in Table 1. The AAE- and SAE-speakers did not differ in their self-reported production ($t_{(46)} \frac{1}{4} 1.07$, $p \frac{1}{4} .292$) or comprehension of SAE ($t_{(46)} \frac{1}{4} 1.49$, $p \frac{1}{4} .143$). However, AAE-speakers rated their abilities with AAE significantly higher than did the SAE-speakers both for production ($t_{(46)} \frac{1}{4} 6.93$, $p < .001$) and comprehension ($t_{(46)} \frac{1}{4} 4.49$, $p < .001$). Interestingly, the AAE- and SAE-speakers had similar distributions in their self-reported familiarity with BIN, $c^2(1, N \frac{1}{4} 48) \frac{1}{4} 0.12$, $p \frac{1}{4} .731$, however, the frequency of use of BIN between the AAE- and SAE-speakers was not equal, $c^2(1, N \frac{1}{4} 48) \frac{1}{4} 12.34$, $p < .001$. This suggests that while both groups report similar familiarity with BIN, the AAE-speakers report using BIN in everyday speech significantly more than the SAE-speakers.

5.2. PERCEPTION TASK.

This task tested participants' ability to discriminate four types of word pairs: (1) same been-been token, (2) same BIN-BIN token, (3) tokens that differed between category (e.g., been-BIN), and (4) tokens that differed within category (e.g., different been-been tokens). The proportion of correct responses for each pair type (same for same tokens, different for different tokens) was calculated for each participant by dividing the number of correct identification by the total number of trials. The between-subjects factor was language background and the repeated within-subjects factor was pair type. Fig. 1 shows mean percent correct identification for the four pair types by language background.

The overall ANOVA indicated that there was a significant main effect for pair type, $F_{(3,138)} \frac{1}{4} 78.62$, $p < .001$, but no significant main effect of language background, $F_{(1,46)} \frac{1}{4} 0.01$, $p \frac{1}{4} .948$, and no significant interaction between pair type and language background, $F_{(3,138)} \frac{1}{4} 0.04$, $p \frac{1}{4} .849$. Next we compared each pair type to isolate the significant main effect. Because no significant effects of language background emerged in the ANOVA analyses, we combined the data from both groups. A series of paired t-tests revealed no significant differences between the same been-been and same BIN-BIN pairs ($t_{(47)} \frac{1}{4} 1.57$, $p \frac{1}{4} .123$), however, the been-been pairs were correctly identified at significantly higher rates than the between category pairs ($t_{(47)} \frac{1}{4} 4.04$, $p < .001$) and within category pairs ($t_{(47)} \frac{1}{4} 10.40$, $p < .001$), and the BIN-BIN pairs were also correctly identified at significantly higher rates than the between category pairs ($t_{(47)} \frac{1}{4} 3.36$, $p < .001$) and within category pairs ($t_{(47)} \frac{1}{4} 10.29$, $p < .001$). Between category pairs were correctly identified at significantly higher rates than the within category pairs ($t_{(47)} \frac{1}{4} 11.09$, $p < .001$). These data indicate that all participants, regardless of language background, showed a similar pattern in identifying been tokens: identifying the same token in a pair is easiest, between category differences are intermediate, and within category differences are most difficult. Thus, while some differences between pairs are more difficult to perceive than other differences, all participants can hear the difference between different 'been' tokens. It is therefore unlikely that any systematic production or comprehension differences in our participants stem from differences in perception.

5.3. PRODUCTION TASK

To assess whether participants can produce the phonetic cues that lend stress to BIN they completed a baseline and a shadowing task. To our knowledge, no published study to date has assessed the phonetic cues that lend stress to BIN. Thus,

Table 1

Self-reported language abilities and knowledge of BIN by language background.

		AAE-speakers	SAE-speakers
Production	AAE	5.75 (0.26)	2.92 (0.31)
	SAE	5.71 (0.25)	6.04 (0.19)
Comprehension	AAE	6.21 (0.20)	4.54 (0.31)
	SAE	5.88 (0.28)	6.38 (0.18)
BIN Familiarity	Yes	18	19
	No	6	5
BIN Use	Yes	16	4
	No	8	20

Note. Production and comprehension abilities were assessed on a 7-point scale (1 ¼ poor, 7 ¼ excellent). Values enclosed in parentheses are standard error.

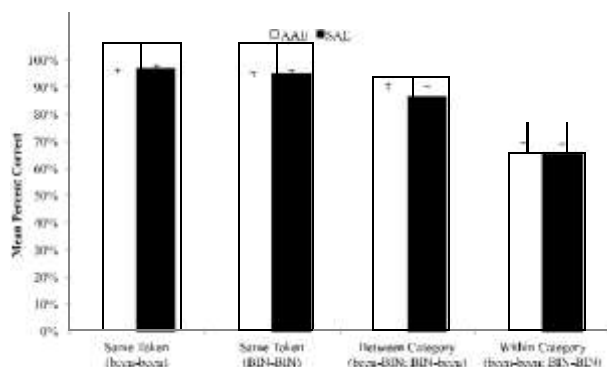


Fig. 1. Mean percent correct identification across 'been' pair type by language background.

Our analyses focused on duration (in ms) and loudness (in dB), two cues typically associated with stress (e.g., Ladefoged, 1975; Pickett, 1999). For each participant, we isolated every test sentence from the larger audio recording and measured the duration and loudness of the entire test sentence.⁵ Next, we isolated the word 'been' from each test sentence and calculated the duration and loudness of every 'been' token. In order to control for individual differences in speech, we calculated the duration and loudness proportion for each 'been' token relative to the sentence in which it occurred. Individual trials were then averaged for each participant, and we show the average proportion (in percent) for duration and loudness by language background in Table 2.

Duration and loudness were examined by separate ANOVAs. For each, the between-subjects factor was language background and the repeated within-subjects factor was 'been' type (Baseline, BIN, been). For duration, there was a significant main effect of 'been' type, $F_{(2,90)} \text{ } \frac{1}{4} 31.05$, $p < .001$, and no significant main effect of language background, $F_{(1,45)} \text{ } \frac{1}{4} 2.76$, $p \text{ } \frac{1}{4} .104$. However, there was a significant interaction between been type and language background, $F_{(2,90)} \text{ } \frac{1}{4} 4.05$, $p < .05$. As can be seen from Table 2, this interaction is due to the AAE-speakers producing a significantly longer BIN than the SAE-speakers ($t_{(45)} \text{ } \frac{1}{4} 2.99$, $p < .05$). There were no significant differences in duration between the AAE- and SAE-speakers for baseline ($t_{(45)} \text{ } \frac{1}{4} 0.94$, $p \text{ } \frac{1}{4} .354$) or been ($t_{(45)} \text{ } \frac{1}{4} 1.21$, $p \text{ } \frac{1}{4} .232$). This suggests that the AAE-speakers are quite sensitive to duration as a cue when producing BIN. However, it is not the case that the SAE-speakers do not increase duration for BIN during shadowing; in fact the AAE- and SAE-speakers show similar patterns and produce significantly longer BIN than baseline (SAE-speakers: $t_{(23)} \text{ } \frac{1}{4} 2.21$, $p < .05$; AAE-speakers: $t_{(22)} \text{ } \frac{1}{4} 7.82$, $p < .001$), significantly longer BIN than been (SAE-speakers: $t_{(23)} \text{ } \frac{1}{4} 5.69$, $p < .001$; AAE-speakers: $t_{(22)} \text{ } \frac{1}{4} 5.84$, $p < .001$), and no significant differences between baseline and been (SAE-speakers: $t_{(23)} \text{ } \frac{1}{4} 1.52$, $p \text{ } \frac{1}{4} .143$; AAE-speakers: $t_{(22)} \text{ } \frac{1}{4} 0.71$, $p \text{ } \frac{1}{4} .486$). Thus, both groups of speakers show the same general duration patterns during shadowing, but the AAE-speakers alter their productions for BIN more so than the SAE-speakers do.

For loudness, there was a significant main effect of 'been' type, $F_{(2,90)} \text{ } \frac{1}{4} 15.53$, $p < .001$, and a significant main effect of language background, $F_{(1,45)} \text{ } \frac{1}{4} 9.84$, $p < .05$, but no significant interaction between 'been' type and language background, $F_{(2,90)} \text{ } \frac{1}{4} 2.73$, $p \text{ } \frac{1}{4} .07$. The main effects reveal that the AAE-speakers were significantly louder than the SAE-speakers across 'been' type, but that across speakers, BIN was significantly louder than baseline ($t_{(46)} \text{ } \frac{1}{4} 4.53$, $p < .001$) as well as been ($t_{(46)} \text{ } \frac{1}{4} 5.10$, $p < .001$) while baseline and been were not significantly different ($t_{(46)} \text{ } \frac{1}{4} 1.93$, $p \text{ } \frac{1}{4} .060$).

In general then, the AAE- and SAE-speakers show similar patterns in their productions. However, the AAE-speakers, who are likely producing a known difference, alter their duration of BIN significantly more so than the SAE-speakers.

5.4. COMPREHENSION TASK.

After hearing each sentence, participants were asked to identify whether the action in the sentence began in the (1) remote past, (2) recent past, (3) present, (4) near future, or (5) distant future. Control sentences ended with time adverbials that provided information as to when the action in the sentence began (e.g., three years ago, tomorrow). Test sentences did not contain time adverbials and participants had to rely on other cues to time, i.e., BIN versus been. (Filler sentences corresponding to the present, near future, and distant future are not included in the analyses.) The proportion of correct responses for control and test sentences for each of the five time options was calculated for each participant by dividing the number of correctly identified sentences by the total number of trials. The between-subjects factor was language background and the repeated within-subjects factor was 'been' type. The proportion (in percent) of correct responses for control and test sentences is shown in Fig. 2.

⁵ Due to audio-recording failure discovered after testing, the data from one AAE-speaker is excluded from these analyses. The perception and comprehension data from this participant is included resulting in different n's for the production task relative to the perception and comprehension tasks.

Table 2

Average differences in the duration and loudness proportion (% (SEM)) of 'been' type (Baseline, BIN, been) by language background.

'been' type	AAE-speakers		SAE-speakers	
	Duration	Loudness	Duration	Loudness
Baseline	8.00 %	(0.29)0.83% (0.56)	8.40% (0.32)	1.60% (0.60)
been	8.33 %	(0.38)1.03% (0.35)	7.78% (0.26)	0.41% (0.43)
BIN	10.7 3%	(0.30)1.93% (0.29)	9.49% (0.29)	1.11% (0.39)

Note. Duration values indicate the percentage of the entire sentence that corresponds to 'been' type (BIN/been). For loudness, positive values indicate that the 'been' type was louder than the rest of the sentence; negative values indicate the opposite relationship.

5.4.1. CONTROL SENTENCES.

All participants performed similarly on the control sentences. There were no significant main effects for 'been' type, $F_{(1,46)} \frac{1}{4} 0.18$, $p \frac{1}{4} .670$, or language background, $F_{(1,46)} \frac{1}{4} 0.05$, $p \frac{1}{4} .812$, as well as no significant interaction between 'been' type and language background, $F_{(1,46)} \frac{1}{4} 0.01$, $p \frac{1}{4} .984$. We next investigated whether these responses differed from chance (chance is .20 because participants were presented with 5 options). Because no significant effects of language background emerged in the ANOVA analyses, we combined the data from both groups. Both control sentence types differed from chance: remote past ($t_{(47)} \frac{1}{4} 18.00$, $p < .001$) and recent past ($t_{(47)} \frac{1}{4} 14.31$, $p < .001$). These data show that all participants, regardless of language background, performed similarly well on the control sentences. Thus, any differences in the performance on test sentences cannot simply be attributed to task difficulty or misunderstanding.

5.4.2. TEST SENTENCES.

In contrast to the similar performance for the control sentences, there were marked differences in the performance by the AAE- and SAE-speakers on the test sentences. The overall ANOVA revealed a significant effect of language background, $F_{(1,46)} \frac{1}{4} 20.76$, $p < .001$, a significant effect of 'been' type, $F_{(1,46)} \frac{1}{4} 8.76$, $p < .05$, and a significant interaction between 'been' type and language background, $F_{(1,46)} \frac{1}{4} 14.00$, $p < .001$. As can be seen in Fig. 2, the interaction appears to be driven by the fact that the AAE-speakers show similar performance across test items while the SAE-speakers do not. In fact, while the AAE-speakers show no significant difference in correct identification of the remote and recent past sentences ($t_{(23)} \frac{1}{4} 0.61$, $p \frac{1}{4} .546$), the SAE-speakers performed significantly better on the recent past than the remote past sentences ($t_{(23)} \frac{1}{4} 4.35$, $p < .001$). Moreover, the AAE-speakers performed significantly above chance (.20) for both the remote past ($t_{(23)} \frac{1}{4} 8.69$, $p < .001$) and recent past ($t_{(23)} \frac{1}{4} 8.32$, $p < .001$). In contrast, only the SAE-speaker's performance on the recent past was significantly above chance ($t_{(23)} \frac{1}{4} 10.43$, $p < .001$), while the remote past does not differ significantly from chance ($t_{(23)} \frac{1}{4} 1.29$, $p \frac{1}{4} .208$).

It appears that the AAE- and SAE-speakers employed different strategies during the comprehension task. In particular, the AAE-speakers appear to utilize the differences between BIN and been during comprehension: when test sentences contained BIN, AAE-speakers chose the remote past 62.75% of the time and the recent past 25.26% of the time; when test sentences contained been AAE-speakers chose the remote past 24.37% of the time and the recent past 59.52% of the time. Therefore, AAE-speakers, because they are sensitive to the differences between BIN and been, chose the correct interpretation more frequently. The SAE-speakers tended to choose the recent past regardless of whether the test sentences contained BIN (remote past chosen 25.93% of the time, recent past chosen 54.49% of the time) or been (remote past chosen 23.94% of the time, recent past chosen 53.58% of the time). While SAE-speakers tend to choose a past tense interpretation when a sentence contains some form of 'been', their strategy does not allow them to be as successful as the AAE-speakers.

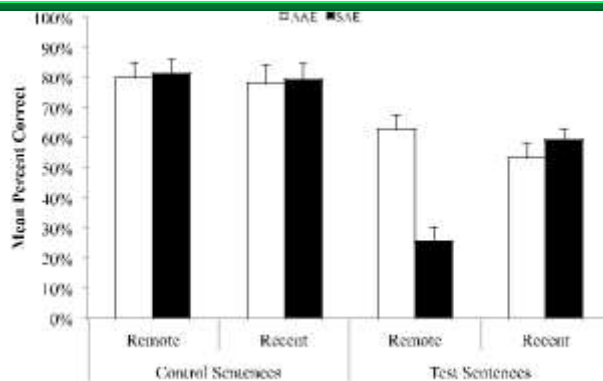


Fig. 2. Mean percent correct identification for control and test sentences by language background.

Taken together, these results show that there is no difference in performance when time adverbials, a cue used by both groups, are present. In contrast, when time adverbials are removed, AAE-speakers still correctly interpret the test sentences, while SAE-speakers do not appear to make use of the AAE tense marker necessary for successful comprehension in this task.

6. DISCUSSION.

SAE is the dominant linguistic system maintained by the majority of academic and political institutions in the United States (see e.g., Lippi-Green, 2011). Much research has therefore investigated how the linguistic differences between AAE and SAE influence the performance of AAE-speakers on language-based tests. While studies consistently show that AAE-speakers perform worse than SAE-speakers, it is unclear whether linguistic differences are the main cause, or whether other factors that may differentiate groups, such as racism, stigma, or SES, play a primary role. Disentangling the effects of these various factors is important in understanding whether the linguistic differences between AAE and SAE impact the experience of AAE-speakers as they encounter SAE. The present study attempted to isolate the impact of linguistic differences by flipping the script to investigate how adult SAE-speakers interpret BIN, an AAE tense/aspect marker, relative to AAE-speakers.

Our results clearly show that unlike the AAE-speakers, SAE-speakers do not interpret BIN correctly. Furthermore, we show that the inability to interpret BIN is not due to (1) the task itself, (2) difficulties in perceiving the phonetic stress that differentiates BIN from been, or (3) difficulties in producing BIN. Rather, it appears that the AAE- and SAE-speakers use different strategies when interpreting BIN: the AAE-speakers, who are encountering a known linguistic feature, successfully differentiate BIN and been, while the SAE-speakers interpret every 'been' form, whether BIN or been, as referring to the recent past. Because BIN is a false cognate, it matches an SAE form and can be interpreted via the SAE system, but that interpretation does not match the AAE function BIN encodes. Notably, the difference in function is subtle enough that neither a listener nor a speaker might notice it, but large enough that miscommunication can result. Flipping the script shows that linguistic differences between AAE and SAE, in and of themselves, matter.

It is important to note that while the AAE-speakers did differentiate BIN and been more successfully than SAE-speakers, their performance was still worse on the test sentences compared to the control sentences. One likely explanation for this effect is that the remote past is relative and context is needed to fully signal a remote past interpretation. Indeed, this is why we asked our AAE-speaker to first produce a context sentence when recording the stimuli for this study. In the comprehension task, however, we removed the context sentences and only presented the participants with the test sentences. Although comprehension for the test sentences suffered in both groups, the AAE-speakers were able to successfully interpret the meaning of the test sentences much better than the SAE-speakers were. Thus, even without this crucial additional information, the AAE- and SAE-speakers appear to process BIN in starkly different ways.

It is likely that SAE-speakers have less experience with AAE than AAE-speakers have with SAE. Thus, the lower performance by the SAE-speakers may be due to lack of exposure to AAE, something that is likely not true of AAE-speakers and SAE (since AAE-speakers have exposure to SAE via school, media, and other mainstream sources). Indeed, while our SAE-speaking participants rated their production and comprehension of AAE significantly lower than the AAE-speakers, participants did not differ in their self-reported familiarity with BIN (though the SAE-speakers were significantly lower in their self-reported use of BIN than the AAE-speakers). However, if mere exposure to another language variety were enough to learn it, AAE-speakers should (1) show no language-based performance differences when encountering SAE, or (2) show gradual improvement with age as exposure to SAE increases. Neither appears to be the case (see e.g., Beyer and Hudson Kam, 2012; Labov, 1995; NAEP, 2012). This underscores that many of the forms that differentiate AAE and SAE are truly false cognates: while speakers assume they are familiar with the forms of the other variety (as was the case with our SAE-speakers and their self-reported familiarity with BIN), this does not necessarily translate into understanding. Because mere exposure to the other variety does not appear to be enough to learn false cognates, AAE and SAE may need to be explicitly separated to differentiate how seemingly similar forms function in the two varieties (see also Sánchez-Casas and García-Albea, 2009, for evidence for Spanish-Catalan).

The results of the present study strongly imply that teaching the differences between AAE and SAE may begin to address the language-based difficulties AAE-speaking children face in mainstream American classrooms. While this work does not speak to which teaching strategies are best, it is clear that language learning in a quasi-foreign language situation is qualitatively different from that in a foreign language situation. Indeed, foreign language teaching methods (e.g., Feigenbaum, 1970) have been largely unsuccessful in teaching SAE to AAE-speakers (Shuy, 1971). One reason is that foreign language teaching methods typically emphasize the attainment of SAE by stigmatizing (either explicitly or implicitly) the use of the other variety (Sato, 1989). Another reason is that what learners already know (i.e., cognates) is not used to effectively highlight which forms are different (Wolfram and Schilling-Estes, 1998). To be successful, foreign language teaching methods must be amended.

For example, James (1996) outlines how interfacing – the juxtaposition of two varieties to help the learner notice the differences between them – can be successful in quasi-foreign language situations. The reason is that interfacing promotes conscious awareness that can be directly applied to separating the two linguistic systems; indeed separating the linguistic systems in a quasi-foreign language situation may be key to avoiding interference or negative transfer (Ellis, 1994). Interfacing occurs naturally in a classroom setting and therefore does not stigmatize the use of a non-standard language variety. Thus, the differences between AAE and SAE are seen as differences, not deficits. The result is that AAE is treated as a rich, complex, and systematic linguistic system that is different from SAE while at the same time teaching how SAE is used in the classroom, on standardized tests, and other areas of public performance. The goal of any teaching method must be to raise additive bidialectal speakers who value both AAE and SAE.

6.1. IMPLICATIONS FOR FUTURE RESEARCH.

The present paper investigated only how utterances containing ‘been’ followed by a verb in the progressive are interpreted by SAE-speakers. This was done purposefully in order to constrain the possible interpretations of the utterances for comparative purposes. BIN, however, can occur in multiple syntactic environments resulting in slight, but important, differences in meaning. In particular, Green (1998, 2002) describes how the precise meaning of BIN depends on the type of predicate with which it occurs, indicating a state, a habitual activity/state, or a completed activity/state. Moreover, BIN can co-occur with other AAE aspectual markers, such as *dv*, to indicate an event that ended in the remote past (Green, 2002). In the future, it will be important to investigate how SAE-speakers interpret a wider range of grammatical constructions including BIN because SAE-speakers (1) are unlikely to know these fine-grained AAE features, and (2) may not have constructions in their SAE grammar that are similar enough to enable interpretation of these AAE forms. Studies such as these could thus serve to expand our understanding of how language processing happens in a quasi-foreign language situation.

In addition, this study sought to simplify a complex issue – neither linguistic nor social factors occur in isolation – and one cannot easily separate the influences of racism, stigma, cultural differences, SES, and linguistic differences from the academic experience of any student, including those who speak AAE. Indeed we do not wish to assert that linguistic differences between AAE and SAE are the sole cause of difficulties in school; future research must continue to investigate the role social factors play, as well as how they interact with linguistic differences. In particular, future studies must investigate how teaching methods specifically developed for quasi-foreign language situations impact the learning of linguistic differences, and how social factors, such as SES, may mediate the overall utility of such teaching methods.

Studies such as these are necessary both theoretically and practically. Theoretically, an understanding of how typological similarity/difference affects language processing will only refine our understanding of language learning theories. Practically, appropriate teaching methods that highlight the differences between AAE and SAE must be developed because an individual’s language background should not limit success, whether academic or economic, in contemporary societies that value equality. We must continue to investigate how linguistic differences in a quasi-foreign language situation influences language learning and processing because as the present study shows, language background matters.

Appendix

Type	Sentence	Time adverbial
Test	Chad been using that cell phone	for the past three years / yesterday
	Collette been dancing salsa	for 15 years / last night
	His hand been aching since he fell	four year ago / yesterday
	That kid been racing his bike	for years / since yesterday morning
	That DVD been skipping since he bought it	four years ago / yesterday
	She whisper softly on the phone	now
	He sprint swiftly in the race	today

Filler	Carl cook his famous ribs at the picnic	tomorrow
	The band likely perform	tomorrow night
	They will be planning their wedding	in two years

Note. Phonological masking ensured that when spoken, all sentences were grammatical in both AAE and SAE. To accomplish this, the sentences were designed to include sounds that correspond to grammatical morphology that is required in SAE, but optional in AAE. For example, all past tense test sentences omitted the auxiliary *has/had*, but the word preceding 'been' always ended in a /t,d/ sound, masking the absence of the contracted form of *had* (-'d). All present tense fillers were in the 3rd person singular and each verb was followed by a word that began with an /s/ sound, masking the absence of 3rd person present -s. Half of the future tense sentences used /l/ information to mask the absence of future contracted -'ll. The other half contained the full form *will*, which does not differ between AAE and SAE and thus did not require phonological masking.

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