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Rappin on the copula coffin: Theoretical and methodological issues in the analysis of copula variation in African-American Vernacular English

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ABSTRACT

We explore two unresolved methodological issues in the study of copula variation in African-American Vernacular English, assessing their quantitative and theoretical consequences via multiple variable rule analyses of data from East Palo Alto, California. The first is whether *is*- contraction and deletion should be considered separately from that of *are*. We conclude that it should not, because the quantitative conditioning is almost identical for the two forms, and a combined analysis offers analytical advantages. The second issue is whether the alternative methods that previous researchers have used to compute the incidence of "contraction" or "deletion" ("Labov Contraction and Deletion," "Straight Contraction and Deletion," "Romaine Contraction") fundamentally affect the results. We conclude that they do, especially for contraction. We also discuss implications of our analysis for two related issues: the ordering of contraction and deletion in the grammar, and the presence of age-grading or change in progress in East Palo Alto.

In this article, we reopen the analysis of one of the oldest and most frequently examined variables in the paradigm of quantitative sociolinguistics: variation between full, contracted, and zero forms of inflected copula and auxiliary *be* (henceforth "the copula") in African-American Vernacular English (AAVE), as in "Sue *is* the leader," "She'*s* happy," "He ∅ talkin." For convenience, we use the term *copula* from this point on in its broad sense, to

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include what we would have to distinguish in a narrow sense as copula *be* (before a noun phrase, adjective, or locative) and auxiliary *be* (before Verb + *ing* or *gon(na)* Verb).

The copula is an important feature for sociolinguistics and American dialectology for several reasons. First, copula absence sets AAVE apart from all other American dialects, especially with respect to *is* absence. European-American vernacular varieties as far apart as Mississippi, New York, and Palo Alto, California, show some *are* absence, but little or no *is* absence (see Labov, 1969; McElhinny, in press; Wolfram, 1974); by contrast, *is* absence for African-American vernacular speakers in the same areas runs to 80% or more. Second, the copula has played a crucial role in determining whether AAVE derives from an earlier plantation creole, as AAVE resembles some Caribbean creoles in its patterns of copula absence, especially as affected by following grammatical categories (see Alleyne, 1980; Bailey, 1965; Baugh, 1979, 1980; Bickerton, 1973; Holm, 1976, 1984; Poplack & Sankoff, 1987; Rickford & Blake, 1990; Stewart, 1970; Winford, 1988). Third, the copula has figured significantly in other controversies—the Ann Arbor court case, for instance (Labov, 1982; Smitherman, 1981), and the issue of whether AAVE is currently diverging from European-American Vernacular English (Bailey & Maynor, 1989; Butters, 1989; Fasold et al., 1987; Rickford, in press). Fourth, Labov's (1969) classic study of the AAVE copula constituted one of the earliest and richest demonstrations of the need for and the nature of the quantitative sociolinguistics paradigm. For these reasons, the AAVE copula is a showcase variable in American dialectology and quantitative sociolinguistics. It is one of the most-studied variables in the quantitative paradigm and one of the best-known to linguists in other subfields (see Akmajian, Demers, & Harnish, 1984:295ff).

But if the AAVE copula has been this well-studied, why return to it now? Initially, the copula was only one of several variables we were investigating in East Palo Alto, for the light they might shed on the currently controversial divergence issue. However, as we began to comb through the literature in preparation for analyzing our own data, we discovered that there was considerable variation among previous copula researchers on matters as basic as what forms to count and how they should be counted. Moreover, although Labov (1969) had explicitly considered some of the theoretical and methodological alternatives, most subsequent copula analysts had not, choosing one approach or another without explicit discussion or justification. As the effects of the different alternatives were potentially significant, we decided that we could not adequately investigate the "live" issues of substance without simultaneously returning to the neglected or "dead" issues of methodology. Hence, the title of this article: "Rappin on the Copula Coffin."

Of the many theoretical and methodological issues on which copula researchers have differed, two are particularly significant, and they are the ones we focus on in this article.

TABLE 1. *Previous contraction/deletion tabulations of* is *and* are

	is	*are*	*is + are*
Labov et al. (1968); Labov (1969)[a]; Pfaff (1971)	+		
Wolfram (1974); Baugh (1979)	+	+	
Wolfram (1969)[b]; Poplack & Sankoff (1987)[c]			+

[a]*Are-* deletion handled by *r-* vocalization/desulcalization rule.
[b]However, separate statistics for *is* and *are* are provided in Fig. 50, p. 174.
[c]However, subject factor group permits some separation of *is* and *are*.

WHICH FORMS CONSTITUTE THE VARIABLE?

Virtually all AAVE copula researchers agree that nonfinite and past tense forms of the copula are almost invariably present in full form ("She will *be* here tomorrow"; "She *was* here yesterday"); that *am* is almost categorically present in contracted form ("I'*m* here"); and that the only forms that regularly allow full, contracted, and zero options are the remaining present tense forms, *is* and *are*. However, as Table 1 shows, researchers have differed according to whether their copula tabulations included *is* only, *is* and *are* separately (treating them as two variables), or *is* and *are* together (treating them as one variable).

The earliest position, represented by Labov, Cohen, Robbins, and Lewis (1968), was that the deletion of second person and plural *are* could be handled by a general *r-* vocalization or desulcalization rule, the kind that produces *po'* and *they* from *poor* and *their*; this left only *is* as a target for the copula deletion rule. All statistics on the copula in Labov's work, and in the work of other early copula researchers like Pfaff (1971), were therefore based entirely on *is* and its variants. However, Wolfram (1974) argued persuasively that the deletion of second person and plural *are* should *not* be handled by a general desulcalization rule; part of his evidence was that desulcalization in *po'* and similar forms was strongly favored by a following consonant, whereas the deletion of copulative *are* was not. The tendency thereafter, as shown in Table 1, was either to tabulate statistics on *are* deletion and *is* deletion separately, as if they were two variables (Baugh, 1974; Wolfram, 1974), or to pool them, as if they were one (Poplack & Sankoff, 1987). But the theoretical rationale for either choice, and its statistical effects, were never systematically discussed.

HOW SHOULD FREQUENCIES OF "CONTRACTION" AND "DELETION" BE COMPUTED?

Assuming that the AAVE copula is underlying (this has been challenged by creolists, but we accept it initially) and that an accountable analysis requires

TABLE 2. *Alternative formulae for computing the percentages of contraction and deletion*

Straight Contraction:	$\frac{C}{F + C + D} = \frac{10}{30} = 33\%$
Straight Deletion:	$\frac{D}{F + C + D} = \frac{10}{30} = 33\%$
Labov Contraction:	$\frac{C + D}{F + C + D} = \frac{20}{30} = 67\%$
Labov Deletion:	$\frac{D}{C + D} = \frac{10}{20} = 50\%$
Romaine Contraction:	$\frac{C}{F + C} = \frac{10}{20} = 50\%$

Note: Hypothetical data set: 10 tokens of *is* or *are* (Full Forms, F), 10 tokens of *'s* or *'re* (Contractions, C), 10 tokens of ∅ (Deletions, D)

us to count full, contracted, and deleted forms, how should we do this? At first, this seems straightforward. For contraction, report the number of contracted tokens as a proportion of *all* the tokens in which contraction could have occurred (we refer to this as "Straight Contraction"); for deletion, do likewise (we refer to this as "Straight Deletion"). So that if, as shown in Table 2, we had 10 Full Forms (F), 10 Contractions (C), and 10 Deletions (D), the formula for computing the relative frequency of Straight Contraction would be

$$\frac{C}{F + C + D} = \frac{10}{30} = 33\%$$

and the formula for Straight Deletion would be

$$\frac{D}{F + C + D} = \frac{10}{30} = 33\%.$$

However, these straightforward formulae were *not* the ones used by Labov (1969). Arguing that AAVE could only delete where contraction was possible and that every deleted copula had prior contraction in its history, Labov proposed that "deletions" should be included in the contraction count, yielding the computational formula shown in Table 2:

$$\frac{C + D}{F + C + D}$$

which we refer to as "Labov Contraction." And as the only candidates for deletion were previously contracted forms, he proposed that full forms be excluded from the denominator to yield the computational formula:

$$\frac{D}{C + D}$$

which we refer to as "Labov Deletion."

Labov Contraction and Labov Deletion are the formulae most often used in the study of the AAVE copula, although they are referred to simply as contraction and deletion, as though there were no other formulae and no controversy about choice of formulae. However, Romaine (1982), arguing for a rule schema in which deletions took place first and were then removed from the pool of copula forms eligible for contraction, proposed another formula for contraction:

$$\frac{C}{F + C}$$

which we refer to as "Romaine Contraction." As even the small example in Table 2 indicates, the formula one adopts can significantly affect the results, with contraction rates ranging from 33% to 50% to 67% *for the same data.* If different researchers use different formulae (as they *do*), comparisons across studies might be difficult if not impossible to interpret (as they sometimes *are*).

We consider both of these issues in more detail, drawing for our discussion on nine different variable rule analyses of 1,424 tokens of the copula.[1] These copula tokens were extracted from recorded spontaneous interviews and peer group sessions with approximately 30 AAVE speakers from East Palo Alto (EPA), California. EPA is a low-income, predominantly (62%) African-American community of approximately 18,000 people, located a few miles east of Stanford.

As we present our quantitative results, we comment on some of the substantive findings about copula variation in this community as well as the methodological issues sketched earlier. But before introducing our results, we note that, like previous researchers, our quantitative analysis excluded nonfinite and past tense forms of *be* and approximately 2,000 "Don't Count" present tense copula tokens. Although such tokens are important for arguments that AAVE has an underlying copula, they were excluded from the variable analysis either because they were indeterminate (e.g., tokens of contracted *is* followed by a sibilant, as in "He'*s* sick," which, in rapid speech, are phonetically difficult to distinguish from deletions, as in "He ∅ sick") or because they showed invariant copula presence (e.g., *am*, which occurs in contracted form almost 100% of the time).[2] As Wolfram (1969:166) noted (see also Labov et al., 1968:184): "In the quantitative measurement of copula absence, it is essential to separate environments where there is no variability from those where there is legitimate variation between the presence and absence of the copula. Failure to distinguish these environments would skew the figures of systematic variation."

The following extract (1) from one of our EPA recordings shows the kinds of present tense tokens of the copula that were included in (Counts) and excluded from (Don't Counts) our quantitative analysis. It also exemplifies the vernacular ambience of our data. The extract is from a recording with 14-year-old Tinky and her friends.[3] Faye McNair-Knox, the inteviewer, has lived in EPA since grade school and is excellent at eliciting the vernacular.

(1) From an interview with Tinky Gates, 14, East Palo Alto, CA
(T = Tinky; I = Interviewer, Faye McNair-Knox; R = Roberta, a friend; ∅ = zero copula; C = Count token of the copula, present tense; DC = Don't Count present tense copula token)
My buddy Gina came down here from Stockton. We was all cool, right? An' I tol'—An' they was wantin' to fight her. They wanted to fight her cause she was bran' new, over some Michael Washington they don' even know nutten about. (R: Nahhhh! Not Michael!) An' they—they was all wantin' to fight her over some Michael Washington. I said, "Lemme tell you somep'n." I said, "Michael *ain't* [DC, neg] gettin' yo' education." Everybody was crackin' up! I was—I was—I wa'—they said, "Tanya—duh—Tanya—y'all all—y'all—y'all got her started now, she ∅ [C] finna [<fixing to] give y'all a lecture!" (Laughter.) An' everybody— I said, "For real, now, look on the realistic side." I said, "We got four more months o' school—actually, three more months o' school." I said, "We ∅ [C] trippin' aroun wi' somep'n bout—while Michael Washington ∅ [C] out here sellin' his rocks, an' he ∅ [C] doin' his little stuff!" I said, "What we—we each—we ∅ [C] still at the middle school. We ain' [DC, neg] even got over the hill yet." I said, "We ∅ [C] waitin' for the fourteenth to get graduation time, see who ∅ [C] (g)on be ridin' the boat, an' we ∅ [C] sittin here actin' crazy." I said, "Nuh-uh," I said, "I don' know 'bout y'all, but I'm [DC, *am*] (g)on be ridin the boat." I said, "Cause, uh, like—like them—like that man say, 'Let freedom ring'?" I say, "Nuh-uh, naw, I'ma [DC, *am*] be lettin freedom ring wi' my—(laughter)—wi' my vote!" Everybody was crackin' up. They said, "Tanya ∅ [DC, following sibilant] stupid." I said, "Nuh uh, I—I—I am [DC, *am*] serious, y'all."

IS AND *ARE*

As Wolfram's (1974) arguments for disassociating *are* deletion from *r*- desulcalization have been generally accepted, the issue of what forms should constitute the variable boils down to the issue of whether the contraction and deletion of *is* should be considered separately from the contraction and deletion of *are*, that is, as two variables, separately tabulated; or with their tabulations combined, as one variable. No one has considered this issue in any detail to date. One theoretical justification for a two-variable analysis is that this could account for the tendency of some speakers to delete *are* but not *is* (see Labov, 1969:754, fn. 38) or to delete *are* more frequently than *is* (Wolfram, 1974:512). That is, we could say that such speakers have the *are* deletion but not the *is* deletion rule or that the overall application or input probability of the former is higher than that of the latter.

However, if copula form were itself treated as a constraint on copula variation by creating a subject or person-number factor group distinguishing plural and second person subjects (yielding *are*) from third singular ones (yielding *is*), the difference in application possibilities and factor weights for *is* and *are* could still be represented in a one-variable framework (Poplack & Sankoff, 1987). The advantage of a one-variable framework is that—to the extent that the constraints on the contraction and deletion of these two forms are similar—these constraints would have to be stated only once. The pool of copula tokens would also be increased, permitting more robust statistical manipulation.

The issue then is whether the *constraints* on these two forms are similar enough to allow us to consider them together. Poplack and Sankoff (1987) did not provide separate data on each form, so we cannot tell whether their pooled analysis is fully justified. However, Wolfram (1974) did provide separate straight deletion frequencies for *is* and *are* according to preceding and following grammatical environment, and he found them similar enough to propose a single copula deletion rule. Baugh (1979) did not explicitly consider the issue of one rule or two, but he did provide separate Labov Contraction and Labov Deletion data on the two forms, considering a broader set of constraints than Wolfram did, and using the variable computer program to estimate constraint effects. His results for contraction (1979:177, 187) reveal similar effects for the two forms. In the subject factor group, for instance, a personal pronoun favors copula contraction more than a noun phrase for both *is* and *are*. However, his results for deletion are mixed: parallel for *is* and *are* insofar as the hierarchy of constraints in the following phonological factor group is concerned, but divergent insofar as the constraints in the following grammatical and subject factor groups are ordered differently for *is* than they are for *are*.

In order to assess this issue adequately, we decided to do our own separate tabulations of *is* and *are*, using the four internal factor groups considered by Baugh, plus a fifth, external one for age group. Because we are not interested at this point in the difference between Straight Contraction, Labov Contraction, and the like, we use as a basis for comparison the most commonly followed computation formulae in the literature to date—Labov Contraction and Deletion. Table 3 shows separate Labov Contraction data for *is* and *are*, and Table 4 shows comparable Labov Deletion data for the same two forms. Before we discuss the data in these two tables, however, we need to explain briefly what they represent and how they were computed.

TABLE 3. *Labov Contraction of* is *and Labov Contraction of* are *in East Palo Alto (variable rule factor weights)*

Factor group	Constraints	Run 1: Labov Contraction of *is*	Run 2: Labov Contraction of *are*
Following Grammatical environment	*gonna*	.84	.93
	Verb + *-ing*	.64	.54
	Locative	.50	.55
	Adjective	.44	.38
	Noun phrase	.31	.23
	Miscellaneous	.23	.24
Subject	Personal pronoun[a]	.78	.82
	Other pronoun	.39	.44
	Noun phrase	.31	.22
Following Phonological environment	__Consonant	(.48)[b]	(.52)
	__Vowel	(.52)	(.48)
Preceding Phonological environment	Consonant__	.36	(.41)
	Vowel__	.64	(.59)
Age group	Old	.41	.41
	Middle	.41	.33
	Young	.67	.74
Data on each run:			
Computation formulae		$\frac{C + D}{F + C + D}$	$\frac{C + D}{F + C + D}$
Overall frequency (*ns* in parentheses)		68% (715)	90% (709)
Input probability		.60	.75

[a]Personal pronoun: *you, he, she, we, they*. Other pronoun: *these, somebody*, etc.
[b]Parentheses indicate values for factors "not selected" as significant during variable rule regression (step down) analysis.

The statistics in Tables 3 and 4 (actually, in Tables 3–8) are not simply the observed frequencies of Labov Contraction and Deletion in the data but probability coefficients or factor weights calculated by the variable rule computer program (Cedergren & Sankoff, 1974; Sankoff, 1988).[4] The particular variable rule model we used is the logistic model, represented by (1) (from Rousseau & Sankoff, 1978:62). Here, p_0 represents the input probability (the overall likelihood of rule application) and p_i, p_j, p_k, and so on represent the effect of factors i, j, and k present in the environment.

$$(1)\quad \left(\frac{p}{1-p}\right) = \left(\frac{p_0}{1-p_0}\right) \times \left(\frac{p_i}{1-p_i}\right) \times \left(\frac{p_j}{1-p_j}\right) \times \cdots \times \left(\frac{p_k}{1-p_k}\right)$$

Higher factor weights favor rule application, and lower ones disfavor it. Factor weights enclosed in parentheses correspond to factors that were "not se-

TABLE 4. *Labov Deletion of* is *and Labov Deletion of* are *in East Palo Alto (variable rule factor weights)*

Factor group	Constraints	Run 3: Labov Deletion of *is*	Run 4: Labov Deletion of *are*
Following Grammatical environment	*gonna*	.81	.76
	Verb + *-ing*	.72	.60
	Locative	.42	.41
	Adjective	.43	.47
	Noun phrase	.30	.30
	Miscellaneous	.27	.45
Subject	Personal pronoun[a]	.61	.23
	Other pronoun	.27	.76
	Noun phrase	.63	.53
Following Phonological environment	__Consonant	(.50)[b]	(.47)
	__Vowel	(.50)	(.53)
Preceding Phonological environment	Consonant__	(.57)	.66
	Vowel__	(.43)	.34
Age group	Old	.25	.21
	Middle	.32	.51
	Young	.87	.79
Data on each run:			
Computation formulae		$\frac{D}{C+D}$	$\frac{D}{C+D}$
Overall frequency (*n*s in parentheses)		53% (483)	78% (636)
Input probability		.32	.94

[a]Personal pronoun: *you*, *he*, *she*, *we*, *they*. Other pronoun: *these*, *somebody*, etc.
[b]Parentheses indicate values for factors "not selected" as significant during variable rule regression (step down) analysis.

lected" by the stepwise regression routine within the variable rule program, because they did not significantly affect the observed variation.[5] Although nonsignificant for the current analysis, nonselected factor groups may reveal weak linguistic effects and including them facilitates comparison with other studies.

With these preliminaries aside, we can turn now to Table 3, which shows factor weights for Labov Contraction of *is* and *are*.[6]

The general picture that emerges from Table 3 is that although *are* contraction is more likely than *is* contraction, the constraints on the contraction of these forms are virtually identical. In the Following Grammatical factor group, contraction is strongly favored by *gonna* and strongly disfavored by a noun phrase, both in run 1 (*is*) and run 2 (*are*), with locative and adjective showing comparable intermediate effects. Similarly, in the Subject factor group, contraction is favored by a personal pronoun (e.g., *he*, *we*, *you*) and disfavored by a noun phrase (e.g., *the man*). Other pronouns (e.g., *these* and *somebody*) are somewhat less disfavorable to contraction than the personal pronouns.[7] The Following Phonological environment is nonsignificant for both forms, the factor group as a whole not being selected in the regression analysis. And although Preceding Phonological environment is significant for the contraction of *is* and nonsignificant for *are*, the results for the latter point in the right direction: preceding vowel more favorable than consonant, as we would expect with contraction, which involves the removal of the copula *vowel*.

Ignoring the Age Group factor group for the moment, note that the internal constraints on the contraction of these two forms pattern precisely as they did in Labov's *is*- contraction data from the New York City Jets 20 years ago. Labov (1969:731–732, 746) found that contraction was most favored by a preceding vowel, by a pronoun subject, and by a following *gonna*. Furthermore, Labov, like us, did not find following phonological environment a significant constraint on contraction. Our *is/are* contraction data also agree substantially with Baugh's (1979) contraction results for Los Angeles speakers. In short, the data in Table 3 not only establish that *is*- contraction and *are*- contraction are similarly constrained; their similarity to the results of other independent studies also reinforces our confidence in the nonrandomness and significance of the quantitative patterns we found, and in the basic uniformity of AAVE nationwide.

Table 4 shows the Labov Deletion statistics for *is* and *are* in EPA. The similarities between the two columns are not as striking as they were in the case of contraction, but the variable rule results for the two forms are still comparable, particularly with respect to Following Grammatical environment, Following Phonological environment, and Age. Preceding Phonological environment is significant for *are* instead of *is*, but the factor weights for *is* again point in the right direction: preceding consonant more favorable than preceding vowel, because deletion in Labov's framework involves removal of the sibilant consonant.[8] The biggest point of difference between the runs for Labov Deletion of *is* and Labov Deletion of *are* occurs in the Subject factor group, and it may be a function of the skewed distribution of tokens in the *are* data—the fact that pronouns account for 573 of the 634 tokens (90%) in this factor group—close to the 95% danger point at which it becomes difficult to separate the effect of a particular factor from the overall application rate or input probability (Guy, 1988:131). This anomaly deserves further consideration, but we may conclude tentatively that *is* and *are* behave similarly enough to be treated together, as they were in Poplack and Sankoff (1987), making the data pool larger and more robust and ensuring that their similarities in constraint effects need be stated only once. In subsequent tables, *is* and *are* tabulations are pooled, but a Person-Number factor group allows us to show the differential effect of *is* versus *are*, capturing both the similarities and the differences between these forms.

LABOV, STRAIGHT, AND ROMAINE CONTRACTION, *IS* + *ARE* COMBINED

We turn now to the second major methodological issue of this article, the differences between computing contraction and deletion by means of Labov Contraction, Straight Contraction, and the other formulae illustrated in Table 2. Theoretical assumptions govern the choice of one formula or another too, but we postpone critical discussion of their theoretical rationales for the moment and simply inquire in this section about their quantitative effects. Again, this issue has not been adequately considered in the literature, and because researchers usually present their data already computed by one method or the other, and in a way that permits little recalculation by alternative methods, it is difficult to estimate the methodological effect of alternative computations from previous studies. Starting afresh with a new data set, however, and using the variable rule program, it is relatively easy to redefine contraction or deletion in different ways and have the program work out the different effects of alternative computations or rule orderings (see Sankoff & Rousseau, 1989).

Table 5 shows variable rule results for the different methods of computing contraction of *is* and *are*, combined. The different contraction formulae are reprinted under each column as a reminder of what each method involves. For three factor groups, there is little difference among these alternative methods of computing contraction. Following Phonological environment plays a nonsignificant role in all three cases, as it did in our separate Labov Contraction analyses of *is* and *are* (runs 1 and 2, Table 3) and as it did, too, in earlier Labov Contraction analyses of copula contraction in Los Angeles (Baugh, 1979:177, 187) and Samaná (Poplack & Sankoff, 1987:306). The results for the Subject and Preceding Phonological factor groups are also very similar across runs 5, 6, and 7, as graphically illustrated in Figures 1 and 2. As Figure 1 shows, personal pronoun subjects are most favorable to contraction and noun phrase subjects least favorable, regardless of which contraction formulae you use. Similarly, in Figure 2, a preceding vowel favors contraction over a preceding consonant across the board.

However, beyond these two factor groups, big differences emerge. For the Person factor group, Romaine and Straight Contraction methods both show significant effects (third singular *is* favoring contraction over plural and second person *are*), whereas Labov Contraction does not. For the Age factor group (see Figure 3), we get different results from virtually every run. Labov Contraction shows the young age group strongly favoring contraction, whereas the other groups disfavor it; Romaine Contraction shows no significant effects; and Straight Contraction is the mirror image of Labov Contraction, with the oldest group in the lead and the youngest far behind.

Results for the important Following Grammatical factor group are shown in Figure 4.[9] Here, it is Labov Contraction and Romaine Contraction that

TABLE 5. *Labov, Romaine, and Straight Contraction runs,* is *and* are *combined, East Palo Alto (variable rule factor weights)*

Factor group	Constraints	Run 5: Labov Contraction	Run 6: Romaine Contraction	Run 7: Straight Contraction
Following Grammatical environment	*gonna*	.87	.72	.33
	Verb + *-ing*	.60	.50	.41
	Locative	.51	.57	.58
	Adjective	.43	.46	.52
	Noun phrase	.28	.39	.61
	Miscellaneous	.24	.35	.55
Subject	Personal pronoun[a]	.79	.79	.62
	Other pronoun	.41	.43	.51
	Noun phrase	.28	.26	.37
Person-Number	2nd person & Plural	(.53)[b]	.43	.36
	3rd person singular	(.47)	.57	.64
Following Phonological environment	__Consonant	(.49)	(.49)	(.52)
	__Vowel	(.51)	(.51)	(.48)
Preceding Phonological environment	Consonant__	.36	.32	.36
	Vowel__	.64	.68	.64
Age group	Old	.41	(.50)	.72
	Middle	.39	(.45)	.54
	Young	.70	(.55)	.25
Data on each run:				
Computation formulae		$\frac{C + D}{F + C + D}$	$\frac{C}{F + C}$	$\frac{C}{F + C + D}$
Overall frequency (*n*s in parentheses)		79% (1,424)	55% (675)	26% (1,424)
Input probability		.74	.46	.19

[a]Personal pronoun: *you, he, she, we, they*. Other pronoun: *these, somebody*, etc.
[b]Parentheses indicate values for factors "not selected" as significant during variable rule regression (step down) analysis.

are now parallel, both showing *gonna* as the most favorable constraint and adjective and noun phrase as the least. In the case of Straight Contraction, however, we get an ordering that is diametrically opposed to the others, showing noun phrase as the most favorable environment and *gonna* the least. This reversal of the ordering for Following Grammatical environments depending on whether one uses Labov Contraction or Straight Contraction is a phenomenon that Labov himself commented on explicitly two decades ago (1969:732–733). We discuss it further in our "Implications" section.

One other point worth making is that the input probabilities—the overall measures of the likelihood of rule application—vary quite dramatically (from .74 to .46 to .19) across the three runs in Table 5. Although we are dealing with the same forms (*is* and *are* as a joint variable), the different computational methods make quite different predictions about the tendency for contraction to apply in this sample.[10]

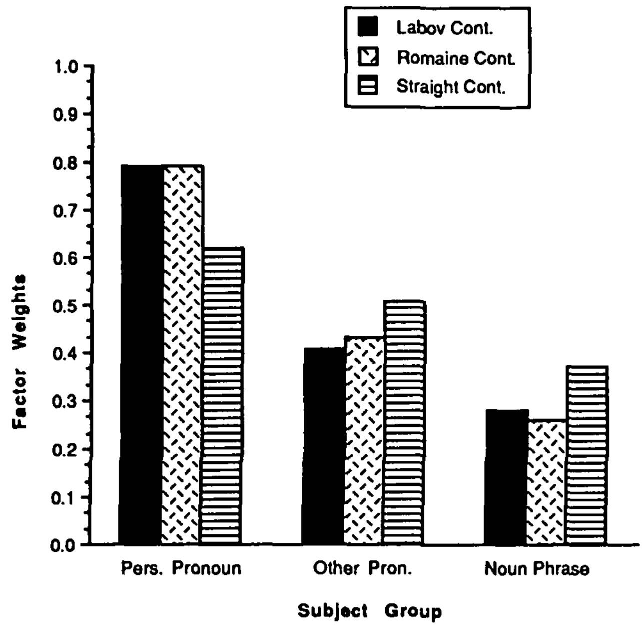

FIGURE 1. Contraction—Subject factor group, EPA.

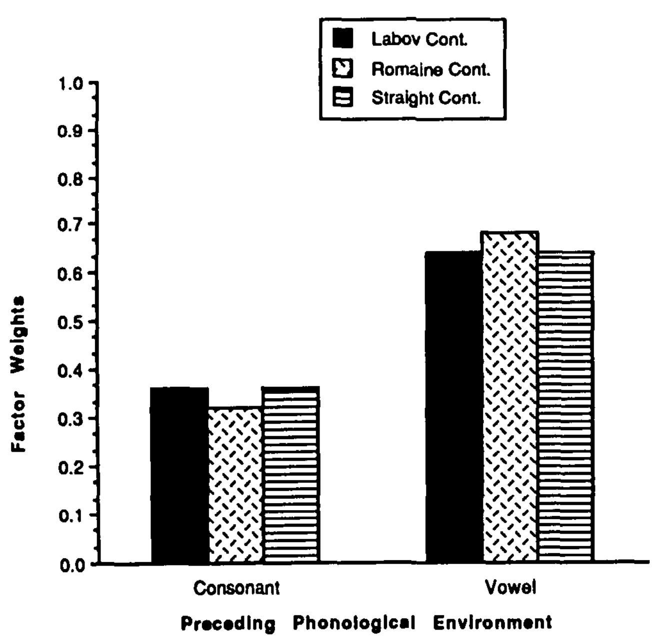

FIGURE 2. Contraction—Preceding Phonological environment, EPA.

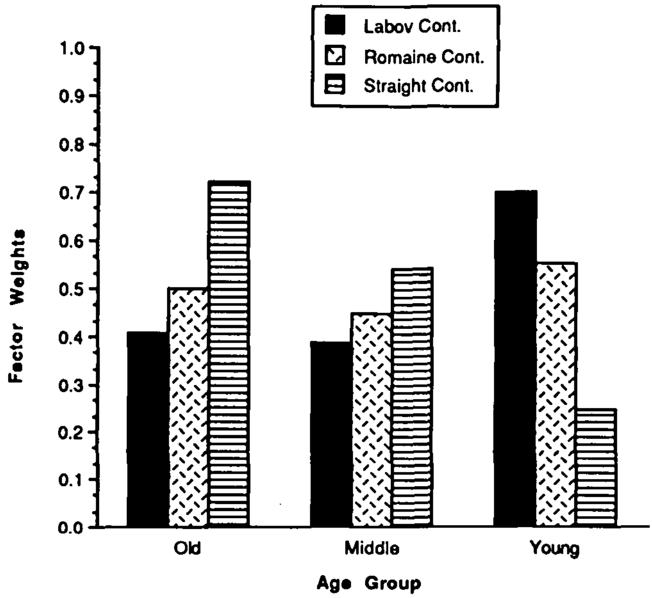

FIGURE 3. Contraction—Age factor group, EPA.

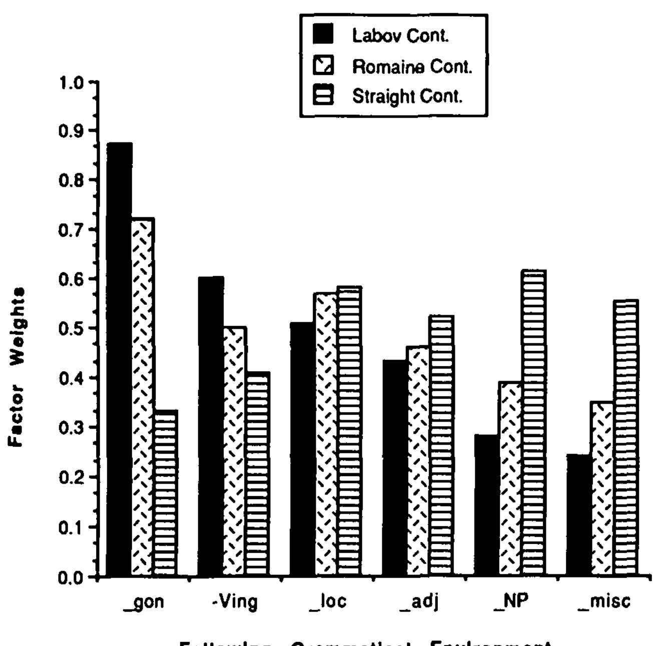

FIGURE 4. Contraction—Following Grammatical environment, EPA.

TABLE 6. *Labov Deletion and Straight Deletion,* is *and* are *combined, East Palo Alto (variable rule factor weights)*

Factor group	Constraints	Run 8: Labov Deletion	Run 9: Straight Deletion
Following Grammatical environment	*gonna*	.77	.83
	Verb + *-ing*	.66	.67
	Locative	.42	.47
	Adjective	.47	.45
	Noun phrase	.29	.27
	Miscellaneous	.37	.29
Subject	Personal pronoun[a]	(.51)[b]	.62
	Other pronoun	(.44)	.46
	Noun phrase	(.54)	.42
Person-Number	2nd person & Plural	.67	.64
	3rd person singular	.33	.36
Following Phonological environment	__Consonant	(.48)	(.48)
	__Vowel	(.52)	(.52)
Preceding Phonological environment	Consonant__	.59	(.47)
	Vowel__	.41	(.53)
Age group	Old	.22	.23
	Middle	.42	.42
	Young	.83	.82
Data on each run:			
Computation formulae		$\frac{D}{C + D}$	$\frac{D}{F + C + D}$
Overall frequency (*n*s in parentheses)		67% (1,119)	53% (1,424)
Input probability		.62	.35

[a]Personal pronoun: *you, he, she, we, they*. Other pronoun: *these, somebody*, etc.
[b]Parentheses indicate values for factors "not selected" as significant during variable rule regression (step down) analysis.

LABOV DELETION AND STRAIGHT DELETION OF *IS* + *ARE*

With respect to the deletion of *is* and *are*, we only have two runs, one for Labov Deletion and one for Straight Deletion. Romaine's proposal that deletion apply before contraction to the total pool of copula tokens is equivalent to Straight Deletion, so there is no separate Romaine Deletion formula for us to consider.

Table 6 shows the *is* + *are* results for Labov Deletion and Straight Deletion (runs 8 and 9). In general, the runs are highly convergent, more so than the contraction runs in Table 5. On reflection, however, this is not so surprising, as the only difference between Labov Deletion and Straight Deletion

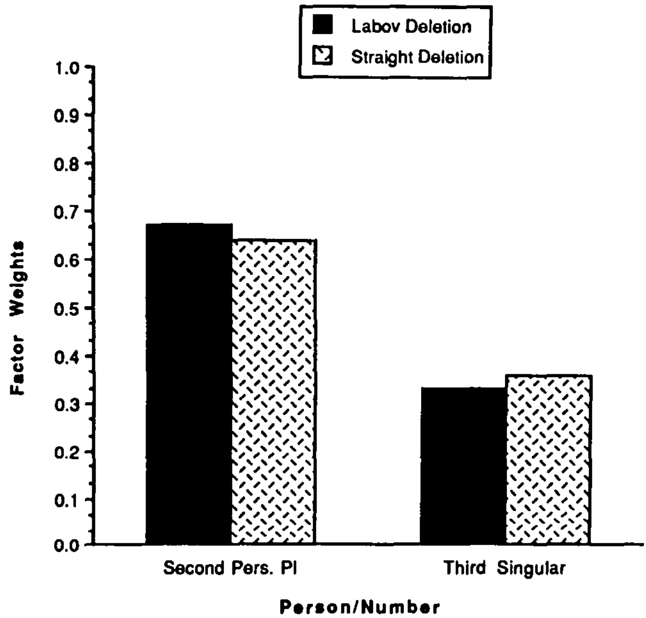

FIGURE 5. Deletion—Person-Number factor group, EPA.

is the absence or presence of full forms in the denominator, and full forms constitute only 205 or 14% of the tokens in our sample. In data sets with more full forms, the difference between a Labov Deletion and a Straight Deletion analysis would be more substantial.

The differences that *do* emerge in our sample are in the Preceding Phonological and Subject factor groups. Preceding Phonological environment is significant for Labov Deletion, as we would expect in Labov's formulation, where deletion involves the removal of the lone consonant remaining after contraction, a process favored by a preceding consonant. Straight Deletion—which involves the removal of the copula vowel and consonant simultaneously, as a *grammatical* rather than *phonological* variable—shows no significant phonological conditioning, so each method's theoretical assumptions are supported by *its* respective quantitative results. In the case of Subject, Labov Deletion shows no significant effect, whereas Straight Deletion shows the favoring effect of a personal pronoun that Labov (1969:730) originally found. But the deletion results for this factor group may be confounded by the distributional problem to which we alluded when discussing Table 4—the fact that personal pronouns constitute the overwhelming majority of subject tokens in this factor group.

Overall, as noted, the *similarities* between runs 8 and 9 are more striking than their differences. As shown in Figure 5 for the Person-Number factor

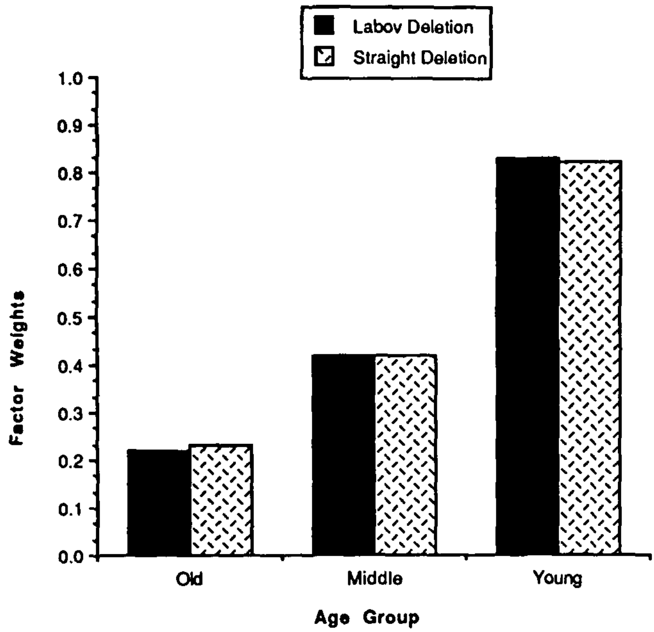

FIGURE 6. Deletion—Age factor group, EPA.

group, second person and plural *are* is more favorable to deletion than third person *is*, for Labov Deletion as well as Straight Deletion (the factor weights are almost identical!) and as Wolfram (1974:512) also found to be true in his Straight Deletion copula data from Mississippi. With respect to Age, depicted in Figure 6, both runs show a linear correlation, the youngest speakers strongly favoring deletion, whereas the oldest age group disfavors deletion strongly and the middle group is intermediate. This is directly in line with other evidence we have (see the section on age-grading, to follow, and Rickford, in press) that teenage AAVE speakers tend to use vernacular variants more frequently than their parents and grandparents, partly as assertions of their ethnicity and youthfulness and in response to the more significant pressure they experience from their peers to avoid "acting white" (see Fordham & Ogbu, 1986). Finally, the Following Grammatical hierarchy, shown in Figure 7, agrees in both cases, except in the relative positions of locative and adjectives. However, the weights for these two factors are close together in both runs anyway, and, as Table 7 indicates, the relative ordering of these two constraints is subject to more fluctuation than that of any other two constraints in earlier studies of copula deletion in AAVE. Our two deletion runs also follow most previous studies of AAVE in finding that *gonna* is the most favorable following grammatical constraint and noun phrase the least.

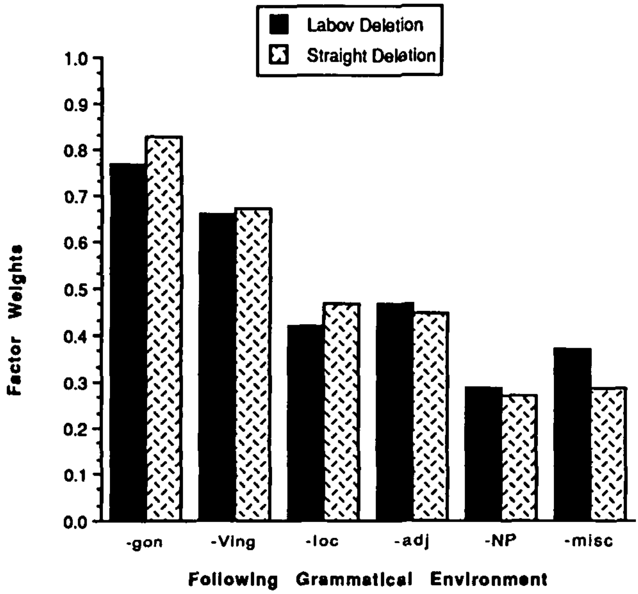

FIGURE 7. Deletion—Following Grammatical environment, EPA.

IMPLICATIONS

In this section, we consider the implications of the preceding discussion for two larger issues: (1) the theoretical issue of the relation between the contraction and deletion rules in the grammar, and (2) the substantive issue of whether the age differences we have observed symbolize change in progress.

The relation between the contraction and deletion rules

With respect to the rule-ordering issue, Labov (1969:728) suggested that there were several possible ordering relations for the optional or variable contraction and deletion rules in AAVE, the primary ones being those shown in (2).

(2) Possible orderings for contraction and deletion (Labov, 1969:728)

Case 1	*Case 2*
1. Contraction	1. Deletion
2. Deletion	2. Contraction
əz → z/ . . .	əz → ∅/ . . .
z → ∅/ . . .	əz → z/ . . .

TABLE 7. *Copula absence by Following Grammatical category in various AAVE studies, showing variability in Loc/Adj orderings*

Variable and study	__NP	__Loc	__Adj	__*Ving*	__*Gonna*
is, NYC T'Birds (Labov, 1969:732)	.23	.36	.48	.66	.88
is, NYC Jets (Labov, 1969:732)	.32	.52	>[a].36	.74	.93
is, NYC Cobras (Baugh, 1979:180)	.14	.31	.72	>.59	.78
is + *are*, Detroit working class (Wolfram, 1969:172)[b]	.37	.44	.47	.50	.79
is + *are*, Detroit middle class (Wolfram, 1969:172)[b]	.02	.13	>.04	.11	.33
is, Rita, Berkeley (Mitchell-Kernan, 1971:117–118)[c]	.09	.14	.20	.71	.75
is, Los Angeles (Baugh, 1979:181)[d]	.32	≥.29	.56	.66	.69
are, Los Angeles (Baugh, 1979:189)[d]	.25	.69	>.35	.62	.64
is + *are*, Texas kids (Bailey & Maynor, 1987:457)[e]	.12	.19	.25	.41	.89
is + *are*, Texas adults (Bailey & Maynor, 1987:457)[e]	.09	.15	≥.14	.73	>.68

[a]The greater than sign (>) has been placed between any adjacent constraint columns that deviate from the majority pattern in showing the relative frequency or probability of copula absence decreasing rather than increasing from left to right. The locative/adjective orderings show four such deviations in the 10 sets of studies surveyed, compared with one each for other adjacent environments. Note that whereas two of these deviations are relatively small (.01 and .03 apart, indicated by ≥), the others are more substantial, especially those involving locative and adjective (differences of .34, .09, and .16).
[b]The zero realization columns for the Adj and Loc statistics in Wolfram's (1969:172) Figure 49 need reversing, as the accompanying graphs make clear. Statistics are rounded to two decimal points.
[c]Labov (1982:182, Table 2) reported the *is*- deletion percentage for adjective in Mitchell-Kernan's study as .03, but it should be .09 (4 out of 46, Mitchell-Kernan, 1971:117–118).
[d]Variable rule factor weights. Frequency data not available.
[e]Bailey and Maynor are unique in including invariant *be* in their count (in the total out of which the percentage of zero forms is calculated).

In case 1, contraction and deletion are both phonological rules, affecting only one segment at a time; contraction applies first to the full form *əz* (itself weakened from *ɪz*), yielding *z* ("He *əz* here" becomes "He'*z* here"), and deletion, fed by the contraction rule, applies to the remaining *z*, yielding zero ("He'*z* here" becomes "He ∅ here"). Of course, these formulations would have to be revised to include *are*, but this does not affect the point. In case 2, deletion applies first, and contraction applies second to any remaining full forms that have not been bled away by the deletion rule. Deletion in the case 2 formulation is a grammatical rule, affecting the entire copula formative, but contraction is a phonological rule, removing only the vocalic segment of the copula.

One of Labov's major arguments for case 1 and against case 2 was the nature of the associated quantitative results. Case 1 required computation by

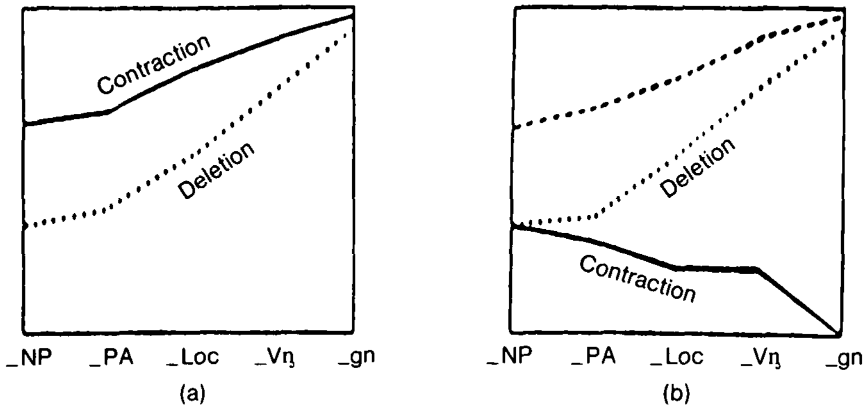

FIGURE 8. (a) Case 1 (Jets, Labov, 1969:732). (b) Case 2 (Jets, Labov, 1969:733).

Labov Contraction and Labov Deletion methods, and the resultant statistical patterns showed contraction and deletion responding in *parallel* ways to following grammatical environments, as in Figure 8a. Case 2, however, seemed to require Straight Contraction and Straight Deletion methods, and the resultant statistical patterns showed contraction and deletion responding in diametrically opposed ways to following grammatical constraints, as in Figure 8b. Labov regarded this latter result as "very implausible," presumably because the *qualitative* parallels between contraction and deletion that he had insightfully noted—the fact that neither rule applied in exposed or stressed positions, for instance (1969:722)—argued for making them *quantitatively* parallel too.

However, Wolfram (1975:84) suggested that "the motivation for this order (case 1 rather than case 2) cannot be justified from the quantitative dimensions of the rules, since either order can be accommodated by them." We tend to agree with this assessment. Note, for instance, that the *only* reason the contraction percentages in Figure 8a rise in tandem with the deletion percentages as one goes from noun phrase to *gonna* is because they are boosted by the deletion percentages at every point; there is no theory-independent or method-independent parallel between the contraction and deletion percentages "out there in the real world."

Romaine (1982:218–221) argued that the quantitative results were neutral in a different way—by showing that if the second rule in case 2 operated only on the pool of *un*deleted forms (in our terms, if you used Romaine Contraction instead of Straight Contraction to tabulate the corresponding frequencies), the orderings for contraction and deletion would remain parallel, as in Figure 9. Figure 9 does not quite show this, because the black contraction bar for *gonna* drops to .50 instead of rising above verb + *-ing*s .71.[11] But we

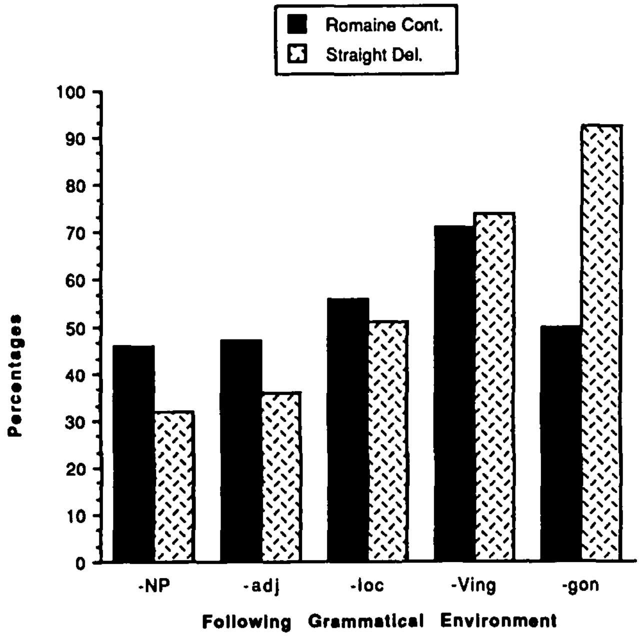

FIGURE 9. Romaine Contraction and Straight Deletion of *is*, NYC Jets. (*Source*: Romaine, 1982:219, Table 8.1, case 2, corrected.)

have already seen from our data that Romaine Contraction and Labov Contraction yield relatively similar results, so her basic argument still holds.

Furthermore, suppose we assumed the legitimacy of the creolist hypothesis and assumed that AAVE, in common with other decreolizing varieties, has been changing to include a grammatical *insertion* rule for *is* and *are*, followed by phonological contraction (both optional/variable in application), as depicted in case 3 (3):

(3) *Case 3*
1. Insertion
2. Contraction
$\varnothing \rightarrow$ əz / . . .
əz $\rightarrow$ z / . . .

The computation formula for the insertion rule would be identical to Labov Contraction

$$\left(\frac{C + D}{F + C + D}\right),$$

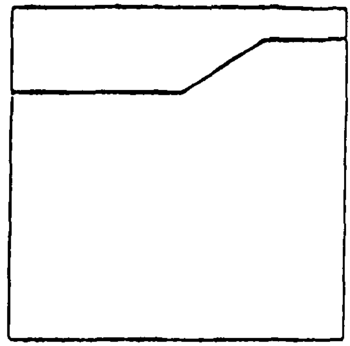

FIGURE 10. Labov Contraction of *is*, European Americans, Inwood, NY. (*Source*: Labov, 1969:733.)

and the subsequent contraction rule would clearly have to be computed by the equivalent of Romaine Contraction

$$\left(\frac{C}{C+F}\right)$$

as we already do for speakers whose copula outputs include no deletions, for instance, most speakers of European-American Vernacular English in the United States. The point is that there is valid reason to use a formula like Romaine Contraction even if we do not accept Romaine's specific arguments for doing so. Moreover, if we return to Table 6 and compute the reciprocals of the figures for run 9 (.17 for *gonna*, .33 for verb + *ing*, and so on), which is what a copula *insertion* rule (as in case 3) would produce, they turn out to be quite plausible. The absence of phonological constraints would be in line with the grammatical status of the insertion rule; insertion would be favored most by a following noun phrase and least by *gonna*, and so on.

A second reason for preferring the case 1/Figure 8a formulation proposed by Labov was the resultant similarity between the AAVE *is*- contraction pattern and the comparable pattern for European-American Inwood speakers in New York, shown in Figure 10.[12] The case 2/Figure 8b formulation would make the African-American and European-American copula contraction patterns seem dissimilar, and Labov regarded this as implausible.

But there are several rebuttals to this line of argument. First, the European-American pattern of Figure 10 shows only a copula/auxiliary disjunction (verb + *ing* and *gonna* separated from noun phrase, adjective, and locative), whereas the AAVE pattern shows a finer separation of all five following environments, probably due to qualitative differences in the kind of copula each environment took (including zero) in the West African and Cre-

TABLE 8. *Straight Contraction of* is *by Following Grammatical environment for nine European-American speakers (%s and variable rule probabilities)*

Environment	Probability	Percentage
gonna (*n* = 19)	.34	58
Verb + *ing* (*n* = 84)	.73	76
Locative (*n* = 66)	.66	65
Adjective (*n* = 194)	.60	69
Noun (*n* = 211)	.39	36
Miscellaneous (*n* = 38)	.28	21

Source: McElhinny, in press: Table 4, p. 26.

TABLE 9. *Variable rule weightings assuming a contraction rule by Following Grammatical environment*

Following environment	Variable rule weighting
gonna	.73
Verb + *ing*	.30
Locative	.74
Predicate adjective	.40
Noun phrase	.32

Source: Fasold, 1990: Table 3, p. 12.

ole languages from which AAVE derives (Alleyne, 1980; Baugh, 1979; Holm, 1976; Dennis & Scott, 1975).

Second, the putative European-American pattern was based on *is-* contraction data from only eight Inwood, New York, speakers. When Stanford University student Bonnie McElhinny (1990) attempted to replicate Labov's results with *is-* contraction data from nine European-American Vernacular English (EAVE) speakers from California, Pennsylvania, New York, and Indiana, she found that individuals varied widely in terms of the relative effects of the following grammatical categories, unlike the case in AAVE. And although their pooled *is-* contraction data, shown in Table 8, is somewhat parallel to Figure 10 in showing noun phrase less favorable to contraction than verb + *-ing*, it diverges from it quite dramatically in showing *gonna* as the most disfavoring environment rather than the most favorable one.[13] Fasold's (1990) Varbrul results for contraction of *is* + *are* among 14 European-American speakers from the Washington, DC, area, shown in Table 9, reveal some expected orderings, too (noun phrase less favorable than adjective, for instance), but also several surprises (verb + *-ing* as the least favorable environment, locative as the most), so much so that, "It was a relief that

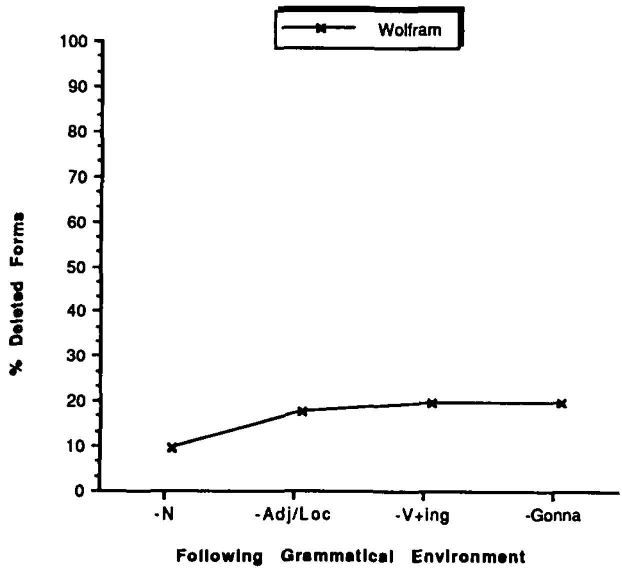

FIGURE 11. Straight Deletion of *is*, European-American Mississippi speakers. (*Source*: Wolfram, 1974:514.)

the regression component of VARBRUL 2S discarded the entire following environment factor group, as failing to contribute significantly to the predictive power of the analysis. The significance level did not approach the required .05" (Fasold, 1990:12).

All in all, what these replication studies suggest is that there really *is* no stable, significant, and well-established following grammatical contraction hierarchy for EAVE speakers with which AAVE contraction and deletion patterns should agree, even if we considered such agreement a theoretically desirable end (see Figure 11).[14] Furthermore, although there is valid explanation for at least part of the deletion/insertion hierarchy if a prior creole ancestry for AAVE is assumed (Creole *go/gon* is a future marker that *never* takes a preceding copula, Creole noun phrases always require an *a* or *da* copula, and so on; see Holm, 1984:298), there is no persuasive reason to expect AAVE or EAVE *contraction* to follow a similar pattern.

The other reason to expect African-American deletion and European-American contraction patterns to match is, of course, Labov's (1982:180) qualitative observation that, "Where other dialects of English can contract, BEV can delete or contract the copula; but where other dialects cannot contract, BEV cannot delete or contract." But Ferguson (1971) showed that Russian, Arabic, Haitian Creole, and other "Type B" languages that usually do not have an overt copula in present tense contexts nevertheless require one in some of the same places that AAVE and other English dialects do: exposed

TABLE 10. *Six Vernacular Black English variables as used by six African-American East Palo Altans, grouped by age*

Speaker, age, tape no.	Invariant *be*	*is, are* absence	Possessive *-s* absence	3rd sg. *-s* absence	Plural *-s* absence	Unmarked past tense
Old Folk						
John Carbon, 88 EPA 1, 2	1	19% (123)	0% (5)	63% (117)	12% (112)	20% (245)
Penelope Johnson, 76 EPA 5, 6	0	15% (55)	13% (23)	57% (75)	10% (242)	14% (372)
Mid Age						
Dotsy Boston, 42 EPA 24–26	1	18% (77)	0% (2)	54% (65)	3% (124)	10% (69)
Paula Gates, 38 EPA 14	0[a]	35% (115)	36% (11)	44% (34)	1% (145)	12% (135)
Teenagers						
Tinky Gates, 15 EPA 12, 13	50	81% (256)	53% (15)	96% (56)	11% (167)	11% (132)
Foxy Boston, 14 EPA 7, 8	146	90% (154)	86% (22)	97% (69)	13% (107)	9% (147)

[a]In a subsequent interview, Paula Gates did use a few tokens of invariant *be*, however.
Source: Rickford, in press: Table 1, p. 37.

or clause-final position, past tense, stressed position, and so on. To the extent that such similarities turn out to be universal, they undermine the argument for manipulating the quantitative contraction/deletion frequencies of AAVE to match those of EAVE. At present, we are following up on Ferguson (1971) by looking more intensively at constraints on copula contraction and absence in languages around the world, exploring the possibility that the AAVE patterns might reflect universal grammatical constraints.

Change in progress or age-grading?

Let us turn briefly now to the second issue, of whether the significant age effect for deletion shown in Table 6 and Figure 6 signifies change in progress, perhaps increasing divergence from Standard English of the type Labov, Bailey, and their colleagues reported for other areas (see Fasold et al., 1987). As Table 10 (from Rickford, in press) shows, the copula is only one of several variables that show strong age correlations in EPA. Invariant *be* and zero possessive *-s* also show the adolescents clearly ahead in terms of vernacular or nonstandard values. But in the case of plural *-s*, there is no difference among the age groups, and in the case of past marking the old people are actually *more* nonstandard than the young ones. So, evidence of divergence needs to be balanced against evidence for convergence, as Denning (1989) and others have noted.

Furthermore, with no reference point in real time, it is difficult to tell whether the copula patterns represent change in progress or stable age-grading. Our openness to the latter possibility has been increased by the discovery of a new AAVE variable, the use of *had* to mark simple past instead of pluperfect, as in (4).

(4) I was goin, "Ma! Ma!" And then she *had* just came, came in there, and then she *had* threw water on me and stuff. (6th grader, East Palo Alto)

Here, *had* simply marks successive narrative events rather than an earlier but out-of-sequence one as it does in Standard English ("Before we came around a corner, we *had* gone home"). This "simple past" *had* is common among fifth and sixth graders but seems to disappear by the end of the first year in middle school (Rickford & Theberge, 1989; Theberge, 1988).[15] Recent reinterview data on Foxy Boston, the most vernacular speaker in our East Palo Alto sample, also seems to suggest that age-grading might be at work, at least where copula absence is concerned. When she was first interviewed in 1987, just having turned 14, Foxy omitted the copula 90% of the time, but when reinterviewed in 1990, under similar circumstances and with the same interviewers (Faye McNair-Knox and her teenage daughter), Foxy's overall copula absence had dropped to 70%. Interestingly enough, her *are*-absence frequency had remained high (99% in 1987, 86% in 1990); what had changed in the interim is that her *is*- absence frequency had dropped dramatically (79% to 44%), making her more similar to her mother (Dotsy Boston) and other adults, who favor *are*- deletion significantly more than *is*-deletion.[16]

We plan to continue considering the issue of whether high copula absence rates in EPA represent stable age-grading or an ongoing change in progress that will eventually alter the community norm for all age groups (see Rickford, in press, for further discussion). But note that in either case, a copula *insertion* (rather than deletion) rule seems the most reasonable way of accounting for the limited *is/are* use of the youngest speakers in our sample, like Tinky. For older speakers, who use overt forms of the copula more often, the assumption that it is underlying, but sometimes deleted, is more plausible. If we took frequency of usage considerations into account in this way, we might well have to represent different age groups in this small intercommunicating speech community by means of widely different rule schema, as is necessary in some creole continua. This poses a number of theoretical and methodological challenges that we hope to explore in future work.

SUMMARY

In the spirit of the title of this article, and in tribute to one of the most distinctive art forms to have emerged in America in recent years, we present our summary in the form of the rhymed rap that we "performed" at the end of our presentation at NWAVE-XVII in Montreal:

Folks who study the copula tend to forget
That the method you use, 'fects the results that you get.
In the case of *is* and *are*, it doesn't seem to matter,
Whether you study 'em apart, or study 'em together.

Labov Contraction versus Straight is the biggest gap we found;
In following grammatical, the differences abound.
Labov Deletion versus Straight is really no big deal,
But if we had more full forms, the differences might be real.

The larger question raised by these quantitative tools,
Is the relation of the contraction and deletion rules.
The pioneer of the copula, his name's Labov, you know,
Said contraction 'fore deletion, the figures seemed to show.

But the order of the rules really don't affect the game.
If you use Romaine's methods, results come out the same.
In short, the AAVE rules, and their relation to SE,
Are still open to discussion, as far as we can see.

One effect we found is due to differences in age.
Young groups delete the most, and this may represent a stage.
To know if age-grading is a factor here,
We need to study these kids as they advance in years.

THE COPULA AIN'T DEAD, AS WE HAVE TRIED TO SHOW–
THERE'S A LOT TO BE LEARNED 'BOUT THIS VARIABLE, YOU KNOW!

NOTES

1. Our sample is comparable in token size to Labov's (1969) sample from four adolescent groups in New York City in the 1960s, which included 1,455 copula tokens.
2. The list of Don't Count (DC) present tense cases excluded from our quantitative analysis is very similar to the DC lists of Wolfram (1969) and Labov et al. (1968). They include: clause finals; tokens of *is* followed by *s*; tokens of *are* followed by *r*; tokens of *am*; tokens of *what's*, *it's*, and *that's*; tokens under primary stress; and *ain't* and other negatives. Blake (1992) provided a separate analysis of these DC forms in a sample of our data.
3. Tinky's high copula absence rate (100% in this extract, 80% to 90% more generally) erodes the stereotype that AAVE is restricted to inner-city males. It is typical of EPA *youth*, both male *and* female.
4. The variable rule computer program we used is a Macintosh version (MACVARB) developed by Gregory Guy and Bill Lipa at Stanford University. It is a pleasure to acknowledge their assistance.
5. In general, these are factors whose probabilities are close to each other and close to the .5 level; excluding them does not make a statistically significant difference to the analysis.
6. The factor weights or values in Tables 3–8 are taken from the run in which all the factor groups are included to provide data on the nonselected factor groups. Corresponding values for the runs that include only the significant/selected factor groups are either identical or very similar (usually differing by only a decimal point or two). The only difference worth noting is that the input probabilities for runs 1 and 2 are .67 and .80 (instead of .60 and .75, respectively) when only the significant factor groups are retained.

7. Incidentally, we separated other pronouns from the personal pronouns because we wanted to see whether the strong favoring effect on contraction reported for subject pronouns in earlier work was due entirely to the fact that most of them end in a vowel—which also favors contraction; all of our personal pronouns end in a vowel, and their high probabilities (.78, .82) suggest that their strong favoring effect is due to more than the fact that they end in vowels, because the probabilities for the latter are lower (compare .64, .59 for preceding vowels in Table 4).

8. Recall that contraction removes the copula vowel (iz → z); deletion removes the remaining sibilant (z → ∅).

9. This factor group is important because of the crucial role it has played in the creole origins and divergence issues.

10. This is also true of the Labov Deletion and Straight Deletion runs in Table 6, although the variation in the input probability there is somewhat smaller (.62 vs. .35).

11. Romaine's (1982:219) Table 8.1 shows *gonna* rising to .76, but this is a mistake, because the fraction of contracted over contracted plus full forms in this environment for the Jets is $\frac{2}{4}$ (Labov, 1969:732) rather than $\frac{3}{4}$ (the fraction in Romaine's Table 8.1).

12. Because the white speakers in Labov's and McElhinny's studies never deleted the copula, contraction results in either case would be the same whether computed by Straight Contraction or Labov Contraction (see Table 1). To allow for the possibility of deletions among some white speakers (see Wolfram, 1974), it might be best to think of these studies as depicting Straight Contraction.

13. Table 8 depicts both relative frequencies and variable rule probabilities or factor weights. In general we refer to the probabilities because they take into account the simultaneous effect of other constraints (such as subject), whereas the frequencies do not.

14. Note that Wolfram's (1974:524) Straight *is*- deletion statistics for white Mississippi speakers (he gives no contraction data) essentially only discriminate between noun phrase and other following environments, again raising doubts about the robustness of the white patterns.

15. The use of simple past *had*, similarly age graded, has also been reported for African-American speakers in Houston, Texas (Karin Cordell, personal communication).

16. With respect to the use of invariant habitual *be*, however, Foxy had become no less vernacular, and indeed more, using over 385 tokens in 1990 compared with 146 in 1987 (see Rickford and McNair-Knox, in press, for discussion).

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