SSLA, **13**, 1–22. Printed in the United States of America.

THE ACQUISITION OF COMMUNITY SPEECH NORMS BY ASIAN IMMIGRANTS LEARNING ENGLISH AS A SECOND LANGUAGE

A Preliminary Study

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We investigate Vietnamese and Cambodian immigrants' acquisition of the variable (ing), which occurs in progressive tenses, participles, noun phrases, etc., and which can be pronounced [iŋ] or [In]. A VARBRUL 2 program analysis of native speaker speech shows that the production of (ing) is constrained by phonological, grammatical, stylistic, and social factors. An analysis of the nonnative speakers' acquisition of these norms shows that [In] is more frequent before anterior segments (reflecting ease of articulation), and that males use [In] more frequently than females, especially in monitored speech (perhaps reflecting their desire to accommodate to a male native speaker norm rather than to an overall native speaker norm). The analysis also shows evidence of

The research reported here began in a course in sociolinguistic field methods taught by Professor Gillian Sankoff, to whom we express our thanks. The members of this course and of a previous course collected the Philadelphia data and contributed greatly to our understanding thereof. They include: Andy Brown, Thea Lange, Young-suk Lee, Cheri Micheau, Monica Prasad, and Pam Saunders. We thank these scholars for allowing us to use their hard-won results. Thanks to Walt Wolfram of the Center For Applied Linguistics for allowing us to use the data from the Washington, DC, area informants. Thanks also to Jack Hoeksema, Richard Young, and Sharon Ash for helpful discussions. None of these scholars necessarily agrees with our claims. While working on this project, Adamson was supported by a Mellon Fellowship and Regan by a Fulbright Fellowship at the Linguistics Department, University of Pennsylvania.

grammatical constraints which are different from those in the native speakers' speech. This difference may reflect the fact that it is easier to acquire the [In] variant in "frozen forms," such as prepositions, than in productive rules.

A useful construct in the study of variation in interlanguage is Corder's (1981) distinction between vertical and horizontal variation. Vertical variation is variation between forms that can be arranged along a continuum of cognitive or articulatory difficulty. The vertical continuum most often mentioned is the continuum of negative constructions proposed by Schumann (1978) for Spanish speakers learning English negative constructions. This continuum consists of the four stages shown in (1).

(1)	Stage 1	*no* + verb	"She no understand."
	Stage 2	*don't* + verb	"She don't understand."
	Stage 3	AUX + not	"She can't play."
	Stage 4	DO + not	"She doesn't understand."

The first negative form *no* + verb is cognitively simple for Spanish speakers learning English because it resembles the Spanish negative form, and because it conforms to universal language acquisition strategies, such as Naro's (1978, p. 320) factorization principle, which states, "express each invariant, separately intuited element of meaning by at least one phonologically separate, invariant, stress-bearing form." The negative structures in Stages 1 and 2 conform to this principle, but the structures in Stages 3 and 4 do not since in these stages more than one morpheme is expressed by a single form. Andersen (1981) proposed that vertical continua in interlanguages are similar to the continua found in speech communities undergoing decreolization, and he pointed out similarities in the continuum of negative structures proposed by Schumann (1978) and the continuum of negative structures in Guyanese creole.[1]

The horizontal continuum in interlanguage is similar to the continuum of social dialects found within a speech community. According to Corder (1981), the alternating forms along this continuum are not more or less difficult, just different. For example, a second language learner exposed to both black English and standard English might produce structures with pronoun reduplication, such as, "My father, he's a doctor," and also produce structures without pronoun reduplication, such as, "My father's a doctor."

Young (1988) depicted the horizontal continuum in second language acquisition as variation between two target language forms, perhaps a prestige variant and a nonprestige variant, as in the earlier example. According to Young, second language learners must progress along the vertical continuum before they can progress along the horizontal continuum. Thus, early variation will be between a nontarget language form and a target language form, or perhaps between two nontarget forms. Since horizontal variation involves two target language forms, it will come later. Ellis (1985) presented a similar picture, characterizing the vertical continuum as developmental variation and the horizontal continuum as social variation. In sum, according

to these scholars, the study of the vertical continuum is the study of linguistic competence, and the study of the horizontal continuum is the study of sociolinguistic competence (cf. Canale & Swain, 1980). Progress along the vertical continuum indicates how well the learner has acquired the nativelike structures of the language. Progress along the horizontal continuum indicates how well the learner has adopted the sociolinguistic norms of the community.

A problem with Corder's distinction between the two types of continua is that they are not completely distinct. Some standard variants are not just different from nonstandard variants, they are also cognitively or articulatorily more complex. For example, Kroch (1982) claimed that nonstandard dialects tend to contain phonetically less complex forms than standard dialects. He stated:

> Dominant social groups tend to mark themselves off from the groups they dominate . . . by introducing elaborated styles. . . . In the case of pronunciation they inhibit . . . many of the low level variable processes of phonetic conditioning that characterize spoken language. (p. 228)

The relative phonetic simplicity of some nonstandard variants creates a problem for studying the acquisition of sociolinguistic norms by second language learners, since it can be difficult to tell whether a particular form represents horizontal or vertical variation. For example, Dickerson (1975) presented her study of the acquisition of / ð / by Japanese speakers as a study of vertical variation, but this interpretation was complicated by the fact that / ð / alternates with /d/ in many nonstandard dialects. Thus, the alternation between the two forms could represent at least some element of horizontal variation. The same ambiguity arises in Wolfram's (1985) important study of *t-d* deletion in the English of native Vietnamese speakers. Wolfram found that the phonological environment influences final *t-d* deletion in Vietnamese English in roughly the same way that it influences this deletion in standard and nonstandard English, namely, final *t* or *d* is more likely to be deleted before consonants than before vowels. This tendency is undoubtedly due in part to universal principles of phonetic difficulty. But as Kroch (1982) noted, the frequency of *t-d* deletion is also an indicator of social class. Thus, the progress of Wolfram's subjects along the vertical continuum toward less *t-d* deletion may be affected by their movement along the horizontal continuum towards at least some *t-d* deletion. In other words, it is unclear to what extent these speakers' *t-d* deletion is developmentally motivated and to what extent it is sociolinguistically motivated.

To summarize, studying the adoption of sociolinguistic norms by second language learners is complicated by the fact that it can be difficult to separate horizontal and vertical variation. A research design that could avoid this complication is one where the learners' native language supplies the prestige variant of a sociolinguistically sensitive form. Since it is likely that the initial form of the variant produced by the subjects would be based on the native language, that form would correspond to the prestige native speaker form—in effect eliminating the vertical continuum. The appearance of the nonprestige form would signal only the adoption of community norms or movement along the horizontal continuum. Such is the design of the present study.

Table 1. Syntactic categories in which (ing) occurs

Categories	Example
Type 1 [−N +V]	
progressive	He's eating pizza.
periphrastic future	He's going to eat pizza.
VP complement	I like watching rugby.
WHIZ deletion	The man going home stopped.
sentential complement	You've got to be quick, throwing answers back.
participle	We go out there fishing.
Type 2 [+N +V]	
adjective	This is a tempting idea.
complex gerund	I want a swimming pool.
Type 3 [−V −N]	
preposition	It was during the summer.
Type 4 [+N]	
gerund	I was amazed by Mary's recovering her wallet.
Type 5 [+N −V]	
place name (internal)	Washington is the capital.
noun	It's on the ceiling.
t-form (only two)	I saw something.
	I saw nothing.

We have chosen to study the variable (ing) in the English of Vietnamese and Cambodian speakers living in Philadelphia and the Washington, DC, area. This well-studied variable has been found to reflect the social class and sex of speakers in the target speech community. But unlike the features in many second language (L2) acquisition studies, the prestige variant [iŋ] (hereafter G) is supplied by our subjects' native language phonology and appears to be the form first used by them. Thus, the appearance and spread of the nonprestige variant [In] (hereafter N) is a measure only of these speakers' integration into the speech community. We will first review previous studies of the (ing) variable, then report our own findings regarding (ing) variation among Philadelphia native English speakers, and finally report on the (ing) variation among our Vietnamese and Cambodian speaking subjects.

LITERATURE REVIEW

The Variable (ing)

The suffix (ing) occurs in a wide variety of syntactic structures. The structures that we examined are shown in Table 1, where they are classified using the syntactic features [verbal] and [nominal] proposed by Chomsky (1970) and Jackendoff (1977). The classification shown in Table 1 is unusual in that the two features are allowed to

generate five types of syntactic constructions rather than four. This is accomplished by allowing the feature [verbal] to be unspecified in the classification of gerunds. The reason for this unusual procedure is that gerunds do not fit neatly into any of the other types in the table. Gerunds are like nominals (Type 5) in that they occur in subject and object position in a clause. However, they are like verbals (Type 1) in that they can take a direct object, aspect, and adverbial modifiers, as in (2).

(2) Mary's never having visited Greece shocked George.

Houston (1985) argued that the nondiscrete nature of gerunds is motivated by their historical origin, as discussed later.

Sociolinguistic Studies of (ing)

Research has consistently shown that the (ing) variable is a widespread and highly stable one throughout the English-speaking world. There seems to be no change in progress. Even age, usually a crucial factor for testing change in progress, suggests nothing in the line of change. Fischer (1958) was the first quantitative study of (ing). It examined the social factors that condition the variable. In the case of schoolchildren, sex, orientation in school, and topic affect the proportion of N and G variants. Males used N more, and casual speech had a higher proportion of N. Anshen (1969) studied (ing) in southern black and white speech, and found a number of similar features. In both black and white speech, men used a higher percentage of N than women. Casual speech contained a higher percentage of N than careful speech. Speakers with less education and less prestigious occupations used more N. Blacks had a higher percentage of N than whites—this being at times 100%. Labov (1966) first demonstrated the social stratification of (ing). In his study of New York City speech, he found a correlation between blacks and frequent N usage. He also found that southern black speakers used more N than northern blacks.

Trudgill (1974) in his Norwich study found, in common with the other studies, that males tended to use N more than females, and that working-class and casual speech contained higher frequencies of N than upper-class and careful speech. Trudgill found that (ing) is a good indicator of social class and that it can vary from 0% in middle-middle class (MMC) and lower-middle class in word list style, on the one hand, to 100% in lower-working class in casual style, on the other hand. Stylistic variation is greatest in the case of the upper-working class, with a range of from 5–87%. Trudgill (1974, p. 100) suggested that this is due to "U[pper] W[orking] C[lass] L[ower] M[iddle] C[lass] awareness of the social significance of the linguistic variable, because of the borderlike nature of their social class position. The linguistic insecurity in the large amount of UWC stylistic variation for (ing) is part of the same tendency. . . . " Trudgill said that (ing) differentiates between his five classes of social groups, but it particularly points up the distinction between middle-class and working-class speakers. UWC speakers show the greatest amount of stylistic variation and MMC speakers show the least. As regards sex, males have a higher usage of N than females. Trudgill suggested that this is so because women are more status conscious than men. Also, it appeared to him that the use of N had connotations of toughness and masculinity, and so it was

actually seen as a prestige form in working-class speech. Trudgill concluded that this phonological variant reflects part of the value system in our culture.

On the linguistic level, several studies have found evidence for regressive assimilation. Shuy, Wolfram, and Riley (1968) and Cofer (1972) found that a following velar stop favored G, and a following alveolar stop favored N. In addition, Cofer's (1972) study of (ing) in Philadelphia speech found evidence for a grammatical effect, where the indefinite pronouns *something* and *nothing* favor G. Cofer attributed this effect to the fact that these pronouns are in a closed syntactic class and, thus, can be targets of conscious attention. He also noted that analogy with *everything*, which in American dialects always takes G, may be a factor.

Houston (1985) found that the grammatical category in which (ing) occurred had a most interesting effect on the distribution of N and G among British speakers. When (ing) occurred in nouns or in the pronouns *something* and *nothing*, G was used at a high frequency. However, when (ing) occurred in verbs such as the periphrastic future or progressive, N occurred much more frequently. Following Ross (1972), Houston was able to arrange the categories in which (ing) occurred along a continuum ranging from noun to verb that reflected the frequency at which a category took N. A simplified version of this continuum is shown in (3).

(3) progressives < participles < gerunds < t-words < proper nouns

The hierarchy in (3) is implicational, for it makes the claim that the frequency of N in any particular category is higher than the frequency of N in all categories to the right of it. Houston concluded that the grammatical categories in which (ing) can occur are not discrete, but form a continuum ranging from noun to verb, and that this continuum is the result of a historical merger.

Prior to the 14th century, the present participle in English did not take the suffix *-ing*, but rather *-ind*.[2] The suffix *-ing* occurred with verbal nouns, such as *lufiung* "loving," and concrete nouns, such as *farthing* "farthing." Houston argued that as verbal nouns acquired more features of verbs, such as aspect and adverbial modification, as shown in (2), the functional difference between nominals and verbals was blurred, with gerunds occupying the fuzzy area between the two categories. The partial coalescing of the categories *verbal noun* and *verbal* led to a blurring in the phonetic distinction between the two categories, which were already very similar; thus, [nd] began to be pronounced [ŋ]. By the end of the 14th century, this sound change had progressed to the point that it was reflected in the orthography, so that all the forms in Table 1 were spelled with *ing*. Despite the similarity in spelling, however, nominal and verbal (ing) forms continued to be pronounced variably up to the present day. Thus, the frequency at which a particular grammatical category takes N or G is related to the historical development of that category. An interesting question, then, is whether the speech of subjects in the present study, natives and nonnatives, exhibits a similar pattern of grammatical conditioning.

To summarize, all of the studies have found the variable (ing) to be sensitive to social and linguistic factors. On the social level, (ing) is sensitive to a speaker's sex, speaking style, and socioeconomic class. On the linguistic level, (ing) is sensitive to both the phonological and the syntactic environments. Houston (1985) concluded,

Table 2. Native English speaking subjects

Subject	Age	Sex
1. George	44	M
2. Mena	70	F
3. Irma	90	F
4. Andy	33	M
5. Lou	18	F
6. Ellen	38	F
7. John	34	M
8. Helen	61	F
9. Mark	33	M
10. Hanya	54	F
11. Cecilia	17	F
12. Andreas	18	M
13. Katya Z.	19	F
14. Katarina S.	20	F
15. Linda K.	21	F
16. Olga M.	21	F
17. Janosh	23	M
18. Allen D.	25	M
19. Cindy C.	34	F
20. Mark	35	M
21. Hanya K.	35	F
22. Roma	45	F
23. Vavara	60	F
24. Olivia L.	70	F
25. Natalia J.	75	F
26. Lydia O.	75	F
27. Mary Theresa	75	F
28. Jim	80	M
29. Ludmilla R.	84	F
30. Lou Ann P.	39	F
31. Maxim B.	65	M

"not only external, social factors influence the realization of (ing) in a regular stable way across diverse speech communities, but internal linguistic factors exhibit such stable patterns as well" (p. 50).

METHOD

Subjects

The subjects for the present study of (ing) included both native and nonnative English speakers, most of whom lived in Philadelphia. Information about the 31 native English-speaking subjects appears in Table 2.

Table 3. Nonnative English speaking subjects

Name	Age	Sex	Length of U.S. Residence (months)	Native Language	City
1. Doug Lan	19	M	30	Vietnamese	Philadelphia
2. John	40	M	96	Cambodian	Philadelphia
3. Susan	15	F	60	Cambodian	Philadelphia
4. Pham	34	M	96	Cambodian	Philadelphia
5. Le Duc Tran	25	M	12	Vietnamese	Philadelphia
6. Ms. Lee	38	F	36	Vietnamese	Philadelphia
7. Chu Sou	22	M	02	Cambodian	Philadelphia
8. Mr. Tong	40	M	96	Vietnamese	Philadelphia
9. Le Tai Lan	16	F	12	Vietnamese	Philadelphia
10. Le Van Tran	34	M	12	Vietnamese	Philadelphia
11. John Chan	19	M	12	Vietnamese	Philadelphia
12. Mary	13	F	96	Vietnamese	DC area
13. Nguyen Van Tri	12	M	96	Vietnamese	DC area
14. Lai Tai	40	F	36	Vietnamese	DC area

The nonnative English speaking subjects included speakers of Vietnamese and Cambodian. Information about these speakers appears in Table 3. Since there were so few nonnative English-speaking subjects, and since interviews with nonnative speakers typically produce very few tokens of (ing), it was necessary to supplement the Philadelphia data with data collected from three Vietnamese speaking residents of the Washington, DC, area. We assume that the English dialects of these two East Coast cities are sufficiently similar in regard to (ing) so that the input that the Washington nonnative speakers received fairly closely resembled the input that the Philadelphia nonnative speakers received.

Before describing the data elicitation techniques, we review the evidence that supports the claim that G is the first variant of (ing) produced by our nonnative subjects. The main evidence for this claim will show that G is used categorically by the least proficient subjects and remains the most frequent variant for even the most advanced speakers. These facts make sense from the point of view of our subjects' native languages. Both Vietnamese and Cambodian contain contrasting phonemes /n/ and /ŋ/, which both occur in final position. In Cambodian, there appears to be no conditioning of final nasals after particular vowels, so that both [n] and [ŋ] occur after all vowels (Jacob, 1968, pp. 153–162). In some dialects of Vietnamese, there is conditioning, so that the distinction between [n] and [ŋ] collapses after certain vowels, where only [ŋ] occurs. Thus, in final position, [ŋ] occurs more frequently than [n] (William Hannas, personal communication, April 18, 1988). Perhaps a second reason that G is the base form of (ing) for our Vietnamese informants is that in Vietnamese orthography, the symbol *ng* is realized exclusively as [ŋ]. Our literate subjects may

have equated the English and the Vietnamese *ng* spellings and therefore supplied [ŋ] as the initial variant of (ing).

Data Elicitation

The Philadelphia data were collected by graduate students in a sociolinguistics field methods course at the University of Pennsylvania. The students tape-recorded interviews conducted using the standard question modules developed at the University of Pennsylvania (Labov, 1984). These modules are intended to control for shifts in formality, topic, and audience by using a standard format in which one or two interviewers ask memorized questions about topics that include "danger of death," "community services," "childhood games," and so on. The Washington, DC, area data were collected by a native English-speaking graduate student at Georgetown University. The questions in the interviews were roughly similar to those used by the Philadelphia interviewers.

Procedures of Data Analysis

The variation of (ing) in the native and nonnative speech samples was analyzed using the VARBRUL 2 computer program (Cedergren & Sankoff, 1974). In order to use the program, the analyst must first specify the linguistic and extralinguistic factors believed to constrain the variation. Following Cofer (1972) and Houston (1985), we hypothesized that four broad groups of factors would affect (ing) variation: Grammatical Category, Following Phonological Environment, Speaking Style, and Sex of Speaker. We next divided these factor groups into their constituent factors. For example, the factor group Sex of Speaker contains only two factors: Male and Female. We then coded each token of (ing) that appeared in the data, marking which dependent variable (N or G) occurred, and which of the independent variables (the proposed factors) co-occurred with the dependent variable.

The VARBRUL 2 program isolates the contribution (if any) of each proposed factor to the probability of N or G being produced. In this study, we assume that G is the underlying form, and that it is variably changed to N. Table 4 displays the results of the final VARBRUL 2 run for the native speakers, which will be discussed in detail below. Column 1 in Table 4 shows the four proposed factor groups: Speaking Style, Sex of Speaker, Grammatical Category, and Following Phonological Environment. Column 2 shows the factors that make up each group. The VARBRUL 2 program reflects the claim of variation theory that many factors simultaneously influence a speaker's choice of a particular variant. Thus, style could reflect the degree of monitoring, or attention paid to speech (Labov, 1984). Formal styles should favor the prestige variant G. Trudgill (1974) suggested that the factor of Sex can reflect a speaker's degree of linguistic insecurity, and that women use G more than men because they are more sensitive about their social position. The effect of the following phonological environment could reflect articulatory difficulty, so that N would

Table 4. Probabilities of N in the Philadelphia native speaker data according to monitoring, sex, grammatical category, and following phonological environment

			p	%	*n*
Speaking Style	Monitored	response language soapbox careful	.32	28	228
	Unmonitored	quote narrative group kids tangent casual	.72	72	231
Sex of Speaker	Female		.24	20	269
	Male		.77	65	251
Grammatical Category	Future[a]		1.00	100	20
	Progressive		.63	55	209
	Verbal	participle verb complement sentence complement WHIZ deletion	.47	33	96
	Gerund		.46	24	67
	Modifier	adjective complex gerund	.45	43	35
	Nominal	noun t-form internal	.29	23	78
	Preposition		.13	2	9
Following Phonological Environment	Apical		.61	49	137
	Labial		.56	53	79
	Back	velar palatal	.50	45	22
	Semivowel		.46	42	45
	Pause		.43	33	79
	Vowel		.42	36	151

NOTE: input probability = .39; chi-square per cell = .870.

[a]Since N occurs categorically for this factor, *future* is a "knock out" constraint and, therefore, was not included in the actual VARBRUL analysis. It is included here to give a complete picture of the effect of grammatical categories.

occur more often when the following sound is an apical. The grammatical category could be related to a speaker's internal representation of (ing). If it is found, for example, that N occurs significantly more often with progressives than with gerunds, this finding could reflect the position of these categories along the nominal-verbal continuum, shown in (3).

As mentioned, the VARBRUL 2 program calculates the probability (if any) that each proposed factor contributes to the occurrence of N or G and displays its finding by attaching a decimal number, or coefficient (*p*), to each factor. The *p* values are shown in Column 4 (Table 4). A *p* value greater than .50 indicates that the factor favors N, whereas a *p* value less than .50 indicates that the factor disfavors N. The program also provides two statistical measures of how well the linguist's analysis of the data—that is, the proposed factors and factor groups—actually fits the data. One measure is a chi-square per cell figure which, according to Preston (1989, p. 15), should be no higher than 1.5, and preferably below 1.0. The second measure is a stepwise regression analysis that calculates the extent to which each factor group accounts for the variability in the data (cf. Cedergren & Sankoff, 1974). We should note that our analysis of (ing) for native English speakers living in Philadelphia cannot be definitive. This is so because our data are limited, only 520 tokens, and because the data were collected by two different groups of investigators using two slightly different coding schemes. However, our goal is merely to find the broad pattern of (ing) variation among native speakers, in order to compare it to the broad pattern of (ing) variation among the nonnative speakers.

In coding the data for a VARBRUL 2 analysis, it is a good idea to code as broadly as possible, so that all factors that are suspected to affect the variable are included. This is so because factors for which there are insufficient data can easily be discarded or combined with similar factors during the data analysis. However, if it is suspected that a factor is at work that has not been coded for, the entire corpus must be coded again. Table 4 shows that we have combined many of the original factors. For example, in the factor group Style there were originally 10 factors, 4 of which represented a careful or monitored style, and 6 of which represented a casual or unmonitored style. In the final analysis, these factors were combined to form only two factors: Monitored and Unmonitored.[3]

A fact not noted in Table 4 is that originally four different dependent variables were coded for: N, G, [in], and [Ĩ]. However, the VARBRUL 2 program can analyze only binomial variants. The simplest way of dealing with the problem of multinomial variants is to discard all of the variants but two. Naturally, this procedure is justified only if very few tokens are thereby discarded. In our data there were only 13/520 or 2.5% tokens of [in] and 11/520 or 2% tokens of [Ĩ]. We therefore feel justified in noting that these forms exist in very small percentages in Philadelphia speech and, as a consequence, removing them from further analysis.

The next step in the analysis is to determine whether there are any factors in whose presence N always or never occurs. If so, these *knockout factors* must be excluded from the input to the VARBRUL 2 program, since it can handle only variable data. As is often the case, several knockout factors occurred in the initial analysis, due to an insufficient number of tokens involving that factor. However, when the

Table 5. Frequency of N according to style and sex of speaker

		Style							
		Monitored		Reading		Unmonitored		Total	
Subjects	Sex	%	*n*	%	*n*	%	*n*	%	*n*
Natives	female	8	157	—	—	42	85	20	242
	male	51	130	—	—	85	95	65	225
	total	28	287	—	—	65	180	58	467
Nonnatives	female	9	45	0	3	20	57	15	105
	male	38	66	27	11	14	114	23	191
	total	26	111	21	14	16	171	20	296

factors were conflated in the way shown in Table 4, all of the knockout factors except *future* disappeared. Thus, although *future* is included in Table 4 for convenience, it was not part of the VARBRUL 2 analysis.

RESULTS

As Table 4 shows, the chi-square per cell score for the VARBRUL 2 analysis is .870, which exceeds Preston's (1989, p. 15) criterion for a good fit between the theory of which factors constrain the variation represented in Table 4 and the actual data. The stepwise regression showed that the effects of three of the four factor groups were significant: Style, Grammatical Category, and Sex. However, the effect of Following Phonological Environment was not significant.

The Effects of Sex and Monitoring

Table 4 shows that for the native speakers, the two sexes produce N at very different rates: for females, $p = .24$ (20%), whereas for males, $p = .77$ (65%). Before looking at the effect of monitoring, it is necessary to ask whether monitoring has the same effect for both sexes. It is possible, for example, that when females monitor, they produce a lower frequency of N, but when males monitor, they produce a higher frequency of N. If this were the case, the variables (i.e., the factor groups) Sex of Speaker and Style would be said to "interact." The VARBRUL 2 program assumes that variables do not interact, so if an interaction is detected, one of the interacting variables must be eliminated from the VARBRUL 2 analysis. Interaction can be checked for by crosstabulating the factor groups Sex of Speaker and Style. This crosstabulation is shown in Table 5, which reveals that monitoring has the same effect for both sexes. When females monitor, they produce N at only 8% versus 42% when they do not monitor. When males monitor, they produce N at only 51% versus 85% when they do not monitor. Since monitoring produces the same effect for both males

and females, the constraints in the factor groups Sex of Speaker and Style do not interact, and, therefore, including both factor groups in the VARBRUL 2 analysis is justified. Table 4 shows that for monitored style, $p = .32$ (28%), whereas for unmonitored style, $p = .72$ (72%).

In considering the effects of sex and monitoring for the nonnative speakers, we first look at these speakers' overall percentage of N, also displayed in Table 5. This table shows that the nonnative speakers produce only 20% N, compared to the native speakers' 58% N. This finding supports the claim that G is the underlying form for the nonnative speakers. Table 5 also shows that the nonnative females produce 15% N, which almost matches the native females' rate of 20% N. However, the nonnative males produce 23% N, a higher frequency than that of the nonnative females and the native females. This fact suggests that these two groups of speakers may be accommodating toward different targets: nonnative females toward native females and nonnative males toward native males. This hypothesis is strengthened by the data regarding monitoring. Recall that despite the fact that native males and native females used N at very different rates, monitoring disfavored N for both sexes. Table 5 shows that monitoring works this way for the nonnative females as well; in fact, in monitored style the nonnative females' frequency of N almost exactly matches the native females' frequency of N: 9% and 8%, respectively. However, monitoring works in the opposite way for the nonnative males: it favors N. In unmonitored style the nonnative males produce 14% N, but in monitored style they produce 38% N, a difference which is significant at the .005 level ($\chi^2 = 13.6$; $df = 1$).

The fact that monitoring seems to work differently for nonnative males and nonnative females indicates that for these speakers the factor groups Sex of Speaker and Style interact. Therefore, it is not permissible to use the VARBRUL 2 program to analyze the effects of both factor groups since the program assumes that no variables statistically interact. Thus, the factor group Style is removed from the VARBRUL 2 analysis described in the next section.

The Effect of the Following Phonological Environment

As mentioned, many studies of (ing) have reported the effect of regressive assimilation. Shuy, Wolfram, and Riley (1968), Cofer (1972), and Houston (1985) found that a following velar stop significantly favored G and a following apical favored N. Table 6 shows that there is evidence of regressive assimilation in the speech of the native speakers, for whom N is favored when followed by an apical or a labial, segments that are both [+ anterior]. It is interesting that for these speakers G is favored before pauses. The fact that G occurs in a neutral phonological environment is further evidence that G is the underlying form of (ing) for the native speakers. Houston (1985) observed this same pattern among her British subjects.

The effect of the following phonological environment for the nonnative English speakers is in some ways similar to the effect for the native speakers: a following apical or labial favors N. In addition, a following pause strongly favors G, again suggesting that G is the underlying form of (ing) for these subjects.

It is necessary to be cautious about drawing conclusions regarding the figures in

Table 6. VARBRUL 2 analysis of the effect of the following phonological environment on (ing): Probabilities of N

Subjects	Following Environment	*p*	%	*n*
Natives[a]	apical	.61	49	137
	labial	.56	53	79
	velar & palatal	.50	45	22
	semi-V	.46	42	45
	pause	.43	33	79
	vowel	.42	36	151
Nonnatives[b]	velar & palatal	.82	50	4
	labial	.59	23	31
	vowel	.57	19	80
	apical	.52	25	56
	semi-V	.49	22	45
	pause	.34	9	65

[a] χ^2 per cell = .870.
[b] χ^2 per cell = 1.047.

Table 6 since the factor group Following Phonological Environment was found not to be significant by the stepwise regression analysis for both the native and the nonnative speakers. This lack of significance is probably due to the small range of variation within the factor group. For example, for the native speakers, *p* varies only between .61 and .42, a range of .19. By comparison, in the factor group Sex of Speaker, *p* varies between .77–.24, a range of .53 (as shown in Table 4). For the nonnative speakers, the range of variation of *p* is .25 if following velars and palatals are not counted (as should be the case, since there are only four tokens). Nevertheless, the data in Table 6 suggest that a weak phonological conditioning may occur.

In summary, the speech of both the native and the nonnative subjects shows evidence of regressive assimilation. In this respect their speech is similar to that of the subjects studied by Shuy, Wolfram, and Riley (1968), Cofer (1972), and Houston (1985). This fact suggests that such assimilation is motivated by universal phonetic factors, as claimed by Kroch (1982).

The Effect of the Grammatical Category

As mentioned, Houston (1985) found that her subjects' production of (ing) was conditioned by the grammatical category to which the token belonged. Categories that were more nounlike favored G, whereas categories that were more verblike favored N. A simplified version of Houston's continuum of categories was shown in (3), where categories to the left of the continuum favored N, and categories to the right of the continuum favored G.

In our study, the data for the Philadelphia native speakers contain only 520 tokens

of (ing) compared to Houston's 2,363 tokens; therefore, it is not possible for us to make distinctions in grammatical categories that are as fine as Houston's. However, the continuum of grammatical categories shown in the third factor group in Table 4 is similar to Houston's continuum.

Table 4 shows that the two verbal categories *progressive* and *periphrastic future* are most favorable to N, whereas the nominal category is highly unfavorable. As in Houston's data, the verbal, gerund, and adjective forms fall in between these two extremes. In the Philadelphia data, however, the forms in between verbal and nominal are not distinguished: they take N at approximately the same frequency. A major difference between the use of (ing) by the Philadelphia native speakers and the British speakers is the pronunciation of prepositions. For prepositions, the British speakers highly favor N (77%), whereas the Philadelphia native speakers highly favor G (98%). In conclusion, our analysis of the Philadelphia native speakers' data, like Houston's analysis of the British data, shows a grammatical effect on the production of (ing).

We now consider whether a grammatical effect exists for the nonnative speakers. In the VARBRUL 2 analysis of the effect of the following phonological environment, all the nonnative speakers' data were grouped together, even though these speakers were at different levels of English proficiency. This grouping is justified because, as Kroch (1982) pointed out, many studies show that assimilation is motivated by universal phonetic principles, which affect all speakers in a similar way. However, the same assumption is not warranted with respect to the effect of the grammatical category. It can be predicted that if all of the nonnative subjects' data were grouped together, a VARBRUL 2 analysis would show that the categories acquired first by the subjects would favor G, whereas the categories acquired later would favor N. This is so because the "difficult" categories would have been acquired only by the most advanced subjects, who would also be the most likely to use a high percentage of N. A more appropriate way to analyze the effect of the grammatical category on the nonnative data is to use an implicational table, which is often employed in the analysis of cross-sectional language acquisition data (cf. Adamson, 1988; Hatch & Farhady, 1982, Ch. 14). Table 7 presents the nonnative speakers' data in implicational form. The columns in Table 7 contain the grammatical categories in which (ing) can occur and the rows contain the 14 subjects. If a subject never used N in the environment represented by the column, a 0 is entered in the appropriate cell. If a subject supplied N at least once, a 1 is entered. If there are no data for a cell (a common occurrence in L2 studies), a dash is entered.

Table 7 is implicational, for it predicts that if a 1 appears in the column for a particular grammatical category, a 1 should also appear in all the columns to the right of that category. In addition, the table predicts that if a 1 appears in the row for a particular speaker, a 1 should also appear in all the rows above that speaker. Whether the predictions made by an implicational table are accurate can be tested by measuring the *coefficient of scaleability* of the table. If this coefficient is above .60, the pattern contained in the table is significantly different from a random pattern (Hatch & Farhady, 1982). The coefficient of scaleability of Table 7 is .865, well above the minimum requirement. The pattern in Table 7 suggests that the first N forms in

Table 7. Implicational table of N frequency for nonnative speakers

Subjects	Noun	Gerund	Verbal	Adjective	Preposition	T-form	Future	Progressive	*N*
Mary	1	1	1	—	1	1	—	1	30
Nguyen Van Tri	—	1	1	1	1	1	1	1	45
Le Van Tri	—	1	1	—	[0]	1	—	1	15
Pham	0	1	1	[0]	—	1	—	[0]	48
John	—	—	0	0	0	1	1	1	30
Chu Sou	—	—	—	—	—	0	—	1	05
Mr. Tong	—	—	—	—	—	—	—	1	06
Susan	0	—	0	—	—	0	1	1	30
Le Tai Lan	0	0	0	—	—	0	1	—	17
Doug Lan	0	0	[1]	0	—	0	0	0	33
Lai Tai	0	0	0	—	—	0	—	0	15
John Chan	—	—	0	0	—	—	—	0	05
Ms. Lee	—	0	—	—	—	—	—	0	07
Le Duc Tran	—	—	—	—	—	—	—	0	02
Total									288

NOTE: [ ] Indicates cells which violate the implicational pattern.

the nonnative English speakers' speech occurred in the grammatical categories on the right of the table, namely progressive and future, and that N later spread to the categories on the left of the table.

Table 7 shows that the four subjects who appear to be the least proficient in English (at the bottom of the table) produced no tokens of N, which is further evidence that categorical production of G is the first stage in the nonnative speakers' acquisition of (ing). Table 7 also shows that the implicational relationship of the grammatical categories is in some ways the same as, and in some ways different from, this relationship for the native speakers. For both natives and nonnatives the most favorable, or "heaviest," environments for N are progressive and future. This fact suggests that the nonnative speakers begin to produce N in the environments where they may hear it most. But apparently N does not then spread to participle, and then to gerund, and so on, as a "frequency of input" hypothesis might suggest. In fact, the pattern in Table 7 suggests that N next spreads to t-form and preposition, two categories where N is rare in native speaker speech. How can we explain this lack of congruity?

It may be that the order of acquisition of N by our nonnative subjects is related not only to the frequency of N in the input, but also to the learnability of a particular form. Notice that the grammatical categories that do not match the native speakers' order (preposition and t-form) are both members of a closed grammatical class. There are only two t-forms, *something* and *nothing*, and in these data there is only one preposition, *during*. Thus, learning the N variants of these words does not involve learning a productive rule, but rather learning a small number of individual forms. Notice also that future, one of the earliest categories to take N, similarly contains a

single form: *gonna*. Therefore, the pattern in Table 7 suggests that two parameters affect the spread of N through different grammatical environments: (1) the frequency of N in that environment in the input, and (2) whether the grammatical category is open or closed.

DISCUSSION

The analysis of the effect of the grammatical category on the Philadelphia native speakers' speech found that G is favored in nominal categories. Houston (1985) was able to specify a continuum of grammatical categories in which the more nounlike categories showed a higher frequency of G and the more verblike categories showed a higher frequency of N. In the present study, the VARBRUL 2 analysis differentiated only three points along a noun–verb continuum: (1) nouns; (2) gerunds, adjectivals, and participles; and (3) verbs. Nevertheless, this continuum is similar to Houston's continuum, and the lack of differentiation in category (2) is probably due to the relatively small number of tokens in our data.

The syntactic analysis of the nonnative speakers' speech also found a grammatical effect. However, the continuum of grammatical categories through which N appears to spread was not the same as the continuum for the native speakers. Table 7 suggests that the first occurrences of N are in the verbal categories future and progressive. This makes sense because it is in these categories that N occurs most frequently in the native speakers' speech. However, Table 7 does not imply that N next spreads to a verbal category such as participle, as a "frequency of input" hypothesis would suggest. Rather, it appears that N next spreads to the nominal category t-form and to preposition. Both of these categories contain very low frequencies of N in native speaker speech. We have suggested that the reason the nonnative speakers appear to produce N in these environments at a relatively early stage is that these categories are closed—they contain only the words *something, nothing*, and *during*. It should be easier for a learner to acquire these single forms than to acquire N in categories that involve a productive rule. The claim that it is easier to learn a small number of "frozen forms" than to learn a productive rule is made by Wong-Fillmore (1979) in regard to second language acquisition and by Bybee and Moder (1983) in regard to first language acquisition.

The phonological analysis of Philadelphia native speakers' speech is compatible with that of Cofer (1972). Both studies found evidence that (1) monitoring favors G; (2) females produce G at higher frequencies than males; (3) grammatical categories that are more nounlike favor G; (4) regressive assimilation occurs. The analysis of the nonnative speakers' speech also shows some evidence of regressive assimilation, thus supporting the hypothesis that such assimilation is a universal phonetic phenomenon.

The effect of monitoring on the subjects' speech will be discussed in connection with previous studies of monitoring in both first and second language.

Labov's (1972) claim that for native speakers attention to speech (monitoring) results in a shift toward more prestigious variants has been related to theories of variation in interlanguage by several scholars. In the original version of his monitor

model, Krashen (1978) claimed that monitored speech and unmonitored speech were based on two separate psycholinguistic systems—a consciously learned system and an unconsciously acquired system. Krashen postulated that when speakers monitor, they can access only the learned system. He also claimed that three conditions are necessary for successful monitoring: (1) the speaker must be attending to form; (2) the speaker must have sufficient processing time; (3) the speaker must consciously know a rule for producing a correct form. Later, Krashen (1982) added a proviso to condition (3); the consciously known rule must be simple and easy to apply—a "rule of thumb."

Labov's theory of monitoring in first language is compatible with Krashen's conditions (1) and (2) but not with (3). Since Labov's theory defines monitoring as attending to the form of speech, it is compatible with condition (1). In addition, the theory claims that monitoring is more effective when speakers have more processing time, so it is compatible with condition (2). But Labov's theory does not claim that speakers must consciously know a rule in order to monitor successfully. Although Labov believes that monitoring affects only forms in the speech community that are recognized as prestigious, this does not imply that speakers must know a rule for these forms. Rather, they may rely on a "feeling for correctness." The theory assumes that speakers have a considerable amount of (subconscious) control over the prestige variant, as is usually the case in native speaker speech, and therefore they have no need of a conscious rule. Thus, Krashen's (1982) theory of monitoring differed from Labov's in an important respect.

Dickerson (1974) claimed that monitoring works basically the same way in interlanguage as in native language: when second language speakers monitor, they produce a higher percentage of target language forms, just as when native speakers monitor, they produce a higher percentage of prestige forms. Unlike Krashen, Dickerson did not require that speakers consciously know a rule. Dickerson supported her theory with a study of Japanese speakers who produced, for example, more English-like variants of /r/ in a reading context than in a speaking context.

Tarone (1982) extended to syntax Dickerson's claim that attention to speech results in more target language forms. She also claimed that, like native speaker speech, interlanguage has an unmonitored vernacular style. This style is most open to new forms that are unmarked, natural, and developmental. The monitored styles, on the other hand, are more open to target language forms, which are likely to be marked and unnatural from the learner's perspective. Adamson (1988) and Preston (1989) endorsed this theory and draw a parallel between it and Labov's theory of linguistic change in native speaker speech. Labov argued that there are two types of linguistic change in a speech community: change from below the level of consciousness and change from above the level of consciousness. Change from below originates in the unmonitored style of lower-middle and working class speakers. An example is the raising of low front vowels in Philadelphia speech so that *bad* can be pronounced [bɛəd]. When a new form is introduced through change from below, it may not be noticed by the speech community, and the change may go to completion. However, if the new form comes to the attention of speakers and is remarked upon, it will be stigmatized and will be subject to "correction from above." When this hap-

pens, the new form will be suppressed in the monitored styles of all speakers. Change from above involves new forms that are more prestigious and are likely to be more marked. These changes are introduced in the monitored styles of upper- and middle-class speakers. An example of change from above is the spread of post vocalic [r] in New York City speech.

Tarone (1985) conducted an experiment that tested Krashen's claim that subjects can successfully monitor only forms for which they know a simple rule of thumb. She tested subjects' mastery of three forms—third person *-s*, articles, and object pronouns—in three contextual styles. From least to most monitored these styles were: narrative, conversation, and a paper and pencil grammar test. Tarone found that the accuracy of *-s* increased in the more monitored styles and the accuracy of articles decreased. These results support Krashen's theory since *-s* can be applied by means of a simple rule, whereas articles cannot. However, the direct object pronoun, which Tarone says is easily learned, did not increase in accuracy in monitored styles. This fact, she concluded, does not support Krashen's hypothesis. However, Preston (1989) was not so sure that direct object pronouns should be grouped with *-s* as forms that can be associated with a simple rule. He noted,

> The third singular indicative, like careful pronunciation, is open to monitoring and use by rule application, but object pronoun occurrence and article use are more subtle morpho-syntactic and semantic processes. Neither can have its rule for use stated easily, but both reflect unmarked natural requirements for language use (e.g. reference and specificity, or information familiarity). (p. 259)

Tarone and Preston agreed that there are many factors that influence whether a particular form will be produced more often in monitored style. But perhaps in interlanguage the "learnability" of a form, that is, whether it is associated with an easy to apply rule, is among those factors.

Beebe (1985) accounted for style shifting in interlanguage in rather a different way from the researchers discussed so far. Drawing on *accommodation theory* (Giles & Powesland, 1975), Beebe proposed that the proportion of nativelike variants in a speaker's interlanguage depends upon the social/psychological distance between the speaker and the audience. This distance is small when the speaker and the audience are on equal terms, and the dynamic between them is one of solidarity. In this case, the participants are said to *converge*, and they design their speech to be like that of their interlocutor. On the other hand, the social/psychological distance is large when the audience is in a superior position to the speaker, and the dynamic between them is one of power. In this case, the participants are said to *diverge*, and they may design their speech to be less like that of their interlocutor in order to assert the identity of their own social group. In either case, speakers *accommodate*, that is, they design their speech to be appropriate for their audience. It should be noted that often speakers do not accommodate to the actual speech of their audience, but rather to what they think their audience's speech is like. In other words, they assess their audience's social class, sex, language background, and so on and produce a variety of speech that would be appropriate for that audience. Though accommodation theory was developed to explain style shifting in native speaker speech, Beebe suggested

that the same principles apply to style shifting in interlanguage. Beebe and Zuengler (1983) showed that Thai children adjusted their speech to match the speech of an interlocutor with whom they converged.

It is sometimes thought that accommodation theory is incompatible with Labov's monitoring hypothesis, but given the specifics of Labov's research paradigm, the monitoring hypothesis is a special case of accommodation. In the typical Labovian sociolinguistic interview, university researchers tape-record conversations with members of the speech community. These researchers are perceived by their subjects as representatives of the educated, upper classes. This fact might cause divergence; however, the researchers are able to establish convergence with their audience by avoiding academic topics and by encouraging the subjects to take charge of the conversation by asking them about topics on which the subjects are experts, such as childhood games or a time when they were in danger of death. Therefore, the sociolinguistic interview creates a situation in which the subjects attempt to converge with upper-class speech. (Note that, in fact, the researchers may not be using upper-class variants, so the subjects are converging with the variety they expect from the researchers.) Thus, within the sociolinguistic interview in elicitation contexts where there is sufficient processing time, subjects are likely to produce more prestige variants.

We suggest that the notion of accommodation to a sex-specific norm within the speech community may help to explain the finding of the present study that for males monitoring favors N but for females monitoring favors G. To see why this is so, we need to consider two different types of prestige in regard to native speaker speech. In native speaker communities males and females can attach different values to different linguistic forms. For example, females may favor a form with *overt prestige*, that is, with general prestige in the speech community. Males may also attach overt prestige to these forms and produce them more frequently in monitored styles. However, males may also attach *covert prestige* to competing forms, and over time these forms may gain in frequency in all of their styles. Forms that have covert prestige may be associated with toughness and stereotyped masculinity. For example, Trudgill (1983) observed that in Norwich, men are leading an ongoing change in the lower classes where the vowel in *hot* is moving from unrounded variants [ɑ⌢a] to a rounded variant [ɒ]. Trudgill explained that the rounded vowel, which is being spread as a nonstandard working-class variant from Suffolk, has covert prestige.

It seems likely that the male nonnative speakers in the present study use N more than the females because they desire to match the male native speakers' norm. But the question remains of why these speakers do not acknowledge the overt community norm by shifting toward this norm in monitored styles, as do male native speakers. Perhaps the answer is that the nonnative males' base rate of N is very far from the native males' base rate: 23% compared to 65%. Since the nonnative males have so far to go, they may be attempting to produce the highest rate of N possible in all styles. According to the hypothesis of monitoring in interlanguage advanced in Dickerson (1974), Tarone (1982), Adamson (1988), and Preston (1989), they should be better able to produce N in monitored speech since N is a simple form, not subject to complex rules. Thus, the notion of accommodating toward a covert prestige norm in the

speech community and the hypothesis of monitoring in interlanguage may help to explain the unusual pattern of variation in Table 1.

We conclude this discussion with some necessary caveats. As our title states, this study must be regarded as preliminary due to the relatively small number of tokens in the data, only 520 for the native speakers and 288 for the nonnative speakers. The first caveat regards the surprising finding that the nonnative males appear to monitor their speech for N. Although we believe that this hypothesis makes sense, it will have to be verified by future studies with larger databases. The second caveat is the well-known caution against using cross-sectional data to posit developmental trends. Our hypothesis that N spreads through the grammatical environments in the order suggested in Table 7 needs to be verified by longitudinal data. Despite these caveats, however, we believe that our analysis suggests a picture of how nonnative speakers acquire the speech norms of the community in which they live that makes sense from both a sociolinguistic and a psycholinguistic perspective.

(Received 24 July 1989)

NOTES

1. But see Rickford's (1983) discussion of the differences between a post-creole continuum and a second language acquisition continuum.

2. This section is based closely on Houston's (1985) discussion.

3. The definition and separation of speaking styles has been a continuing controversy in sociolinguistics. The speaking styles originally coded for in Table 4 have been worked out by researchers in the linguistics field methods course at the University of Pennsylvania over a number of years. The definitions of the monitored styles are as follows: *response* = the first sentence in response to a question; *language* = discourse about language; *soapbox* = persuasive discourse—when the subject mounts a "hobby horse"; *careful* = other discourse that the researcher believes to be monitored on the basis of "channel cues" (cf. Labov 1972, pp. 79–99) such as a change in tempo, pitch range, volume, or rate of breathing. The definitions of the unmonitored speech styles are as follows: *quote* = telling what someone else said; *narrative* = recounting a past event; *group* = when addressing an audience other than just the interviewer(s); *kids* = discourse about children; *tangent* = an aside; *casual* = other discourse that the researcher believes to be unmonitored on the basis of the channel cues described earlier. In addition to these cues, laughter is a cue of casual style.

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