

THE EFFECT OF FAMILIARITY ON THE COMPREHENSIBILITY OF NONNATIVE SPEECH

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This study reports on data collected to investigate the effect of various types of familiarity on native speaker comprehension of nonnative speaker speech. We discuss the effects of familiarity with topic, familiarity with nonnative speech in general, familiarity with a nonnative accent in particular, and familiarity with a particular nonnative. Our results indicate that while the most important of these variables is familiarity with topic, the other variables all have a facilitating effect on comprehension. We discuss these findings as they relate to more general notions of comprehensibility.

We also say of some people that they are transparent to us. It is, however, important as regards this observation that one human being can be a complete enigma to another. We learn this when we come into a strange country with entirely strange traditions; and, what is more, even given a mastery of the country's language. We do not *understand* the people. . . . If a lion could talk, we could not understand him.

—Ludwig Wittgenstein

How native speakers interpret nonnative speech is an issue of interest from both a theoretical and a practical standpoint.¹ Second language acquisition research has until recently concentrated on the syntactic forms of utterances, often overlooking the context in which these utterances occur (Larsen-Freeman 1980). The function of utterances is of particular importance in the field of conversational analysis, since utterances are ultimately what conversations are made up of. In fact, Hatch (1978) suggests that it is out of conversational exchange that syntax develops. She claims that learners are actively involved in conversations as part of the learning process. Hence, it is important to consider how learners make use of input material in acquiring a second language. Considering the fact that participants take turns in conversations, each participant must make sense of the others' remarks in order to continue the flow of the conversation. It is

¹This is a revised version of a paper entitled "The Effect of Familiarity on Comprehensibility," presented at the 1982 Second Language Research Forum, Los Angeles. We would like to thank Ken Guire for his unruffled statistical assistance, Hugh Gilmore and Rajam Ramamurti for enthusiastic cooperation in data collection, and Josh Ard and Orestes Varonis for their comments and support on all aspects of this study. Clearly, however, the buck stops here.

this discourse flow, then, which provides the learner with appropriate data with which to formulate long-term hypotheses about the target language. In addition, this flow gives conversational participants the opportunity to formulate short-term hypotheses about the meaning of the exchange in which they are engaged.

In much of the research on native-nonnative interactions (often referred to as foreigner talk discourse), the focus has been on the native speaker. Specifically, researchers have investigated those aspects of native speaker speech which ease the load of the nonnative speaker in the complex and often difficult discourse situation (Arthur, Weiner, Culver, Lee, and Thomas 1980; Hatch 1978; Larsen-Freeman 1976; Long 1981; Varonis 1981; Wagner-Gough and Hatch 1975). Other research has focused on what the nonnative speaker does to negotiate meaning in conversational interactions (Gaskill 1980; Schwartz 1980). Still other research takes as its object of inquiry those features of nonnative speaker conversation which never become native-like (Scarcella 1983).

While there has been a significant body of research *describing* the linguistic features of foreigner talk, there has not been a similar interest in what "*triggers*" foreigner talk. Long (in press) suggests that there are at least five possibilities: (1) physical appearance of the nonnative speaker, (2) linguistic features of the nonnative speaker's interlanguage (IL), (3) the native speaker's assessment of how much the nonnative speaker is understanding, (4) the degree of comprehensibility of the nonnative speaker, and (5) a combination of two or more of the factors listed in 1 to 4.

Our research (both past and present) has been concerned with one of the possible "*triggers*" of foreigner talk: the comprehensibility of nonnative speech. In Varonis and Gass (1982), we investigated the roles of pronunciation and grammar as variables relating to native speaker comprehension of nonnative speaker speech, finding an interaction between these two variables. In the present paper we continue this line of investigation by focusing our attention on other variables which may be involved in aiding or hindering the interpretability of nonnative utterances. In particular, we consider the effect of different types of familiarity on native speaker comprehension of nonnative speaker speech.

This paper investigates the hypothesis that familiarity with variables of a nonnative speaker's speech will facilitate the native speaker's interpretation of that speech. In our earlier study we investigated the role of two variables—pronunciation and grammar—on the comprehensibility of nonnative speech. Our major finding was that both in terms of *evaluation*

of the elements of nonnative discourse and in terms of verbal reaction to the discourse itself, the comprehensibility of the *total* linguistic input from the nonnative speaker to the native speaker is the most important factor. This comprehensibility may be achieved in a number of different ways through the interaction of various linguistic and social factors. One way of schematizing the relationship is as follows:

$$C = p_{\alpha} + g_{\beta} + fl_{\gamma} + f2_{\delta} + f3_{\epsilon} \dots fl_{\zeta} + s_{\eta} \dots$$

C = comprehensibility, p = pronunciation, g = grammar, fl = familiarity with topic, f2 = familiarity with person, F3 = familiarity with speaker's native language, fl = fluency, s = social factors

where the Greek letters represent the variable weights of particular factors. This is not intended to be an exhaustive description of the factors involved in comprehensibility but a suggestion of some which may be important. The first study focused on the first two, pronunciation and grammar, and only briefly considered the issue of familiarity, which seemed to be important but which remained to be systematically analyzed.

METHOD

The present study was designed to specifically test the effect of four familiarity factors on native speaker comprehension of nonnative speech: (1) familiarity with topic, (2) familiarity with nonnative speakers of a different language background, (3) familiarity with nonnative speakers of the same language background, and (4) familiarity with the same speaker. We hypothesized that all of these factors, either singly or in combination, would contribute to a greater amount of comprehensibility of nonnative speaker speech by native speakers.

Speaker selection

Since this study was specifically designed to test the comprehensibility of nonnative speech as a function of four familiarity variables, it was important to select nonnative speakers who could be independently judged as being equally comprehensible. We decided to use all male speakers in order to control for possible differences due to the sex of the speaker. As part of the initial selection process, fifteen advanced level students in the intensive program of the English Language Institute (ELI) of the University of Michigan were each tape recorded reading two English

sentences of similar length and one level of embedding. The 30 sentences were then randomized on a tape and played to ten experienced ESL teachers at the ELI. The teachers were instructed to transcribe the sentences since we were interested in how much was understood, rather than just intuitive judgments of ease of comprehensibility. Any deviation between the transcript and the actual sentence produced was counted as an error. For example, a missing word was one error and an incorrect word was one error. Controlling for the length of the sentences, we calculated mean errors per speaker and selected four speakers whose mean error rates were closest together. Thus, we were not looking for speakers who could necessarily be understood the "best," but rather for speakers whom experienced ESL teachers could comprehend equally well.

Procedures

These four speakers (two Japanese and two Arabic speakers) then participated in the major part of this study.² We tape recorded each subject reading the North Wind story (see Appendix A) and two sets of sentences (see Appendix B). The first set of sentences comprised sentences relating thematically to the North Wind story but not identical to any sentences in the story. These sentences will henceforth be referred to as the "related" sentences. The second set of sentences comprised sentences that were not related thematically to the North Wind story, but they are readily interpretable as a function of real-world knowledge. Henceforth, these will be referred to as the "unrelated" sentences. Both the related and the unrelated sentences include one level of embedding.

To test the effect of the type of familiarity on the comprehensibility of nonnative speech, we spliced the story readings and sentence sets together in 24 separate ways. Each of the 24 tapes consisted of a set of either related or unrelated sentences, followed by the story reading, followed by the set of sentences which was not used before the reading (see Appendix C for a complete listing of each of the 24 tapes). Thus, each tape contained the set of related sentences, the story reading, and the set of unrelated sentences, although the position of related and unrelated sentences with respect to the reading varied.

²Two Spanish speakers, whose initial comprehensibility scores were close to the scores of the four speakers actually used in this study, were used as controls only in the prereading position and those results are not tabulated in the present study.

The four independent variables are given below:

1. Four speakers: *Arabic 1, Japanese 1, Arabic 2, Japanese 2*.
2. Two possible text positions for the speakers: *pre-text* (i.e., before the reading) and *post-text* (i.e., after the reading).
3. Three different possibilities for the post-text position:
 - a. *Different language* (the second sentence set followed a reading by a speaker of a different native language background).
 - b. *Different speaker* (the second sentence set followed a reading by a different speaker of the same language background).
 - c. *Same speaker* (the second sentence set followed a reading by the same speaker).
4. Two relatedness conditions: The sentences were either *related* or *unrelated* to the text.

The tapes, lasting approximately 8 minutes, were played to 142 native-speaking English students enrolled at the University of Michigan, drawn largely from discussion sections of an Anthropology 101 class. The number of native speaker subjects who listened to each tape of the 24 tapes varied from four to seven.

Subjects were instructed to listen to the sentences and write down what they heard. A pause of 20 seconds followed each sentence to allow the subjects to transcribe what they had heard. Next, the subjects listened to the story, after which they wrote a brief summary of it so that we could determine whether they had indeed understood the story. Finally, subjects listened to the second set of sentences and again transcribed what they had heard. After the test some subjects provided comments about the task. While this was not part of the actual experiment, their comments at times were insightful and will be incorporated in the Discussion section below.

RESULTS

The purpose of this study was to investigate the effect of various types of familiarity on the comprehensibility of nonnative speech: (1) familiarity with topic, both a specific topic and topic based on "real world" knowledge, (2) familiarity with speakers of a different language, (3) familiarity with speakers of a particular language, and (4) familiarity with a particular speaker. In analyzing our results we counted errors as described under Speaker Selection above, controlling for sentence length and the number of

sentences in each set. Our results are expressed in terms of the mean number of errors per listener for each nonnative speaker for each condition.

The results were submitted to an ANOVA using the packaged MIDAS program on the Michigan Terminal System. A full display of the data is given in Table 1. As can be seen, there are 32 cells in all: four speakers by two text positions (with three possibilities for the post-text position) by two relatedness conditions.

We now turn to an analysis of the effect of the particular variables under consideration. This discussion is divided into two main parts: the first focuses on the issue of familiarity with topic; the second deals with familiarity with speaker variables.

Familiarity with topic

Specific topic. To investigate the role of familiarity with topic, we compared the difference in responses to the related sentences in the pre-text conditions as opposed to responses to those same sentences in the post-text conditions. In other words, we measured the difference in responses to a set of sentences before and after a context was supplied. For this analysis, only the related sentences were used, since these were the only sentences for which we could control for the presence and absence of a relevant context, namely, the North Wind story reading. If familiarity with topic plays a role in comprehension, we would predict that responses to the post-text "related" sentences will have fewer errors per listener than the responses to those same sentences in the pre-text conditions. This prediction was borne out. In all cases there were more errors on the pre-text conditions than on the post-text conditions for the related sentences, indicating that sentences that have a context supplied are easier to interpret than sentences that do not. This is reflected in columns 1, 3, 5, and 7 of Table 1. The results of one-tail t-tests computed on these data are given in Table 2. (A parallel analysis for unrelated sentences is discussed under Familiarity With Speaker below.)

Another possible explanation for the difference noted above is that the second set of sentences was more comprehensible because of an ordering effect. If that were the case we would predict a similar difference between *unrelated* sentences in pre- and post-text positions. However, as we discuss below under Familiarity With Speaker, this was not the case.

A question which arises at this point is the potential familiarity these

Table 1
 Mean number of errors per listener for all conditions

	Arabic 1		Arabic 2		Japanese 1		Japanese 2	
	Related	Unrelated	Related	Unrelated	Related	Unrelated	Related	Unrelated
PRE-TEXT	18.152	13.500	20.944	6.143	17.647	5.714	11.055	5.500
POST-TEXT								
Different language	5.818	11.167	2.715	4.500	6.516	4.333	8.342	5.600
Different speaker	4.653	3.500	8.533	3.667	7.912	3.333	6.788	4.200
Same speaker	3.491	2.125	6.315	8.400	2.659	3.200	8.479	4.833

Table 2

t-Values of one-tailed *t*-tests comparing pre- and post-text positions of the related sentences

	PRE-TEXT			
	Arabic 1	Arabic 2	Japanese 1	Japanese 1
POST-TEXT				
Different language	3.2625 ^a	2.94 ^b	2.2621 ^b	1.4037
Different speaker	3.1269 ^b	1.833	2.0942 ^c	2.1082 ^c
Same speaker	3.6653 ^a	2.2794 ^c	4.1489 ^a	.6462

^a*p* < .005^b*p* < .01^c*p* < .05

subjects had with the North Wind story before participating in this experiment. Of our 142 native speaker subjects, only 21 were familiar with the story. Of those 21, only 9 listened to tapes in which the related sentences were in pre-text position; therefore, it is only these 9 who could have potentially influenced our results in an unpredicted way. It happened that these 9 native speakers listened to 3 different tapes. Within each of these tapes we compared those who had heard the story with those who had not, finding no consistent trends in the data. On two of the tapes, those who were familiar with the story made a greater number of errors than those who were not, while on the third tape, the opposite was found. In other words, there was very limited knowledge of the story among our 142 judges, and where there was, it did not seem to have an effect.

In most cases the differences between the comprehensibility of speakers in pre- and post-text positions were significant. The only speaker for whom significance was not obtained in the majority of cases was Japanese 2. It will be recalled that in the initial selection process, we selected the four subjects whose scores were the closest to one another. While the nondistinctness of these subjects was further supported by an ANOVA (see the sections Topic Based on Real-World Knowledge and Familiarity With Speaker below), we make no claims about the *exact* comparability of the four nonnative speakers. In fact, in comparing the number of incorrect responses made by the experienced ESL teachers, we find that Japanese 2 was slightly more comprehensible than the others. This fact may help to account for the lack of significant difference between the pre-text and post-text conditions for this particular speaker. That is, the fact that he is slightly easier to understand may compensate for the unfamiliarity of the topic in the pre-text condition.

To summarize, sentences related to the North Wind story were more

comprehensible when they were heard after the story reading than when they were heard before, suggesting that listening to the story provided a topic familiarity that facilitated the comprehensibility of subsequent discourse.

Topic based on “real world” knowledge. In this section we examine the results of the pre-text position alone. In submitting these data to a 2 by 4 ANOVA, we found no significant difference among speakers ($F = 2.38$, n.s.). This was consistent with the fact that the speakers we chose for the study were not distinct in terms of comprehensibility. Furthermore, there is no significant interaction between speaker and relatedness conditions ($F = 1.37$, n.s.). On the other hand, there is a significant difference ($F = 19.64$, $p = .0001$) between relatedness conditions in pre-text position, supporting the findings discussed under Specific Topic above. Table 3 shows the results of a univariate one-way ANOVA of the relatedness condition on pre-text sentences.

Table 3
Mean number of errors for pre-text condition on related versus unrelated sentences

	Related	Unrelated
Mean errors	16.95	7.714

$F = 15.740$, $p = .0002$ (univariate one-way ANOVA)

Looking at Table 3, we see a clear difference between related and unrelated sentences in pre-text position, with the unrelated sentences being more comprehensible. This is the case for all speakers, as is seen in Table 4, presenting the results of a univariate one-way ANOVA. This indicates that judges were more successful in transcribing sentences for which they had some “real world” context.

Table 4
Mean number of errors for pre-text condition on related and unrelated sentences by speaker

	Arabic 1	Arabic 2	Japanese 1	Japanese 2
Related	18.152	20.944	17.647	11.055
Unrelated	13.500	6.143	5.7143	5.500
Mean	15.826	13.544	11.681	8.278

$F = 4.2255$, $p = .0013$ (univariate one-way ANOVA)

A final point to mention is that there is a *tendency* for the Arabic speakers to elicit more comprehension errors than the Japanese speakers (see Table 4). There are a number of possible explanations for this: (1) It may be that many of our subjects were more familiar with a Japanese accent than an Arabic one, as opposed to the experienced teachers who were very familiar with both (in fact, a number of the native-speaking judges mentioned having Oriental TAs); (2) a simpler explanation concerns the slightly better comprehensibility ratings that Japanese 2 had, for Japanese 1 is not very different from the Arabic speakers; (3) both the first and the second may interact with each other. However, on the basis of the present data, we can do little more than speculate about this tendency.

In summary, then, with respect to pre-text position a significant difference was noted between related and unrelated sentences. This corroborates the findings under Specific Topic above, in which differences were noted between related sentences in the pre-text condition and related sentences in post-text conditions, suggesting that familiarity with topic (in this case, topic based on real-world knowledge) plays a major role in the comprehensibility of nonnative speech.

Familiarity with speaker

We turn next to the post-text conditions. A $3 \times 2 \times 4$ ANOVA was used to determine significant effects of interaction in these data. Here, we are again looking for the effects of speaker and relatedness, but we have added one additional variable: the speaker of the prior text or reading. That is, we looked at the following three possibilities concerning the post-text sentences: (1) following a reading by a speaker of a *different language* background, (2) following a reading by a speaker of the *same language* background, and (3) following a reading by the *same speaker*. Results of the $3 \times 2 \times 4$ ANOVA are given in Table 5.

The variables of speaker and relatedness were not by themselves significant. However, considering the speaker variable in greater detail we note that the tendency in the pre-text data for Arabic speakers to be less interpretable than Japanese is not evident here, suggesting that the familiarity with nonnative speech induced by the pre-text sentences and reading tends to level whatever speaker differences might exist.

Next, let us consider the effect of text position on comprehensibility. For the sake of convenience we repeat the results of Table 1 here, indicating in Table 6 the direction of the results.

Table 5
 $2 \times 3 \times 4$ ANOVA on post-text conditions

	Sum of squares	Degrees of freedom	Mean square	F	Tail probability
Mean	4143.83762	1	4143.83762	151.55	0.0000
Prior (P)	33.56662	2	16.78331	0.61	0.5430
Speaker (S)	56.30477	3	18.76826	0.69	0.5621
Related (R)	43.07201	1	43.07201	1.58	0.2119
PS	319.23570	6	53.20595	1.95	0.0790
PR	87.78533	2	43.89267	1.61	0.2052
SR	83.78235	3	27.92745	1.02	0.3858
PSR	128.88652	6	21.48109	0.79	0.5829

Table 6
Mean number of errors per listener for all conditions

	Arabic 1		Arabic 2		Japanese 1		Japanese 2	
	Related	Unrelated	Related	Unrelated	Related	Unrelated	Related	Unrelated
PRE-TEXT*	18.152 ↓	13.500 ↓	20.944 ↓	6.143 ↓	17.647 ↓	5.714 ↓	11.055 ↓	5.500 ↑
POST-TEXT	5.818 ↓	11.167 ↓	2.715 ↓	4.500 ↓	6.516 ↓	4.333 ↓	8.342 ↓	5.600 ↓
Different language**	4.653 ↓	3.500 ↓	8.533 ↓	3.667 ↓	7.912 ↓	3.333 ↓	6.788 ↓	4.200 ↓
Different speaker†	3.491 ↓	2.125 ↓	6.315 ↓	8.400 ↓	2.659 ↓	3.200 ↓	8.479 ↓	4.833 ↓
Same speaker								

*7.8 in predicted direction

**6.8 in predicted direction

†5.8 in predicted direction

These results can best be understood if we consider the number of cases in which the expected progression occurred. We have indicated these in the table. In seven out of eight of the cases, differences between pre-text sentences and post-text sentences read by a speaker of a different language were in the predicted direction (namely, the latter were more comprehensible than the former); in six of eight cases, differences between post-text sentences read by a speaker of a different language and post-text sentences read by a different speaker of the same language were in the predicted direction; and in five out of eight cases differences between post-text same-language sentences and post-text sentences read by the same speaker were in the predicted direction. In general, the progression from least to most easily comprehensible is (1) no context, (2) following sentences read by a speaker of a different language, (3) following sentences read by a speaker of the same language, and (4) following sentences read by the same speaker. This suggests the differential effect of types of familiarity on comprehensibility, even though in some cases differences between these variables are not strong. In Figures 1 and 2 these results are graphed by individual for both related and unrelated sentences.

As was discussed under Specific Topic above, sentences that occurred before the reading were less comprehensible than sentences that followed the reading. However, there was variation between the related and the unrelated sentences in pre-text position. As already noted, there was a significant difference between pre- and post-text position for related sentences. We attribute this difference to the greater comprehensibility of related sentences following the reading. Clearly, however, in order to attribute the difference to topic and not to ordering (e.g., before and after the reading), it is necessary to see whether a similar difference also exists between unrelated sentences in pre- and post-text positions where topic familiarity is not varied. The results of one-tail t-tests comparing pre- and post-text conditions for the unrelated sentences are presented in Table 7.

The responses to the unrelated sentences indicate that there is a *tendency* for sentences to be more comprehensible after a reading than before a reading, yet unlike responses to related sentences (cf. Table 2), significance is reached in only one case. This suggests that familiarity with nonnative speech in general, although it is clearly not as important a variable as topic familiarity (as evidenced by the large difference between pre-text and post-text related sentences), may indeed have some effect (as evidenced by the small difference between pre-text and post-text unrelated sentences). That is, prior experience with nonnative speech, such as that gained by listening to the reading, facilitates comprehension.

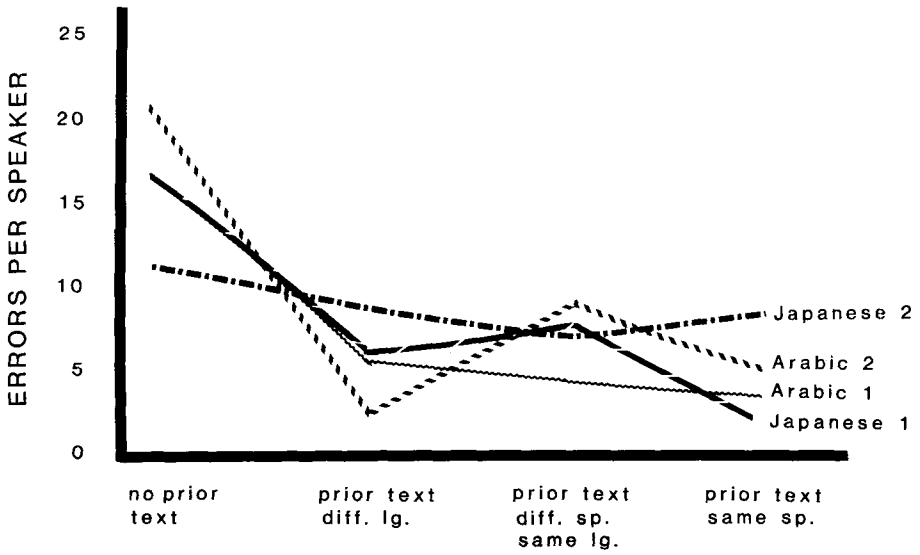


Figure 1. Effect of text position on errors (related sentences).

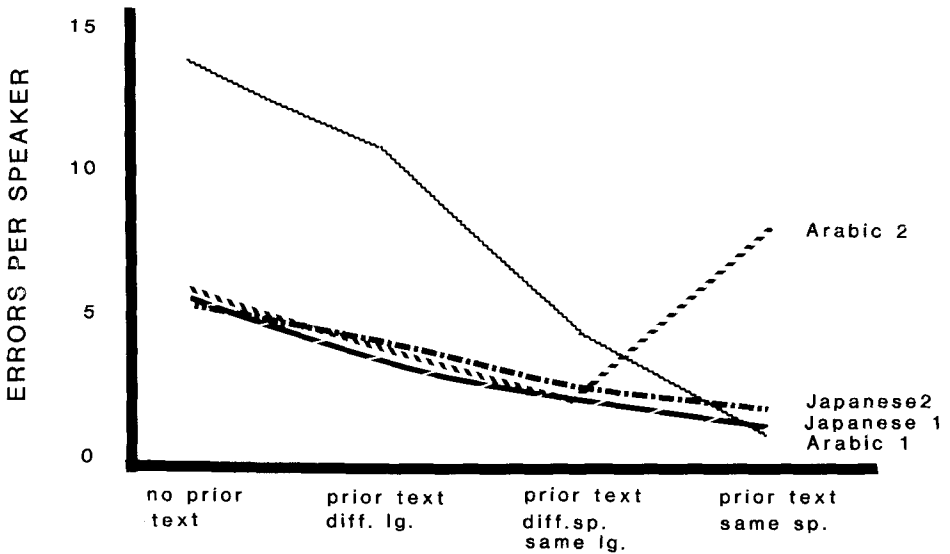


Figure 2. Effect of text position on errors (unrelated sentences).

Table 7
*t-Values of one-tailed t-tests comparing pre- and post-text positions
of the unrelated sentences*

	PRE-TEXT			
	Arabic 1	Arabic 2	Japanese 1	Japanese 2
POST-TEXT				
Different language	.4151	.3741	.6299	-.0576
Different speaker	1.7668	.8911	1.0116	.8590
Same speaker	2.0033 ^a	-.6461	1.1893	.2941

^ap < .01

Further support for this argument comes from a comparison of sentences evaluated by experienced ESL teachers and those same sentences evaluated by the naive native speakers (in the pre-text condition only). Only pre-text sentences were considered in this analysis since what we were attempting to determine was the effect of familiarity with nonnative speech on the comprehensibility of such speech. The post-text sentences had some degree of familiarity built in, since the subjects had just been listening to nonnative speaker speech. We were able to make these comparisons for three of our four nonnative speaking subjects. Results are given in Table 8.

Table 8
Mean errors on sentences from the unrelated set

	ESL teachers	Naive listeners
Arabic 1	1.9	5
Japanese 1	1.8	3
Japanese 2	.8	1

In all cases there were fewer errors made by the ESL teachers, who had many years experience working with nonnative speakers, than there were by the naive listeners, whose experience with nonnative speakers was more limited. This is consistent with Pica and Long's finding (1982) that experienced ESL teachers used fewer comprehension checks to verify their own comprehension in the classroom than inexperienced ESL teachers did.

Let us now consider the relationship between post-text position and relatedness. Although there is a slight tendency for related sentences to have more errors than unrelated sentences ($\bar{x} = 6.0185$ vs. 4.9048), the difference is not significant ($F = 1.6068$, $p = .207$). At first this seems

surprising considering the fact that relatedness was highly significant in the pre-text condition. In pre-text position, related sentences had far more errors than unrelated sentences, while in the post-text condition the difference was minimal. The relationship is seen in Figure 3.

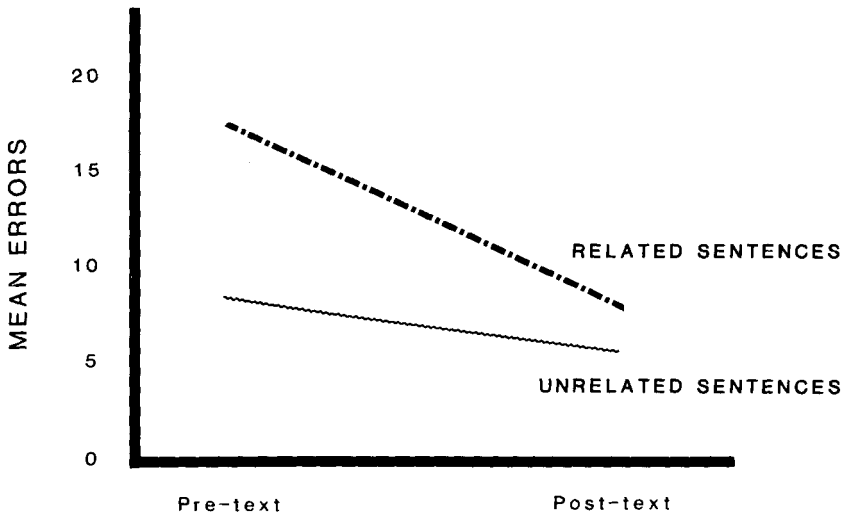


Figure 3. Position \times relatedness.

These results are indeed compatible with those discussed above under Topic Based on Real World Knowledge, dealing with the relationship between pre-text and relatedness conditions, since in the post-text condition the difference between presence and absence of background information is minimized. This again emphasizes the important role of topic familiarity in the comprehensibility of nonnative speech.

To summarize this section, the speaker variable was not significant for pre-text position. In addition, there was no significant difference between related and unrelated sentences in post-text condition. We did, however, find a significant difference between responses to pre-text and post-text related sentences, although not to pre-text and post-text unrelated sentences. We further found a tendency for a differential effect of the various post-text conditions on comprehensibility.

SUMMARY

In summary, this study focused on the effect of various types of familiarity on the native speaker's comprehension of nonnative speech.

Our general findings were:

1. Familiarity with the topic of discourse greatly facilitates comprehension.
2. Familiarity with nonnative speech in general facilitates comprehension.
3. Familiarity with a particular nonnative accent facilitates comprehension of the speech of another nonnative of that language background.
4. Familiarity with a particular nonnative speaker facilitates comprehension of that person's speech.

We have shown that in addition to the speaker variables of pronunciation and grammar discussed in our 1982 study, the listener variables of topic familiarity, familiarity with nonnative speech in general, familiarity with a nonnative accent in particular, and familiarity with a particular nonnative affect the comprehensibility of nonnative speech.

DISCUSSION

We have focused on the native speaker's comprehension of nonnative speech. We are specifically interested in determining what variables may facilitate the native speaker's comprehension.

We postulate that listeners (in this study, our native English speaker population) bring with them to the listening task a set of values and beliefs about the world, known in the artificial intelligence literature as "belief spaces." This set of values and beliefs allows easy interpretation of utterances that have a readily accessible real-world context. Thus sentences like 1, the first sentence of the unrelated sentence set, are easily understood:

1. Although she spends a lot of money on clothes, she never looks good. On the other hand, utterances with a context that is removed from real-world experience are more difficult to interpret. For example, consider 2, which is the first sentence of the related-sentence set:

2. The north wind admitted that the sun was stronger.³

³This sentence was the first sentence of the "related" set. All examples are taken from the pre-text condition.

For sentences such as 2, the listener has no "discourse hooks" (Webber 1978) on which to hang the information contained in that sentence. In other words, no appropriate context for the sentence exists or has been invoked in the belief space.⁴ This contributes to many mistakes in comprehension. As a result, with one exception (sentence a below), rather than write nonsense sounds when listeners could not understand what was being said, they attempted to put the sounds they heard into some framework that would make sense to them. Below we list some of the alternatives written for sentence 2:

- a. so nos da certa quanda
- b. The sun was grander
- c. ... sun was younger
- d. Bruno admitted that the sun was stronger
- e. ... that the sound was stronger
- f. After the meeting, the sound was stronger
- g. ... that the sun was tender
- h. ... drummer was drunk
- i. ... somewhat stronger
- j. The girl admitted that the son was stronger
- k. The omnipotent are somewhat stronger
- l. He admitted that the son is stronger
- m. The North Wind admitted that the South was stronger
- n. (a Spanish sentence?)
- o. The North folk admitted that the sun was stronger.
- p. The... meeting...
- q. ... admitting that the sound was stronger
- r. After the meeting, the sound was stronger
- s. ... sandwa stronger

Thus a familiarity variable that we might call one's "experiential set," proves to be important. That is, familiarity takes on a broad perspective, involving not only immediate factors such as pronunciation, but also background information such as real-world expectations. We would

⁴While the differences among responses to the five sentences was not striking, we noted that there were fewer comprehension errors on the last sentences as opposed to the first. This corroborates our hypothesis that the listener is better able to interpret utterances with more background information (either existing or invoked). However, since the ordering of the sentences remained constant for all listeners, we cannot determine whether it was in fact the greater amount of information that facilitated comprehension or whether it was the specific sentences involved.

speculate that native speakers reading these sentences would not elicit such confusion, since factors such as pronunciation and fluency would compensate for the unfamiliarity with and the unexpectedness of the topic.

The idea of experiential set also accounts for the difference in the related sentences for pre-text and post-text conditions. We noted that subjects did poorly with the related sentences *because* the north wind and the sun were not present in their experience as co-occurring in their discourse world. On the other hand, in the post-text condition, the idea of an argument between the north wind and the sun has been presented in the form of the story reading, and thus we may assume the proper discourse hooks have been invoked in the listener's mind. In this way, a prior text has been supplied and a discourse domain has been established for the information contained in the related sentences. Supplying the context for these sentences, therefore, levels the differences between related and unrelated sentences witnessed without a context. There was a real-world context for the set of unrelated sentences before the story reading, while no such equivalent context existed for the related sentences. Once a context regarding the north wind and the sun is invoked in the listener's belief space, we would anticipate that the listener would have less difficulty in interpreting the sentence. Hence, the differences in errors are neutralized. This finding supports Chastain's hypothesis (1980:212) that "the more completely understood the context and the universe of discourse, the more likely the native speaker will be to grasp the nonnative's intent."

Another example of the importance of familiarity comes from a recent study by Pica and Long (1982). In a study involving teacher speech they found that in terms of input to the nonnative speaker, experienced teachers, when faced with an unfamiliar class, behaved more like inexperienced teachers with an unfamiliar class than like experienced teachers with a familiar class. They claim that the contributing factor to this differential behavior is familiarity and not experience.

Lobo and Yoshida (1982) provide still additional evidence which supports our findings. They find that discriminability of discrete sounds by L2 learners is highly dependent on the familiarity the learners have with the words in which the sounds are embedded. Chastain (1980) also stresses the importance of words, noting that "comprehension is most severely limited by word usage" (p. 212), as in the nonnative's use of a wrong word or the addition or omission of words. We suggest that familiarity is again the issue here; if the native speaker were familiar with the nonnative's consistent but

incorrect use of a word, then most likely there would be little or no problem of comprehension.⁵

The present study is based on experimental data. There is a great need to corroborate our findings with natural data. What really happens when a native speaker and a nonnative speaker interact? One interesting insight was offered by one of our subjects who noted: "I could understand the man speaking because I had a few seconds to think about what he said. I think it would be very difficult to carry on a conversation with him." This is a reasonable observation with respect to turn-taking rules in conversation (Sacks, Schegloff, and Jefferson 1974). In dyads, one speaker finishes a turn and the other one takes the floor. At times, it is uncomfortable to speak to a low-level nonnative speaker and have to process the message after the speaker has finished but before you can respond. One native speaker reported that if she runs into her conversation partner⁶ when she feels tired, she avoids talking to him because it takes too much energy to understand him and to make herself understood (cf. Varonis and Gass 1982, for a further discussion). An additional consideration, then, in investigating comprehensibility is the "ease" with which comprehension takes place.

There are clearly limitations to a study of this sort. Having only two native speakers for each of two languages is a drawback. In this experiment, the design we adopted was the most efficient way of collecting the data to test our hypotheses. Since for each additional speaker used, we would have had to add 6 tapes and since there was a limited number of comparable native speakers whom we could use as judges, we decided to limit the number of speakers, rather than limit the number of familiarity variables we wanted to deal with. Since the results for *all* four speakers were in the same direction with regard to comprehensibility as a function of

⁵An example of this is offered by a native speaker of English married to a native speaker of Greek. She was originally confused when her husband inappropriately used the words *categorize* and *mystery* in such sentences as *I'm not trying to categorize you* or *There will be two mysteries at church Sunday afternoon*. The nonnative speaker was selecting words that were the English phonetic equivalents of modern Greek words that mean "criticize" and "sacrament," respectively. Once the native speaker realized that these words had to be "retranslated" into English, her husband's utterances became more comprehensible. Thus, familiarity with this nonnative speaker's consistent, albeit incorrect, usage facilitated the interpretation of his utterances. What "difficulties" are involved in the interpretation of this nonnative speaker's speech may be seen in the area of processing time.

⁶At the ELI, foreign students are paired up with native speakers for the purpose of exchanging conversation. These pairs are then referred to as conversation partners.

familiarity, we have little reason to believe that results would be different were more speakers considered. However, for example, it might be the case that given the more extensive experience which many native speakers have with nonnative Spanish speakers, results for Spanish nonnative speakers might be different.

CONCLUSION

Communication between speakers of different backgrounds, whether native or nonnative, is complex. Differences in the interlocutor's cultural and linguistic background can upset what might otherwise be a relatively straightforward exchange of information, contributing to a breakdown in conversation. Long (*in press*) has argued that "NS's react to a combination of factors when they make linguistic/conversational adjustments to NNS's." Our research has focused on one such factor: the comprehensibility of nonnative speech.

The present study has focused on one variable related to comprehensibility, that is, familiarity. We have shown that the listener's familiarity with the topic of discourse greatly facilitates the interpretation of the entire message. In addition, such variables as familiarity with a particular speaker, with others of an interlocutor's language background, and with other nonnative speakers also increase the comprehensibility of the discourse.

Thus, our results reaffirm the importance of interlocutor familiarity and support Labov and Fanshel's finding (1977), based on NS-NS conversations, that "most of the information needed to interpret actions is already to be found in the structure of shared knowledge and not in the utterances themselves" (p. 82).

Based on the results of the present study as well as those of Varonis and Gass (1982), we see that comprehensibility is a function of *at least* the variables of pronunciation, grammar, and familiarity interacting in complex ways. These are clearly not the only relevant variables. Other factors such as fluency and social variables are in need of investigation.

In general, an understanding of the factors involved in comprehensibility is important to the total picture of NS-NNS interactions, since the comprehensibility of NNS speech seems to contribute to the degree of NS speech modification. Such modification may increase the comprehensibility of the input to the NNS, allowing a greater opportunity for the

negotiation of meaning and a smoother interaction as a result (see Varonis and Gass 1983, and Gass and Varonis 1983, for a model and examples of NNS negotiation). This, in turn, might facilitate the second language acquisition process, as suggested by Krashen (1980) and Long (in press). Clearly, this is a rich area for future investigations.

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APPENDIX A

Text of the North Wind Story*

The north wind and the sun were arguing one day about which of them was stronger, when a traveller came along wearing a heavy jacket. They agreed that the one who could make the traveller take his coat off would be considered stronger than the other one. Then the north wind blew as hard as he could, but the harder he blew the tighter the traveller wrapped his jacket around him and at last the north wind gave up trying. Then the sun began to shine and right away the traveller took his jacket off and so the north wind had to admit that the sun was stronger than he was.

*The text is a modified version of one appearing in *The Principles of the International Phonetic Association*, 1949. (Available from the Department of Phonetics, University College, London.)

APPENDIX B

Set of Related Sentences:

1. The north wind admitted that the sun was stronger.
2. There was a traveller who was wearing a jacket.
3. The sun was shining so hard that the traveller took off his jacket.
4. The north wind blew as hard as he could.
5. There was an argument between the north wind and the sun about who was stronger.

Set of Unrelated Sentences:

1. Although she spends a lot of money on clothes, she never looks good.
2. If you don't succeed right away you should keep trying.
3. Some newspapers have no advertising while others have a lot.
4. He decided to sell his car because it was too small.
5. She is so pretty that she attracts a lot of attention.
6. It is such a hot day that I must stay inside.

APPENDIX C

Contents of the 24 Tapes Used in the Study

U = unrelated sentences, R = related sentences, S = Spanish, J = Japanese, A = Arabic; numbers in parentheses indicate speaker number.

	Sentences	Speaker	Sentences	Speaker	Sentences	Speaker
	TAPE 1		TAPE 2		TAPE 3	
Pre-text	U	J(1)	U	A(2)	R	J(2)
Story	A(1)		J(1)		A(1)	
Post-text	R	A(1)	R	J(1)	U	A(1)
	TAPE 4		TAPE 5		TAPE 6	
Pre-text	R	A(2)	U	J(2)	U	A(1)
Story	J(1)		A(1)		J(1)	
Post-text	U	J(1)	R	A(2)	R	J(2)
	TAPE 7		TAPE 8		TAPE 9	
Pre-text	R	J(1)	R	A(1)	U	S(2)
Story	A(1)		J(1)		A(1)	
Post-text	U	A(2)	U	J(2)	R	J(1)
	TAPE 10		TAPE 11		TAPE 12	
Pre-text	R	S(2)	U	S(1)	R	S(1)
Story	A(1)		J(1)		J(1)	
Post-text	U	J(1)	R	A(1)	U	A(1)
	TAPE 13		TAPE 14		TAPE 15	
Pre-text	U	J(1)	U	A(1)	R	J(1)
Story	A(2)		J(2)		A(2)	
Post-text	R	A(2)	R	J(2)	U	A(2)
	TAPE 16		TAPE 17		TAPE 18	
Pre-text	R	A(1)	U	A(2)	R	A(2)
Story	J(2)		J(2)		J(2)	
Post-text	U	J(2)	R	J(1)	U	J(1)
	TAPE 19		TAPE 20		TAPE 21	
Pre-text	U	J(1)	R	J(2)	U	S(1)
Story	A(2)		A(2)		J(2)	
Post-text	R	A(1)	U	A(1)	R	A(2)
	TAPE 22		TAPE 23		TAPE 24	
Pre-text	R	A(1)	U	S(2)	R	S(2)
Story	J(2)		A(2)		A(2)	
Post-text	U	A(2)	R	J(2)	U	J(2)