

# EFFECT OF REDUCED FORMS ON ESL LEARNERS' INPUT-INTAKE PROCESS

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## ABSTRACT

The distinction between input and intake was first proposed by Corder (1967). Whether or not target language input becomes intake is determined by various factors, one of which is perceptual saliency. The language phenomenon called *reduced forms*, which is observed in informal spoken languages, decreases perceptual saliency, and is thus believed to influence the input-intake process in SLA. Henrichsen (1984) examined how the presence and absence of reduced forms influence ESL learners' input-intake process. The purpose of the study reported here was to investigate further the influence of reduced forms on the input-intake process, by modifying two aspects of Henrichsen's study: (a) sentence complexity in the test and (b) differences in reduced form type. The data were collected from 18 ESL learners and nine native speakers at the University of Hawai'i at Manoa using a dictation test. Two two-way repeated measures ANOVAs indicated that the presence of reduced forms, students' language proficiency, and the type of reduced form (lexical vs. phonological forms) affected the learners' listening comprehension. The interaction effect was also found to be statistically significant between the type of reduced form and proficiency, but not between the presence of reduced forms and proficiency. This study provides further understanding, not only of whether or not reduced forms influence listening comprehension, but also of which type of reduced form influence learners' listening comprehension more than others.

## INTRODUCTION

The distinction between input and intake, first proposed by Corder (1967), has been widely discussed by SLA researchers. Whether or not target language input becomes intake is thought to be determined by various characteristics of the target language, one of which is perceptual saliency. The language phenomenon called *reduced forms*<sup>1</sup>, which is observed in informal spoken languages, lessens perceptual saliency, and is thus believed to influence the input-intake process in SLA (Larsen-Freeman, 1976).

Henrichsen (1984) investigated how the presence and absence of *sandhi-variation*, another term referring to reduced forms, influence ESL learners' comprehension of input. He found a statistically significant interaction between proficiency level and the learners' test scores for presence/absence of sandhi-variation. This supported his hypothesis that

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<sup>1</sup> The term *reduced forms* is taken from Brown and Hilferty (1986). Other researchers use different terms to refer to this phenomenon: Celce-Murcia, Brinton, and Goodwin (1996) use the term *reduced speech forms*; *sandhi forms* is another term commonly used (Crystal, 1997).

“there would not be significant differences between presence and absence scores for the native speakers but that there would be for the ESL learners” (p. 117).

Henrichsen’s finding is significant, and thus contributes to the understanding of the input-intake process in SLA; however, his study was limited in several ways. The present study further investigates the influence of reduced forms on the input-intake process, modifying two aspects of Henrichsen’s study: (a) sentence complexity in the test, and (b) differences in reduced form type. Reexamining the influence of reduced forms on listening comprehension, and consequently on the input-intake process, with these changes provides further understanding, not only of whether reduced forms influence listening comprehension, but also of which type of reduced form influences learners’ listening comprehension more than others.

### ***Reduced Forms***

The term *reduced forms* refers to a phenomenon commonly observed in the informal speech of native speakers. Celce-Murcia, Brinton, and Goodwin (1996) explain that “these forms involve unstressed vowels, omitted sounds, and other alternations of the full form, such as assimilation, contraction, and blending” (p. 230). One type of reduced form is called neutralization of vowels, which in most cases results in a schwa sound (Pennington, 1996).

The distinction between content words and function words underlies the concept of reduced forms (Celce-Murcia et al., 1996). Content words which carry information tend to receive stress, while function words which “signify grammatical relationships” tend to be unstressed, and consequently reduced (Celce-Murcia et al., 1996, p. 153). Function words include articles, auxiliary verbs, personal pronouns, possessive adjectives, demonstrative adjectives, prepositions, and conjunctions (p. 154). For example, in the sentence *I want him to study another language*, the sounds of *him* are reduced; accordingly, instead of /him/, *him* is pronounced as /ɪm/ or /schwa + m/.

The integrative grammar test (IGT) developed by Bowen (1976) incorporates reduced forms to measure the skill or ability of effectively using redundancy features in a language “to interpret a message that is distorted or obscured” (p. 30). Bowen claims that native speakers can easily and accurately understand reduced forms whereas nonnative speakers’ level of understanding varies. He examined whether the IGT scores reflected learners’ competence in the language, and concluded as follows:

The IGT identifies and clearly separates native and non-native speakers of English, it reliably measures the competence of non-natives, and it correlates

well with a normal standard test of English proficiency, the Michigan test, and especially well with the sub-test in grammar<sup>2</sup>. (p. 37)

Thus, the investigation of reduced forms can provide further understanding of learners' language knowledge.

Generally, reduced forms have received little attention in SLA or in the ESL/EFL pedagogy literature. Brown and Hilferty (1986), one of a few studies that investigated reduced forms in L2 learning, examined the effectiveness of teaching reduced forms on L2 listening comprehension by comparing a treatment group which received reduced forms instruction and a control group which worked on minimal pairs practice instead of reduced forms. They employed three types of measurements: the Bowen Integrative Grammar Test, a norm-referenced multiple-choice listening test, and reduced-forms dictations. The results revealed that the treatment group's posttest score was higher than the control group's on all the three measures, but a statistically significant difference was found only for the integrative grammar test and the dictation scores.

Teaching materials for listening comprehension and pronunciation take the importance of reduced forms into consideration (e.g., Dauer, 1993; Gilbert, 1984, 1993; Grant, 1993; Morley, 1987; Sheeler & Markley, 1991). However, those materials contain reduced forms only as one of various listening comprehension or pronunciation components. Only a few materials devote the entire focus to reduced forms (e.g., Kobayashi & Linde, 1984; Rost & Stratton, 1978; Weinstein, 1982). Therefore, there is still much room for investigation of reduced forms in SLA and ESL/EFL pedagogy.

### ***Input-Intake Process***

The input-intake distinction was first made by Corder (1967). In his report, Corder claims:

The simple fact of presenting a certain linguistic form to a learner in the classroom does not necessarily qualify it for the status of input, for the reason that input is 'what goes in' not what is *available* for going in, and we may reasonably suppose that it is the learner who controls this input, or more properly his intake. (p. 165)

However, there has been some confusion about the definition of intake. Reviewing research on intake, Kumaravadivelu (1994) provides two views: intake as product and intake as process. In the product view, intake is a subset of input "before the input is processed by learners" (p. 35), whereas in the process view, intake is "what comes after psycholinguistic processing" (p. 36). In other words, in the product view intake is input that is unprocessed language, while in the process view, it is a part of the learner's

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<sup>2</sup> Coleman (1977) commented on the IGT, and Bowen (1977) wrote a reaction paper to Coleman (1977).

interlanguage system and is thus processed language. Recognizing flaws in both views, Kumaravadivelu redefines the concept of intake as follows: “an abstract entity of learner language that has been fully or partially processed by learners, and fully or partially assimilated into their developing system” (p. 37). He diagrams the relationships among input, intake, and output, as shown in Figure 1.

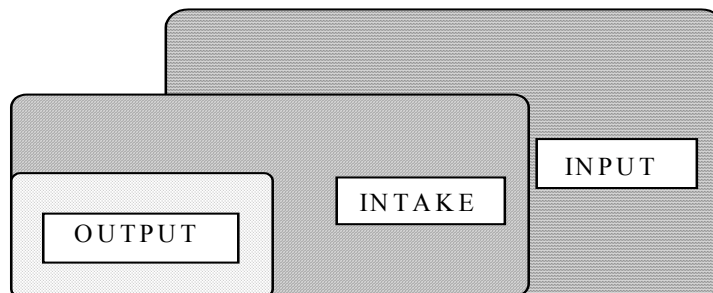


Figure 1. The relationships among input, intake, and output in a quantitative view (from Kumaravadivelu, 1994)

SLA researchers have postulated various factors which influence the input-intake process, in other words, factors that determine which input becomes intake. For example, Kumaravadivelu (1994) suggests the following learner-internal and learner-external factors as *intake factors*:

Individual factors: Age and Anxiety

Negotiation factors: Interaction and Interpretation

Tactical factors: Learning Strategies and Communication Strategies

Affective factors: Attitudes and Motivation

Knowledge factors: Language Knowledge and Metalinguage Knowledge

Environmental factors: Social Context and Educational Context (p. 39)

It is generally agreed that comprehensible input is necessary (but not sufficient) for SLA to occur. Comprehensibility of input is determined not only by some of the factors listed above, but also by linguistic factors such as language complexity, frequency, and perceptual saliency. Several researchers have suggested that “perceptual saliency makes certain features of the input more comprehensible and thus more liable to become intake” (Henrichsen, 1984, p. 106). Hakuta (1976) recognizes perceptual saliency as one of the factors determining which forms are acquired. However, perceptual saliency is largely affected by the presence of reduced forms: When reduced forms are present, perceptual

saliency lessens, thereby lessening chances of the input becoming intake (Larsen-Freeman, 1976).

A claim has been made that attention to input is necessary for input to become intake (Schmidt, 1990; Tomlin & Villa, 1994). Schmidt (1990) suggests various factors which influence noticeability. These include expectations, frequency of occurrence, perceptual saliency, skill level, and task demand. Having L2 learners listen to normal and slow L2 speech, Kim (1995) examined speech elements that L2 learners attend to when they listen to L2 speech. The results revealed that phonetic prominence of elements contributed to the noticing of particular elements.

Listeners with greater knowledge of the language system can use the knowledge “to compensate for the loss or reduced saliency of portions of the input” created by reduced forms, but listeners with less knowledge cannot (Henrichsen, 1984, pp. 117-118). Thus, such listeners with less knowledge are forced to depend more on signals to comprehend input. A decrease in perceptual saliency, therefore, can affect those listeners who have less knowledge of the language system to a greater degree than those who have more knowledge.

The purpose of the present study is to reexamine the effect of reduced forms on input-intake process by modifying Henrichsen’s study (1984). As briefly mentioned above, two aspects of Henrichsen’s study are improved upon in this current study: (a) sentence complexity in the test and (b) differences in reduced form type. Henrichsen pointed out that sentences used in his test may have been so complex that the scores of low-proficiency learners may have been affected; therefore, simpler sentences are used in the present study. Secondly, Henrichsen did not analyze his results according to the type of reduced form. Reduced forms may be categorized into several different types, e.g., reduction, assimilation, and contraction. Another approach is to classify them into two categories according to the derivation of the forms. In this study those categories are labeled as phonological or lexical forms. Phonological forms are those which were derived as a result of the application of phonological rules: e.g., *take them* → *take 'em*. Lexical forms, in contrast, are those which are not derived based on phonological rules, but tend to be memorized as one lexical item: e.g., *will not* → *won't*; *do not* → *don't*. In the present study, the second method of categorization—phonological vs. lexical forms—is considered.

In this study, the following three research questions are investigated:

1. Does the presence of reduced forms affect L2 learners’ listening comprehension?
2. Does the effect of reduced forms on learners’ listening comprehension vary according to their language proficiency?
3. Is learners’ listening comprehension affected by the type of reduced form?

In his study, Henrichsen (1984) hypothesized that there would be no significant difference between native speakers' listening comprehension scores for the presence and absence of reduced forms whereas learners would score significantly differently, scoring higher in the absence of reduced forms than in the presence of reduced forms. His result confirmed this hypothesis; therefore, in this study, it was also hypothesized as follows:

*Hypothesis 1:* The presence of reduced forms will affect L2 learners' listening comprehension: Learners will score higher in the absence of reduced forms than in the presence of reduced forms, while native speakers will score similarly in both conditions.

One finding in Henrichsen's study contradicted his hypothesis, in that the difference between the scores for the lower proficiency learners for the presence and absence conditions was smaller than that for the higher proficiency learners, despite the lower proficiency learners' more limited knowledge of the language system. However, Henrichsen explained that this contradiction was due to the difficulty in comprehending sentences even when reduced forms were "absent." Therefore, following Henrichsen's initial hypothesis, I hypothesized as follows:

*Hypothesis 2:* The effect of reduced forms on learners' listening comprehension will vary according to their language proficiency: The difference between the test scores for the absence of reduced forms and those for the presence of reduced forms will be larger for learners with lower proficiency than learners with higher proficiency.

Reduced forms which appear as lexical forms seem to be more salient to learners than those which appear as phonological forms, because learners cannot derive the lexical forms through phonological rules and are thus required to store those reduced forms as lexical items. Therefore, the following was predicted.

*Hypothesis 3:* Learners' listening comprehension will be affected by the type of reduced form: Those more salient to learners—lexical forms—will be less difficult for them to comprehend than those less salient to learners—phonological forms.

## METHOD

### *Participants*

Participants in this study were 30 nonnative speakers enrolled in the ESL programs at the University of Hawai'i at Manoa and 13 native speakers of English. Out of the 30 nonnative speakers, five were discarded from the data because of their extremely low proficiency compared to other participants or due to technical problems experienced during the data collection. An additional seven nonnative speakers were randomly omitted from the data in order to balance the number of participants across groups. Consequently, the data from the remaining 18 nonnative speakers were analyzed in this

study. They were from two different levels of listening/speaking classes in an ESL program at the university: nine from the advanced listening/speaking classes (henceforth referred to as NNS-upper), and nine from the intermediate listening/speaking classes (henceforth referred to as NNS-lower). The students' placement into these two levels was determined based on their TOEFL scores upon their admission to the university, or their placement test scores given prior to, or at the beginning of, the semester. There were three males and six females in the NNS-upper group, and four males and five females in the NNS-lower group. The learners' ages were as follows: ranging from 19 to 32 with a mean of 24.13 for the upper level<sup>3</sup>, and ranging from 18 to 33 with a mean of 26.00 for the lower level. Their L1 backgrounds also varied, but all of them had Asian languages as their L1s. Their L1s and the number of learners for each language were as follows (the number is given in parentheses): Japanese (8), Korean (4), Chinese (3), Vietnamese (2), and Thai (1). Their participation was voluntary.

All the native speakers, except one, were enrolled in a graduate program in the Department of Second Language Studies at the same university. The other native speaker was an instructor in an ESL program at the university. Four out of the 13 native speakers were randomly discarded from the data to obtain the same sample size as each NNS group's. There were five males and four females in this native speaker group (henceforth referred to as NS). Their ages ranged from 25 to 44 with a mean of 31.78. All of them spoke American English as their L1.

### **Materials**

A dictation test consisting of sentences with reduced forms was administered to measure listening comprehension, following Henrichsen's method of measurement. To improve upon Henrichsen's methodology, 20 sentences with lower syntactic complexity were prepared, based on Azar (1996). All the grammatical rules and vocabulary contained in the sentences appeared in the grammar book for beginning level learners (see Appendix A for the list of prepared sentences).

As for the other modification to Henrichsen's study, two different types of reduced forms were incorporated into the 20 sentences: ten sentences with lexical forms and ten with phonological forms. Lexical forms used in the sentences were as follows: *isn't*, *wasn't*, *weren't*, *don't*<sup>4</sup>, *doesn't*, *won't*, *hasn't*, and *haven't*. Phonological forms, on the

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<sup>3</sup> One participant from the NNS-upper group did not report her age and therefore her age was not included in the calculation of the age for the group.

<sup>4</sup> Among lexical forms listed here, *don't* and *won't* are purely lexical whereas the others—*isn't*, *wasn't*, *weren't*, *doesn't*, *hasn't*, and *haven't*—are rather lexical. When *do* and *not* are contracted, the pronunciation of each individual word completely changes: /du nat/ becomes /dount/. Similarly, the pronunciation of *will* and *not* changes when they

other hand, were as follows: *he's* (derived from *he is*), *she's* (derived from *she is*), *they're*, *I've*, *he's* (derived from *he has*), *she's* (derived from *she has*), and *they've*. Such phrases as *I think that* and *I know that* were added to sentences with phonological reduced forms in order to prevent the target reduced forms from appearing at the beginning of the sentences. This ensures that participants would not miss words merely because they were not ready for listening.

Using these 20 sentences, two versions of a dictation test (Version A and Version B) were prepared, both of which contained the same 20 sentences, but in a different order. Out of the 20 sentences in each version, 10 sentences were read with reduced forms (presence of reduced forms), while the other 10 sentences were read without reduced forms (absence of reduced forms). Consequently, those sentences which were read with reduced forms in one version were read without reduced forms in the other. Both the test instructions and sentences were read by a female native speaker of American English and tape-recorded in advance (see Appendix B for taped instructions).

To calculate the dictation test scores, only the target reduced forms, i.e., the lexical and phonological forms listed above, were considered. The score given to each participant was a total score for both versions. Four types of scores were calculated for each individual: an absence score when reduced forms were absent, a presence score when reduced forms were present, a phonological score when phonological reduced forms were present, and a lexical score when lexical reduced forms were present.

The validity of the tests was demonstrated by the baseline data of NNSs' test scores. Their absence mean score was 39.89 out of a maximum of 40, with a standard deviation of 0.33; the presence mean score was also 39.89 with the same standard deviation; the phonological mean score was 19.89 out of a maximum of 20, with a standard deviation of 0.33; and the lexical mean score was 20 with a standard deviation of zero.

The reliability of the tests was calculated for the NNSs using Cronbach alpha. The value of Cronbach alpha for both test versions combined was .78.

### ***Procedure***

Before the test administration, participants were asked to read and sign a consent form, which also asked them to provide background information. After completion of the consent form, they took the first dictation test, either Version A or B. In the dictation test, the participants first read the instructions written on the answer sheet, then listened

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are contracted: /wɪl nat/ becomes /wɔʊnt/. In contrast, pronunciation of rather lexical reduced forms partly changes: e.g., /ɪz nat/ becomes /ɪznt/, keeping the pronunciation of /ɪz/.



to the taped instructions. After that, they listened to the recorded sentences and wrote down what they heard (see Appendix C for the answer sheet). Each sentence was played only once; 15 seconds were given between each sentence to allow participants to write down the sentence they had just heard. Those who took Version A first, took Version B second, and vice versa, so that the order of test administration would be counterbalanced. Between the two dictation tests, a cross-word puzzle was given to the participants as a distractor. The whole process took approximately 30 minutes. Materials used here (the taped instructions and answer sheet) were directly taken from Henrichsen's study, with only a few modifications.

### ***Analysis***

The dependent variable was the total score on the two dictation tests. The independent variables were presence of reduced forms with two levels (absence or presence), the type of reduced form with two levels (lexical or phonological), and students' language proficiency with two levels (NNS-upper and NNS-lower). NSs' data were used as baseline data and were not included in the statistical analyses.

The overall alpha level of this study was set at .05.

To investigate the effect of presence of reduced forms and proficiency level on test scores for Research Questions 1 and 2, a two-way repeated measures ANOVA, using a 2 x 2 design, was applied with the alpha level set at .025. Similarly, in order to investigate the effect of reduced form type on test scores using only the presence score for Research Question 3, a two-way repeated measures ANOVA, using 2 x 2 design, was applied with an alpha level of .025. The alpha level was set at .025 based on the Bonferroni adjustment for multiple comparisons. Although Henrichsen (1984) also used ANOVA, he did not use a repeated measures design, though he could have done so in his data analysis. Therefore, the statistical analysis can be regarded as another aspect that was improved upon in this study.

The assumptions for these repeated-measures ANOVAs were also considered. As the values of skewness and kurtosis given in Tables 1 and 2 show, the assumption of normal distribution was not met in all cases. However, since ANOVA is known to be robust to violations of this assumption, it was not considered a serious problem (Kirk, 1968; Shavelson, 1996). The assumption of equal variances, on the other hand, was met as revealed by a non-significant result in the Levene's Test of Equality of Error Variances. The assumption of independence for the between-subjects variable was also met because each participant belonged to only one of the proficiency groups.

In addition to ANOVA, correlational analyses were also conducted using Pearson product-moment correlation coefficients between all possible pairings of the absence

scores, presence scores, lexical scores, phonological scores, and learners' proficiency scores.

## RESULTS

The results are given here along with each hypothesis. The first hypothesis in this study was that the presence of reduced forms would affect L2 learners' listening comprehension. It was hypothesized that, following Henrichsen's (1984) hypothesis, learners would score higher in the absence of reduced forms than in the presence of reduced forms, while native speakers would score similarly in both conditions.

Table 1

*Descriptive Statistics for the Dictation Test Scores in the Absence and the Presence of Reduced Forms Groups*

|                       | Absence   |           | Presence  |           |
|-----------------------|-----------|-----------|-----------|-----------|
|                       | NNS-upper | NNS-lower | NNS-upper | NNS-lower |
| <i>N</i>              | 9         | 9         | 9         | 9         |
| <i>M</i>              | 35.89     | 35.22     | 34.78     | 29.00     |
| <i>SD</i>             | 2.37      | 3.23      | 3.46      | 1.73      |
| skewedness            | 0.02      | 1.12      | -1.42     | -0.19     |
| <i>SE<sub>s</sub></i> | 0.72      | 0.72      | 0.72      | 0.72      |
| Kurtosis              | 0.08      | 1.66      | 3.13      | -2.07     |
| <i>SE<sub>k</sub></i> | 1.40      | 1.40      | 1.40      | 1.40      |

*Note.* Maximum score = 40

Table 1 shows the descriptive statistics for the absence and presence of reduced forms groups scores. Table 2 shows two-way repeated measures ANOVA results, which indicate a statistically significant effect for presence of reduced forms was found for the NNSs' dictation test scores. As mentioned earlier, NSs' absence and presence mean scores were the same, i.e., 39.89.

Table 2

*Repeated-Measures ANOVA on Dictation Test Scores for Proficiency Groups and Absence vs. Presence of Reduced Forms*

| Source                      | SS     | df | MS     | F      | $\eta^2$ | power |
|-----------------------------|--------|----|--------|--------|----------|-------|
| Between subjects            |        |    |        |        |          |       |
| Proficiency                 | 200.69 | 1  | 200.69 | 19.73* | .55      | .97   |
| Error                       | 162.78 | 16 | 10.17  |        |          |       |
| Within subjects             |        |    |        |        |          |       |
| Reduced Forms               | 42.25  | 1  | 42.25  | 7.93*  | .33      | .64   |
| Reduced Forms x Proficiency | 10.03  | 1  | 10.03  | 1.88   | .11      | .17   |
| Error                       | 85.22  | 16 | 5.33   |        |          |       |

Note. S=subjects, \* $p < .025$

Figure 2 shows the same NNSs' results graphically. Based on these results, the first hypothesis that the NNSs' absence scores would be higher than their presence score, while NSs' would not differ, was confirmed. This result was obtained despite the fact that the power of the test was only .64, as Table 2 demonstrates. As Vogt (1999) suggests, “[the power of] 0.8 is often considered an acceptable level for a particular test in a particular study” (p. 219). Thus, the power of .64 is considered to be weak. This weakness may be due to the small sample size.

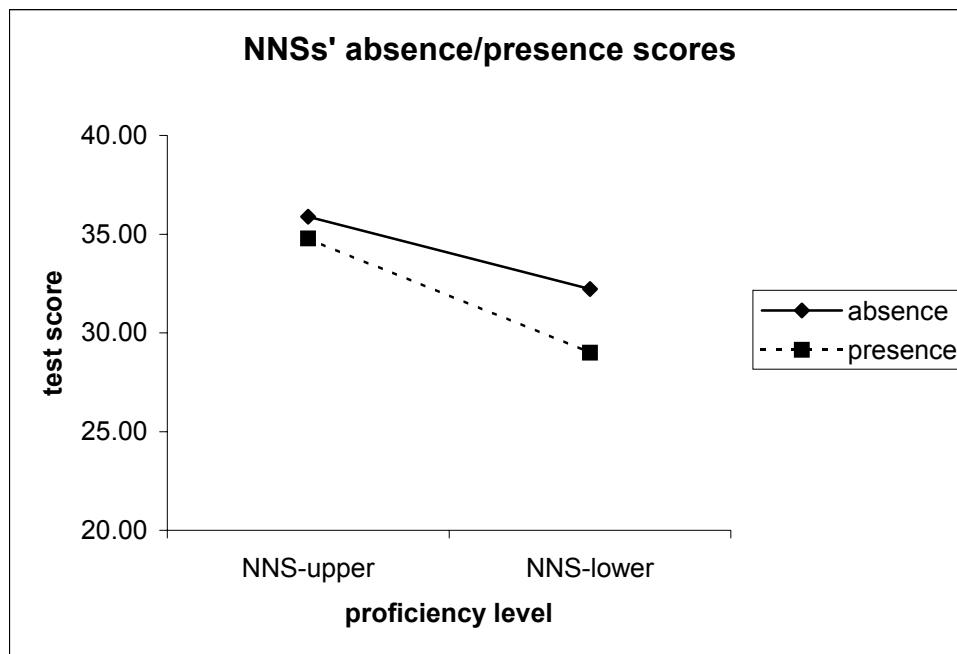


Figure 2. Dictation test scores for the absence and presence of reduced forms

The second hypothesis was that learners' language proficiency would influence the effect of reduced forms on their listening comprehension. Table 2 shows that there was a statistically significant main effect for proficiency level on their test scores. A *t*-test

comparing presence scores between NNS-upper and NNS-lower revealed that this pair of means was significantly different ( $t(16)=4.48, p=.000$ ). Similarly, a  $t$ -test comparing the NNS-upper's and NNS-lower's mean difference between the presence and the absence scores did not show a statistically significant result ( $t(16)=-1.37, p=.189$ ). In addition, the interaction effect between the presence of reduced forms and the proficiency level was not statistically significant. Therefore, this result did not confirm the second hypothesis, which examined the interaction effect.

Table 3

*Descriptive Statistics for the Dictation Test Scores Organized by Types of Forms within the Presence of Reduced Forms Group*

|                       | Phonological |           | Lexical   |           |
|-----------------------|--------------|-----------|-----------|-----------|
|                       | NNS-upper    | NNS-lower | NNS-upper | NNS-lower |
| <i>N</i>              | 9            | 9         | 9         | 9         |
| <i>M</i>              | 15.67        | 10.33     | 19.11     | 18.67     |
| <i>SD</i>             | 3.28         | 1.94      | 0.78      | 1.12      |
| skewedness            | -1.62        | -0.21     | -0.22     | -0.54     |
| <i>SE<sub>s</sub></i> | 0.72         | 0.72      | 0.72      | 0.72      |
| Kurtosis              | 4.33         | -1.61     | -1.04     | -0.80     |
| <i>SE<sub>k</sub></i> | 1.40         | 1.40      | 1.40      | 1.40      |

*Note.* Maximum score = 20

The third hypothesis was that the type of reduced form would affect learners' listening comprehension. In the present study, lexical and phonological forms were examined, and it was hypothesized that learners would have less difficulty in listening to lexical forms than phonological forms. Table 3 and Figure 3 show the learners' performance on each type of reduced form. According to Table 4, which shows the results of a two-way repeated-measures ANOVA examining the effect of reduced form type (repeated) and proficiency level on test scores, the learners' performance on the dictation test was significantly affected by the type of reduced forms. While native speakers scored the same on both types as mentioned earlier, nonnative speakers scored lower on phonological forms than on lexical forms. Furthermore, the interaction effect between the type of reduced form and proficiency was found to be statistically significant. This interaction is exhibited by  $t$ -tests comparing phonological and lexical scores within each proficiency group at a comparison-wise alpha level of .0125 to make an approximate Bonferroni adjustment. The effect of the difference between the two

types of reduced forms was statistically significant for the NNS-lower group ( $t(8)=9.45$ ,  $p=.000$ ), but not for the NNS-upper group ( $t(8)=3.15$ ,  $p=.014$ ).

Table 4

*Repeated-Measures ANOVA on Test Scores for Proficiency Groups and Phonological vs. Lexical Forms*

| Source                       | <i>SS</i> | <i>df</i> | <i>MS</i> | <i>F</i> | $\eta^2$ | power |
|------------------------------|-----------|-----------|-----------|----------|----------|-------|
| Between subjects             |           |           |           |          |          |       |
| Proficiency                  | 75.11     | 1         | 75.11     | 20.10*   | .56      | .97   |
| Error                        | 59.78     | 16        | 3.74      |          |          |       |
| Within subjects              |           |           |           |          |          |       |
| Types of Forms               | 312.11    | 1         | 312.11    | 70.23*   | .81      | 1.00  |
| Types of Forms x Proficiency | 53.78     | 1         | 53.78     | 12.10*   | .43      | .83   |
| Error                        | 71.11     | 16        | 4.44      |          |          |       |

Note. S=subjects, \* $p < .025$

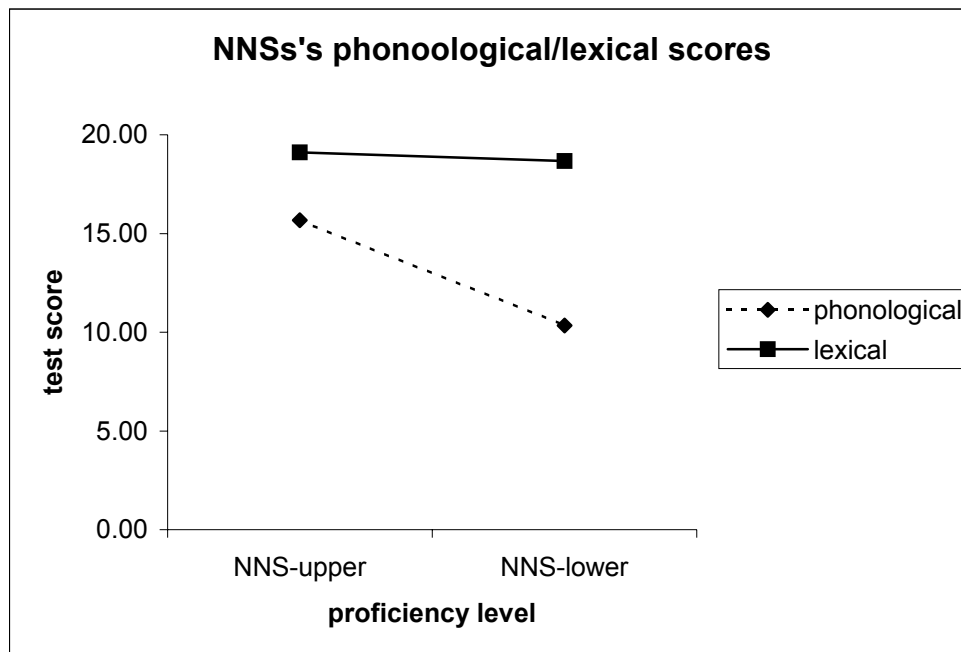


Figure 3. Dictation test scores for lexical and phonological forms

Results of the correlational analyses are summarized in Tables 5, 6, and 7. All the tables show that the presence of reduced forms score and the phonological score are highly correlated across the two proficiency levels of NNSs. Namely, 94.09%, 67.24%,

and 94.09% of the presence score can be accounted for by knowing the phonological score within the NNS-upper group, the NNS-lower group, and the group of both NNS-upper and NNS-lower combined, respectively.

Table 5  
*Correlations Between Each Test Score of NNS-Upper Participants*

|                            | 1 | 2   | 3   | 4     |
|----------------------------|---|-----|-----|-------|
| 1. absence                 | — | .55 | .28 | .51   |
| 2. presence                |   | —   | .33 | .97** |
| 3. lexical (presence)      |   |     | —   | .11   |
| 4. phonological (presence) |   |     |     | —     |

Note:  $n=9$ , \*\* $p<.01$

Table 6  
*Correlations Between Each Test Score of NNS-Lower Participants*

|                            | 1 | 2   | 3    | 4     |
|----------------------------|---|-----|------|-------|
| 1. absence                 | — | .07 | -.19 | .17   |
| 2. presence                |   | —   | .13  | .82** |
| 3. lexical (presence)      |   |     | —    | -.46  |
| 4. phonological (presence) |   |     |      | —     |

Note:  $n=9$ , \*\* $p<.01$

Table 7  
*Correlations Between Each Test Score of NNS Participants and Their Proficiency Level*

|                            | 1 | 2    | 3      | 4    | 5      |
|----------------------------|---|------|--------|------|--------|
| 1. proficiency             | — | -.57 | -.75** | -.24 | -.72** |
| 2. absence                 |   | —    | .59**  | .11  | .60**  |
| 3. presence                |   |      | —      | .32  | .97**  |
| 4. lexical (presence)      |   |      |        | —    | .08    |
| 5. phonological (presence) |   |      |        |      | —      |

Note:  $n=18$ , \*\* $p<.01$

## DISCUSSION

The results can be summarized as follows: (a) While NSs scored identically on both conditions, NNSs scored statistically significantly higher in the absence of reduced forms than in their presence; (b) the effect of reduced forms on learners' listening comprehension did not vary according to their proficiency level; and (c) while NSs' scores were the same on both reduced forms types, NNSs scored lower on phonological than on lexical forms. Accordingly, the presence of reduced forms, and the type of reduced form, affected the learners' listening comprehension as measured by the dictation test. Likewise, the main effect of learners' proficiency level on their listening comprehension, regardless of the presence of reduced forms, was found to be statistically significant. The interaction effect was also found to be statistically significant between types and proficiency level, but not between the presence of reduced forms and proficiency level. The general trend towards a language proficiency effect on listening comprehension, as shown by the main effect of learners' proficiency, as well as the result of a *t*-test comparing the presence score between the two proficiency levels, is similar to what was observed in Henrichsen's study (1984). In other words, listeners with a greater knowledge of the language system seem to be able to compensate for reduced saliency. The finding for the interaction effect between the presence of reduced forms and the learners' proficiency level in this study was different from Henrichsen's (1984). Although Henrichsen's finding contradicted his initial hypothesis in that the mean difference between the presence and the absence scores was larger for the high proficiency group than for the low proficiency group, the interaction effect for the presence of reduced forms and proficiency levels was statistically significant in his study. In contrast, in this study, the interaction effect was not found to be statistically significant. The non-significant interaction effect in the present study could be attributed to the method of measurement. Sentences in the dictation test might have been too easy, or too difficult, yielding a ceiling or floor effect, respectively.

These results showing differential performance on two types of reduced forms should be examined further. Although learners scored lower on phonological than lexical forms, the cause of this effect is unclear, i.e., the type of reduced form might have affected listening comprehension as predicted here, but the inherent difference in syntactic complexity between the two types of reduced forms might possibly have affected performance as well. As explained earlier, the syntactic structures used in the sentences in this study all appear in a grammar book for beginning level learners. Moreover, all the reduced forms chosen as targets in this study share the same characteristic: they are contracted forms. However, even within the same reduced form type, there is a difference in syntactic complexity. Having reduced forms with the same syntactic

complexity for both lexical and phonological forms would have been ideal. Although this was attempted at the stage of selecting target reduced forms, it could not be achieved. Other lexical forms might exist, but the lexical forms chosen for this study were negative contractions. In addition, the phonological forms used in this study included present tense of copula and present perfect forms.

Several limitations in this study should also be noted. First, a larger sample size might have helped to meet the assumption of normal distribution as well as to achieve greater power in the statistical analysis. Second, learner characteristics should also be considered. Exposure to natural English with reduced forms is important, but participants in Henrichsen's study were experiencing a lack of exposure to "normal" input because of their learning environment. Although I assume that learners in the present study have more exposure to English spoken by native speakers than those in Henrichsen's study, their opportunity to be exposed to native speakers' English is still less than learners on the mainland of the United States. Third, some gain in scores from the first administration of the test to the second was observed. Although a cross-word puzzle was given to the participants between the two administrations, the time spent on the puzzle and/or its complexity may not have been sufficient to allow participants to forget what they had written down during the first administration. Fourth, whether a dictation test is appropriate for measuring listening comprehension is questionable. A dictation test can easily measure whether participants understood reduced forms correctly. However, it may not measure their listening comprehension ability accurately. Another limitation is sentence length. Adding phrases *I think that* and *I know that* resulted in producing longer sentences, and thus the length of sentence varied across the two types of reduced forms. Sentences with phonological forms turned out to be longer than those with lexical forms. This might have affected learners' performance on the dictation test. Only the target reduced forms were calculated to obtain scores, but the learners were expected to write down a whole sentence. Thus, longer sentences might have produced a heavier memory load, which could potentially have affected participants' performance on those long sentences. Sentence complexity should also have been reconsidered, since it might have influenced the result of the interaction effect between the presence or absence of reduced forms and the proficiency levels. With these limitations taken into consideration, further investigation of the effect of reduced forms on listening comprehension is desirable.



## CONCLUSIONS AND IMPLICATIONS

The results obtained in the present study support Henrichsen's claim that reduced forms affect the input-intake process. In an attempt to acquire a second language, learners may experience more difficulty in comprehending the input if it contains more reduced forms, with the result that less input becomes intake. Henrichsen suggested the necessity for further input in a different mode, for instance, written English. Foreigner talk, in which input is modified to facilitate learners' understanding, is another mode of input he suggests. With the findings in my study, as well as in Henrichsen's study, the effect of authentic materials in second language classrooms becomes an issue. Since authentic listening materials (e.g., TV broadcasts) are produced for native speakers, input in those materials contains a large number of reduced forms. It would therefore seem that learners would require extra input to help the authentic input become intake. The extra input could be written input, for example (Henrichsen, 1984).

Improving upon several aspects of Henrichsen's study, I attempted to examine not only whether or not reduced forms influence listening comprehension, but also what types of reduced forms influence learners' listening comprehension more than others. The findings of this study showed that learners comprehended lexical reduced forms better than phonological reduced forms. As mentioned earlier, this performance difference could be attributed to the difference in syntactic complexity between the two types of reduced forms. Nonetheless, this finding suggests that learners' listening comprehension is influenced by different types of reduced forms, and thus requires further investigation.

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**APPENDIX A**

<Sentences with lexical reduced forms>

- 1) He **does not** work very hard at home.
- 2) We **will not** go out to dinner with our friends.
- 3) They **do not** have dictionaries on their desks.
- 4) She **has not** taught biology at the school.
- 5) I **have not** spoken to my teacher.
- 6) She **is not** writing a letter to her parents.
- 7) They **were not** attending the conference at the school.
- 8) I **was not** working in the office.
- 9) We **do not** eat breakfast in the cafeteria.
- 10) I **will not** call my sister in New York.

<Sentences with phonological reduced forms>

- 1) I think that **I have** never lived in a small town.
- 2) I know that **he has** never worked at an automobile factory.
- 3) I think that **she has** been a good friend of mine.
- 4) I think that **they have** stayed at a hotel in this city.
- 5) I know that **they have** been to the zoo in Hawaii.
- 6) I think that **he is** working at a wonderful restaurant.
- 7) I think that **she is** teaching English class at the school.
- 8) I think that **he is** playing soccer with his friends.
- 9) I know that **they are** having a secret dinner at a Hawaiian restaurant.
- 10) I think that **they are** buying tickets at the theater.

**APPENDIX B****Taped Instructions for Test**

INSTRUCTIONS: In a moment you will hear twenty sentences. After you hear each sentence, write it down in the appropriate space on your paper. Use the full form of each word even though some of the words you hear may be contracted or blended together. For example, if you hear the sentence “What’d ja do yesterday?” you should write down What -- did -- you do yesterday? even though the first few words were contracted and reduced to “What’dja.”

You should rely on your knowledge of English sentence structure as well as on the sounds you hear. Think, and write quickly. The pauses between sentences will not be too long. If you do not have time to write the full sentence or you cannot remember all of it, write as much as you can—even if it is only the first few words. Each sentence will be spoken only once and none of the sentences will be repeated.

If you have any questions about what you are supposed to do, raise your hand and ask us.

**APPENDIX C**

1 2 A B

**Answer Sheet**

Name \_\_\_\_\_ Date \_\_\_\_\_

Nationality \_\_\_\_\_ Native Language(s) \_\_\_\_\_

**Instructions:**

When the tape begins, you will hear twenty sentences. There will be a short pause after each sentence. During the pause, write the sentence you hear on the line provided on the next page.

When you write, use full (normal) words only. Do *not* use contractions even though some of the words you hear may be contracted or blended together.

All the spoken sentences are grammatically correct, so your written sentences should also be grammatically correct.

If you do not have time to write the full sentence or you cannot remember all of it, write as much as you can -- even if it is only the first few words.

Think and do your best. Each sentence will be spoken only once and none of the sentences will be repeated.

If you have any questions about what you are supposed to do, raise your hand and ask the teacher now.

Example: *What did you do yesterday?*

1. \_\_\_\_\_

2. \_\_\_\_\_

3. \_\_\_\_\_

4. \_\_\_\_\_

5. \_\_\_\_\_

6. \_\_\_\_\_

7. \_\_\_\_\_

8. \_\_\_\_\_

9. \_\_\_\_\_

10. \_\_\_\_\_

11. \_\_\_\_\_

12. \_\_\_\_\_

13. \_\_\_\_\_

14. \_\_\_\_\_

15. \_\_\_\_\_

16. \_\_\_\_\_

17. \_\_\_\_\_

18. \_\_\_\_\_

19. \_\_\_\_\_

20. \_\_\_\_\_



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