한국 EFL 학생들의 자음군 축약: 삽입 대 탈락 전략
Cluster Reduction by Korean EFL Students: Insertion vs. Deletion Strategies

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요약

모음을 삽입시키거나 자음을 탈락시킴으로써 한 음절 내의 영어 연속음을 없애는 자음군 축약 전략이 기존의 연구들마다 다르다는 점에 동기를 부여받아서 한국 학생들의 영어 자음군 축약 전략을 탐구하게 되었다. 대학생 60명의 어두와 어말 자음군 발음을 조사한 결과, 초성이냐 종성이냐 하는 운율적 위치와 자음군이 몇 개로 구성되어 있느냐는 자음군 숫자에 따라 모음 삽입이냐 자음 탈락이냐 하는 자음군 축약 전략에 영향을 미치는 것으로 나타났다. 삽입과 탈락의 오류 비율은 초성보다는 종성에서 높았고 두 개의 자음군보다는 세 개의 자음군에서 높았다. 전반적으로 삽입 오류 비율이 탈락 오류 비율보다 높았으나, 종성 위치의 세 개의 자음군에서는 탈락 비율이 삽입 비율보다 중요하게 높았다. 종성 위치 세 개의 자음군에서 탈락 비율이 높은 것 때문에 운율 위치에 상관없이 세 개의 자음군에서 삽입보다 탈락 비율이 높게 나타났으며 전반적으로 종성에서 탈락 비율이 높이 나타났다.

■ 중심어 : | 자음군 | 자음군 축약 | 모음삽입 | 자음탈락 | 영어를 외국어로 배우는 학생 | 초성 | 종성 | 두 개의 자음군 | 세 개의 자음군 |

Abstract

Motivated by the fact that cluster reduction strategies such as inserting a vowel or deleting a consonant in resolving English complex clusters differ depending on studies, this paper investigates the repair strategies employed by Korean EFL students. A total of 60 college students participated in the present study and the participants' production of English voiceless word-initial and word-final clusters was measured using the materials designed for this study. It has been shown that prosodic positions such as onset and coda and the number of cluster sequences influenced cluster reduction strategies. The error rates of both insertion and deletion were noticeably higher in the coda position than in the onset position and both insertion and deletion error rates were higher in triconsonatal cluster than in biconsonantal cluster sequences. Overall, the insertion rate was higher than the deletion rate. However, the deletion rate was significantly higher than the insertion rate in triconsonantal coda cluster sequences. Because of this, the deletion rate was higher than the insertion rate for triconsonantal cluster sequences across onset and coda. Also, the high deletion rate of triconsonantal coda clusters contributed to the high deletion rate for the coda clusters in general.

■ Keyword : | Consonant Clusters | Cluster Reduction | Vowel Insertion | Consonant Deletion | EFL | Students | Onset | Coda | Biconsonantal Clusters | Triconsonantal Clusters |

I. Introduction

In many languages onsets and codas may contain only a single consonant each. In many other languages, however, onsets and codas may host more than one consonant. For instance, Korean syllable structure does not allow complex onsets or codas, whereas English syllable structure does. Specifically, Korean syllable structure is constrained as to permit only a single consonant both in the onset and in the coda, whereas English syllable structure is allowed to contain up to three consonants in the onset and maximally four consonants in the coda [1]. It is generally assumed that the overall shape of syllables in a native language tends to act as a major factor in adult second/foreign language acquisition [2]. Thus, it is expected that native Korean speakers tend to simplify complex onsets and codas when they utter English words with complex onsets and codas. There are at least two possible strategies that can be employed by Korean speakers of English to avoid English words with complex onsets and codas: insertion of a vowel or deletion of a consonant. Thus, Korean EFL (English as a foreign language) students may modify their pronunciation of English consonant clusters by employing one of the strategies.

There are, however, discrepancies in adopting the reduction strategies among scholars and/or among different language speakers. For example, [3] observed that Mandarin speakers of English used only vowel epenthesis when they produced word-final codas. By contrast, [4] reported that the dominant repair strategy in the coda was deletion, whereas [5] observed that Mandarin speakers of English showed roughly equal proportions between vowel insertion and consonant deletion in producing

coda clusters. Along the same line, [6] noticed that different cluster-breaking strategies were employed depending on whether it is onset or coda; while insertion was dominant in the onset, it was deletion that was predominant in the coda. Motivated by these discrepancies among scholars with respect to cluster-breaking strategies, this paper investigates the production of English consonant clusters by Korean EFL students. Specifically, this study explores the following research questions: 1) what kinds of cluster-breaking strategies Korean EFL students adopt when they produce English clusters; 2) whether Korean students adopt different reduction strategies depending on prosodic positions such as onset and coda; 3) whether Korean students employ different strategies depending on the number of cluster sequences like biconsonantal clusters and triconsonantal clusters.

II. A case study

The participants were 60 Korean speakers of English who were freshmen at a university. The subjects were recruited from the same division with similar CSAT(the College Scholastic Ability Test) scores and enrolled in a required English course for freshmen. All participants were non-native speakers of English and studied EFL for about six years, but had never received any explicit training on English pronunciation

In order to measure the participants' pronunciation of English clusters in both word-initial onset and word-final coda positions, a total of 118 sentences were used: 40 sentences beginning with and 78 sentences ending with all types of clusters that could occur at each position were examined. In specific, a total of 40 cluster sequences consisting of

8 obstruent-plus-obstruent and 24 obstruent-plus-sonorant for two-member clusters along with 8 three-member clusters were tested in word-initial position. Likewise, a total of 78 cluster sequences were tested in word-final position: two-member clusters consisting of 16 obstruent-plus-obstruent, 46 sonorant-plus-obstruent, 8 sonorant-plus-sonorant and 8 three-member clusters were tested in word-final position.

For the production test, each participant was asked to read the given sentence list clearly with a pause about three seconds between sentences so that sentence-final clusters may not be affected by the sounds of the following sentences. The subjects' readings were tape-recorded using a high-quality MD recorder and narrowly transcribed only for the target sounds under investigation.

III. Results

Overall, the insertion error rate was slightly higher than the deletion error rate, taking up 12% and 9%, respectively[Figure 1].
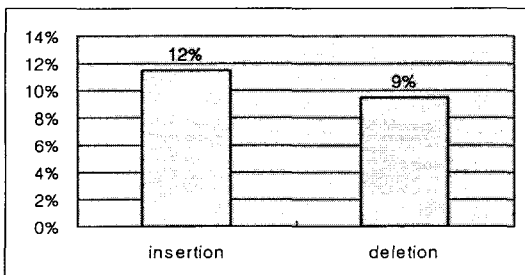

Figure 1. Overall insertion and deletion rates

When we considered the prosodic locations such as onset and coda, different error patterns emerged; insertion rates (9%) were much higher than deletion rates (4%) for onset cluster sequences, whereas for coda cluster sequences each insertion and deletion rates was about the same, taking up 13% and 12%, respectively [Figure 2].
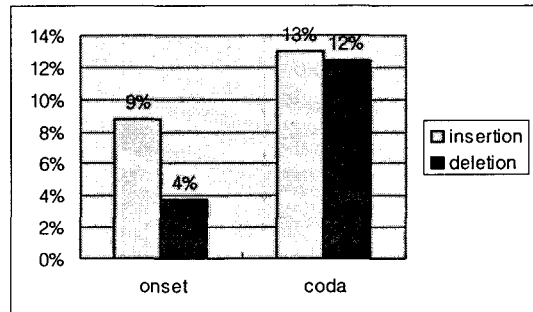

Figure 2. Insertion and deletion rates by prosodic position

The higher error rates of coda cluster sequences than those of onset cluster sequences were confirmed by many researches such as [4] and [6]. [4] reported that her Chinese subjects made more errors in two-member codas (50%) than in two-member onsets (10%). According to [6], Japanese and Spanish speakers of English had more difficulties with coda cluster sequences than with onset cluster sequences. The result of this experiment also showed that the error rates of both insertion and deletion were noticeably higher in coda position than in onset position. This is understandable given the markedness theory where the onset position is universally more prominent (marked) than the coda position so that onsets are less frequently modified than codas [8].

While the insertion and deletion error pattern in the onset conformed to the observation of [6] in that the insertion rate was higher than the deletion rate for onset cluster sequences, the insertion and deletion error pattern in the coda did not conform to the observation of [6]. In their experiment deletion was more likely to occur word-finally. By contrast,

in our result deletion and insertion rates did not show much difference in the coda.

In biconsonantal clusters the insertion rate took up 10% whereas the deletion rate 8%. In triconsonantal clusters the insertion and deletion rates were 18% and 21%, respectively[Figure 3].
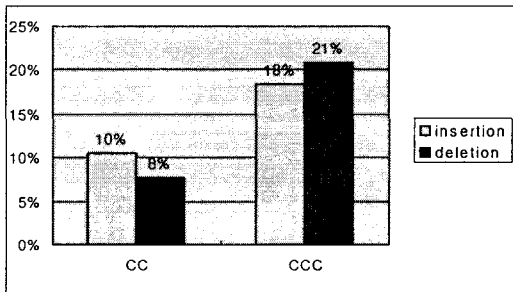

Figure 3. Insertion and deletion rates depending on CC and CCC

The result clearly showed that both insertion and deletion error rates were higher in triconsonantal clusters than in biconsonantal clusters, implying that the production of three-member clusters was more difficult than that of two-member clusters. This is not unexpected given the implicational universal where the presence of onset or coda of length n implies the presence of $n-1$ [8]. The consequence of the universal is that shorter onset and coda $(n-1)$ are easier to acquire than longer ones (n) because the markedness of onset and coda increases with length. A few studies also showed that the more the number of onset and coda consonants, the harder for language learners to acquire them. For example, [5] examined the production of English word-final codas by four Mandarin speakers. Syllable reduction error rates of insertion and deletion were 5.5% for one-member codas, 29.8% for two-member codas and 42% for three-member codas. Along the same line, [4] also reported that her Arabic subjects modified about 18% of English two-member codas,

whereas they modified over 30% of English three-member codas. These results consistently showed the longer the cluster the more difficult it would be.

The data sorted by the number of consonant cluster sequences in Figure 3 were further assorted according to prosodic positions in order to investigate the interaction between position and number effects in more details [Figure 4]. In the biconsonantal onset clusters the insertion rate was 7% whereas the deletion rate 3%, indicating the insertion rate was roughly twice higher than the deletion rate. Likewise, in the triconsonantal onset clusters insertion and deletion occurred in a similar proportion of two to one, 14% insertion and 7% deletion. These results showed that the insertion error rate was twice as dominant as the deletion error rate in the onset. In the biconsonantal coda clusters the insertion and deletion errors occurred in roughly equal proportions, 12% insertion and 10% deletion, but the insertion rate was still a little bit higher than the deletion rate. However, the triconsonantal coda clusters showed a different pattern; the insertion rate amounted to 23% whereas the deletion rate up to 35%. Here the deletion error rates was conspicuously higher than the insertion rate, which was opposite to the predominance of insertion over deletion in other cases.
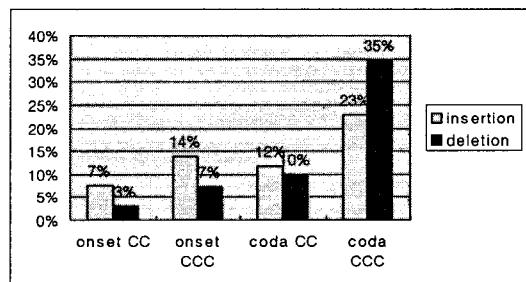

Figure 4. Insertion and deletion rates of CC and CCC depending on prosodic positions

IV. Conclusions

It has been shown that prosodic positions and the number of cluster sequences influenced cluster reduction strategies such as inserting a vowel or deleting a consonant. Specifically, the error rates of both insertion and deletion were noticeably higher in the coda position than in the onset position. Along the same line, the error rates of both insertion and deletion were much higher in triconsonantal clusters than in biconsonantal clusters.

Although overall results showed that the insertion error rate was a little bit higher than the deletion error rate, this was not always the case, if prosodic positions and the cluster sequence numbers were considered. That is, the insertion rate was always higher than the deletion rate in the onset position, regardless of whether the cluster sequences were biconsonantal or triconsonantal. In the coda position, however, the insertion rate was slightly higher than the deletion rate for biconsonantal sequences whereas the deletion rate was a lot higher than the insertion rate for triconsonantal sequences. Thus, the high deletion rate of triconsonantal coda clusters contributed to the increase of the deletion rate for the coda clusters in general and to the dominance of the deletion rate over the insertion rate for the triconsonantal cluster sequences across onset and coda.

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