

A Comparison of Perceptual Compensation for Korean Regressive and Progressive Assimilations by L2 Learners

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Speech sounds are distorted in continuous speech due to various phonological processes, and listeners need to compensate for such variations in order to activate the correct word representation. This study investigates whether native Korean and Mandarin Chinese listeners learning Korean show similar perceptual compensation patterns involving two Korean assimilation processes (i.e. nasalization and lateralization). This study also examines the effect of assimilation direction (i.e. regressive and progressive assimilations) and the effect of sentential context on perceptual compensation.

To these ends, twenty-one Korean listeners and twenty Mandarin Chinese listeners with a high level of proficiency in Korean participated in four kinds of discrimination tasks (i.e. regressive assimilation in words, regressive assimilation in sentences, progressive assimilation in words, and progressive assimilation in sentences). In each type of discrimination tasks, half of the stimuli involved nasalization, while the other half involved lateralization. The target tokens in the stimuli consisted of monosyllabic nouns or adjectives with a CVC structure. In the discrimination task involving words, the target tokens were embedded into one of three types of phonological contexts (i.e. no change, unviable change, and viable change). The participants listened to 360 target tokens (30 tokens * 3 phonological contexts * 2 assimilation directions * 2 phonological rules) and compound words including the target tokens (e.g. no[n] and no[l].li ‘logic’ for regressive lateralization; [n]wun and kil.[l]wun ‘sense of direction’ for progressive lateralization). For the discrimination task involving sentences, the target tokens were embedded in words ending with either their original forms or assimilated forms. The participants listened to 200 target tokens (30 original forms * 2 assimilation directions * 2 phonological rules, and 20 assimilated forms * 2 assimilation directions * 2 phonological rules) and sentences containing the target tokens (e.g. ci[p] and kunun ci[m]mwunul talassta ‘He hung the door of his house’ for regressive nasalization; [l]yek and kunun nung[n]yeki cohassta ‘He had a good ability’ for progressive nasalization). For regressive assimilation, the participants were asked to discriminate between a priming target token and the first syllable of a compound word, whereas for progressive assimilation, the participants were requested to discriminate between the priming target token and the second syllable of a compound word. All of the stimuli were prompted by the *PsychoPy* software and randomly presented to each participant.

All the ‘same’ responses were collected to calculate the detection rates. The results showed that there were clearly different perceptual patterns between the two listener groups in both words and sentences. The Korean listeners revealed a sensitivity to context in both regressive and progressive assimilations involving words and sentences. When the detection rates in the three contexts (i.e. unviable change, viable change in words, viable change in sentences) were compared with each other, regardless of the type or direction of assimilation, the highest detection rates were found in the viable change context in sentences, followed by the viable change context in words, and the lowest detection rates were revealed in the unviable change context. The Korean listeners compensated for both nasalization and lateralization by consistently showing different detection rates in the three contexts. The Korean listeners also demonstrated the effect of sentential context regardless of assimilation directions. On the other hand, the Chinese listeners were not sensitive to context in all cases. Although the Chinese listeners in this study were all advanced learners of Korean, they were not able to perceive the phonetic differences in both word and sentence stimuli. In addition, the L2 advanced learners were not able to use sentential context in perceiving assimilated speech. The effect of L1 syllable structure seemed to strongly affect L2 perception. It was also revealed that although the two listener groups’ general perceptual patterns were similar

between regressive and progressive assimilations, their sensitivity to phonetic differences of coda consonants was higher in the regressive assimilation than in the progressive assimilation.

Table 1. Construction of stimuli and the statistical results

Phonological context and assimilation direction	Listener group	Context effect		
		Post-hoc test	Regressive assimilation	Progressive assimilation
Phonological context (UCW vs. VCW vs. VCS) p<.0001	Korean listener	UCW vs. VCW	p<.05	p<.01
Assimilation direction (Regressive vs. Progressive) p<.01		VCW vs. VCS	p<.01	p<.05
Phonological context (UCW vs. VCW vs. VCS) p>.05	Chinese listener	Not applicable		
Assimilation direction (Regressive assimilation vs. Progressive assimilation) p<.05				

Note. NCW= no change_word, UCW=unviable change_word, VCW=viable change_word, VCS=viable change_sentence

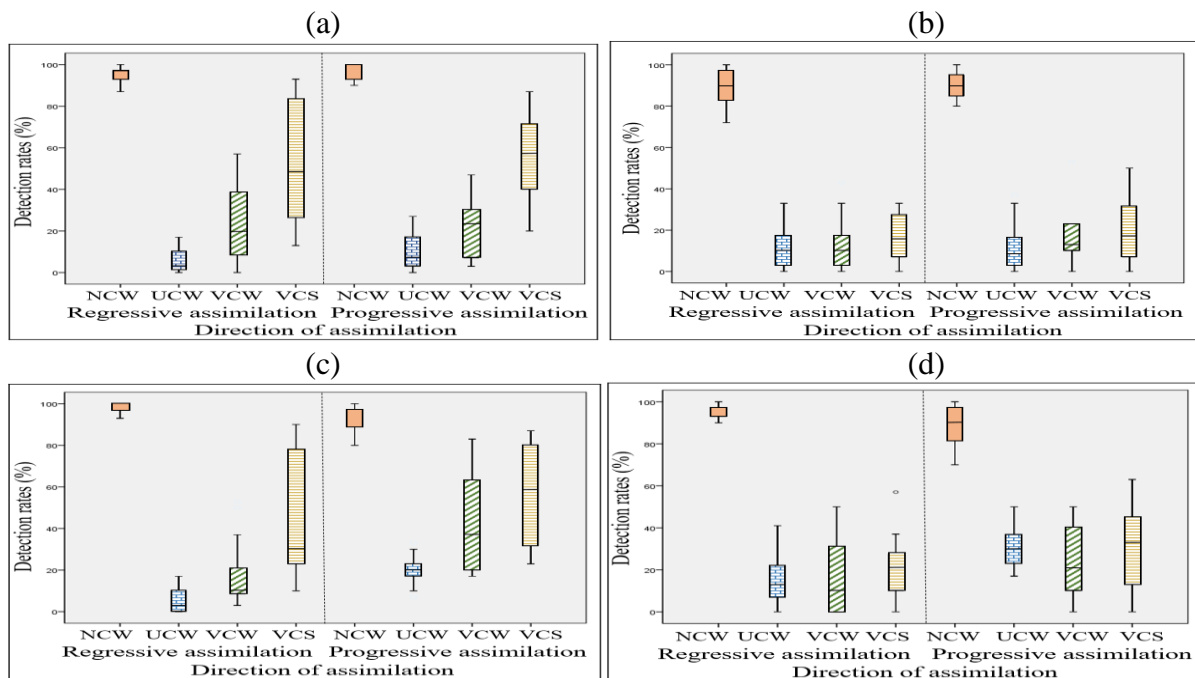


Fig.1 Detection rates in word contexts and one sentential context between regressive and progressive assimilation (a) Korean listeners for nasalization (b) Chinese listeners for nasalization (c) Korean listeners for lateralization (d) Chinese listeners for lateralization. Note. NCW=no change_word, UCW=unviable change_word, VCW=viable change_word, VCS=viable change_sentence

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