

PDF hosted at the Radboud Repository of the Radboud University Nijmegen

The following full text is a publisher's version.

For additional information about this publication click this link.

<http://hdl.handle.net/2066/56571>

Please be advised that this information was generated on 2018-07-08 and may be subject to change.

2aSC16. Korean students' repetition of English sentences mixed with noise at various speed. Byunggon Yang (Dept. of English Education, Pusan Natl. Univ., 30 Changjun-dong, Keumjung-gu, Pusan 609-735, South Korea) and Eunjee Kim (Donguei Univ., Pusanjin-gu, Pusan 614-714, South Korea)

Many Korean students feel quite frustrated by native speakers' fast talk, especially in a noisy situation. In this study, it was examined how well 33 Korean university students repeat 48 recorded English sentences at normal speed, fast speed, normal speed mixed with noise, and fast speed mixed with noise. The subject's production was scored by the percent ratios of correctly produced words to the total words in each sentence. Results showed that overall the student group correctly repeated around 65% of all the words, while the native speakers demonstrated almost perfect performances. Students achieved 69% and 61% accuracy in their repetition of content and function words, respectively. The high-proficiency group outperformed the low-proficiency group, particularly in their repetition of function words. Student's accuracy of repetition remarkably dropped when both the speed and noise of normal sentences were modified. The noise condition seemed to have the strongest effect on their accuracy. Finally, it was observed that the more words a stimulus sentence had, the harder the Korean students found it to repeat correctly. Those results may be helpful for English teachers to develop better teaching materials for listening skills and to offer some criteria of proficiency level in English.

2aSC17. Identification of American English vowels by native Japanese speakers: Talker-and-token-based analysis. Takeshi Nozawa (Faculty of Economics, Ritsumeikan Univ., 1-1-1 Nojihigashi, Kusatsu, Shiga, 525-8577 Japan), Elaina M. Frieda (Auburn Univ., Auburn, AL 36849), and Rtree Wayland (Univ. of Florida, Gainesville, FL 32611)

Native speakers of Japanese identified American English vowels /i, ɪ, e, æ, a, ʌ/ produced by four female native speakers of American English in /CVC/ contexts. Native speakers of American English served as the control group, and they outperformed the Japanese subjects in identifying all the English vowels in every /CVC/ context. In another experiment the Japanese subjects equated these English vowels with Japanese vowels. In general, English vowels were equated with phonetically close Japanese vowels, but significant talker effect was observed. The /i/ tokens equated with the Japanese long high front vowel /ii/ were much more correctly identified as /i/ than those equated with the Japanese short high front vowel /i/. These tokens were more often misidentified as /ɪ/. The /a/ and /ʌ/ tokens were predominantly equated with the Japanese low vowel /a/. The percent-correct identification of /a/ and /ʌ/ was low in most of the /CVC/ contexts, and these two vowels were often misidentified as each other, and the Japanese subjects' latency before they decided what vowel they had heard was longer when /a/ or /ʌ/ tokens were presented. The Japanese subjects do not seem to have salient cues to differentiate /a/ and /ʌ/.

2aSC18. Does clear speech enhance the voice onset time contrast in Croatian and English? Rajka Smiljanic and Ann Bradlow (Linguist., Northwestern Univ., 2016 Sheridan Rd., Evanston, IL 60208)

This study investigates the effect of intelligibility-enhancing clear speech on voice onset time (VOT) in two languages with different phonetic realizations of a two-way voicing contrast. Specifically, it was explored whether the contrasts between prevoiced and short-lag categories in Croatian and short-lag and long-lag categories in English are enhanced along the VOT dimension in clear speech. Word-initial stops in words embedded in sentences read by native speakers of each language in conversational and clear speaking styles were examined. The results revealed that in English, the long-lag category (i.e., voiceless) extended somewhat in the positive VOT direction (longer aspiration), and in Croatian, the prevoiced category (i.e., voiced) extended somewhat in the negative VOT direction (longer prevoicing) in clear speech. However, in both languages, the short-lag tokens (i.e., voiced in English, voiceless in Croatian) were unchanged in clear versus conversational speech. Overall, then, the dis-

tance between the two voicing categories was rather stable across the two speaking styles in both languages. These results suggest that VOT is not a dimension of voicing category contrast enhancement. Rather, the language-specific pronunciation norms along this dimension are maintained in clear and conversational speech.

2aSC19. Tuning in and tuning out: Speech perception in native- and foreign-talker babble. Kristin Van Heukelem and Ann R. Bradlow (Linguist. Dept., Northwestern Univ., 2016 Sheridan Rd., Evanston, IL 60208, k-van@northwestern.edu)

Studies on speech perception in multitalker babble have revealed asymmetries in the effects of noise on native versus foreign-accented speech intelligibility for native listeners [Rogers *et al.*, *Lang Speech* 47(2), 139–154 (2004)] and on sentence-in-noise perception by native versus non-native listeners [Mayo *et al.*, *J. Speech Lang. Hear. Res.*, 40, 686–693 (1997)], suggesting that the linguistic backgrounds of talkers and listeners contribute to the effects of noise on speech perception. However, little attention has been paid to the language of the babble. This study tested whether the language of the noise also has asymmetrical effects on listeners. Replicating previous findings [e.g., Bronkhorst and Plomp, *J. Acoust. Soc. Am.*, 92, 3132–3139 (1992)], the results showed poorer English sentence recognition by native English listeners in six-talker babble than in two-talker babble regardless of the language of the babble, demonstrating the effect of increased psychoacoustic/energetic masking. In addition, the results showed that in the two-talker babble condition, native English listeners were more adversely affected by English than Chinese babble. These findings demonstrate informational/cognitive masking on sentence-in-noise recognition in the form of linguistic competition. Whether this competition is at the lexical or sublexical level and whether it is modulated by the phonetic similarity between the target and noise languages remains to be determined.

2aSC20. Second language vowel training using vowel subsets: Order of training and choice of contrasts. Kanae Nishi and Diane Kewley-Port (Dept. of Speech and Hearing Sci., Indiana Univ., 200 S. Jordan Ave., Bloomington, IN 47405)

Our previous vowel training study for Japanese learners of American English [*J. Acoust. Soc. Am.* 117, 2401 (2005)] compared training for two vowel subsets: nine vowels covering the entire vowel space (9V condition); and the three more difficult vowels (3V condition). Trainees in 9V condition improved on all vowels, but their identification of the three more difficult vowels was lower than that of 3V trainees. Trainees in 3V condition improved identification of the trained three vowels but not the other vowels. In order to further explore more effective training protocols, the present study compared two groups of native Korean trainees using two different training orders for the two vowel subsets: 3V then 9V (3V-9V); and 9V then 3V (9V-3V). The groups were compared in terms of their performance on all nine vowels for pre-, mid-, and post-test scores. Average test scores across the two groups were not different from each other. A closer examination indicated that group 3V-9V did not improve on one of the three more difficult vowels, whereas group 9V-3V improved on all three vowels, indicating the importance of training subset order. [Work supported by NIH DC-006313 and DC-02229.]

2aSC21. Lexical status effects on compensation for fricative assimilation. Claudia Kuzla, Holger Mitterer, and Anne Cutler (Max Planck Inst. for Psycholinguist., P.O. Box 310, 6500 AH Nijmegen, The Netherlands)

In German, word-initial voiced fricatives may be devoiced if they follow /t/. This assimilation could make recognition of words beginning with /v/ harder, since there may be competing words beginning with /f/, but will not affect words beginning with /z/, since initial /s/ in German is illegal. Previous research has shown that speakers indeed produce more

assimilation across word boundaries than across phrase boundaries for /z/, but inhibit the assimilation across word boundaries for /v/. In the present study, German listeners identified the fricative continua /f-v/ and /s-z/, across word-versus-phrase boundaries, in viable-versus-nonviable contexts for assimilation. Less voicing was required for a /v,z/ judgment in viable than in nonviable assimilation contexts. This context effect was larger after a word boundary than after a phrase boundary. Within the viable-context condition, a prosodic effect appeared for /f-v/, with less voicing required for /v/ judgments after a word than a phrase boundary, but no such effect appeared for /s-z/. This asymmetry reverses the difference observed in production. Thus, listeners adjust phoneme category boundaries to compensate for prosodically conditioned variation where such adjustment is functional for word recognition, but show less compensation where adjustment would have no functional consequences.

2aSC22. Lexical statistics of competition in L2 versus L1 listening. Anne Cutler (Max Planck Inst. for Psycholinguist., P.O. Box 310, 6500 AH Nijmegen, The Netherlands)

Spoken-word recognition involves multiple activation of alternative word candidates and competition between these alternatives. Phonemic confusions in L2 listening increase the number of potentially active words, thus slowing word recognition by adding competitors. This study used a 70,000-word English lexicon backed by frequency statistics from a 17,900,000-word corpus to assess the competition increase resulting from two representative phonemic confusions, one vocalic (ae/E) and one consonantal (r/l), in L2 versus L1 listening. The first analysis involved word embedding. Embedded words (*cat* in *cattle*, *rib* in *ribbon*) cause competition, which phonemic confusion can increase (*cat* in *kettle*, *rib* in *liberty*). The average increase in number of embedded words was 59.6 and 48.3 temporary ambiguity. Even when no embeddings are present, multiple alternatives are possible: *para-* can become *parrot*, *paradise*, etc., but also *pallet*, *palace* given /r/-/l/ confusion. Phoneme confusions (vowel or consonant) in first or second position in the word approximately doubled the number of activated candidates; confusions later in the word increased activation by on average 53 third, 42 confusions significantly increase competition for L2 compared with L1 listeners.

2aSC23. Some novel allophonic and phonemic phenomena in Biscayan Basque. Rebeka Campos-Astorkiza (Linguist. Dept., Univ. of Southern California, University Park GFS 301, Los Angeles, CA 90089-1693, rebekaca@usc.edu)

An acoustic study of novel allophonic and phonemic phenomena in the isolate language Basque is presented. The focus is on speakers of the Biscayan dialect. First, Basque shows a spirantization process by which voiced plosives are produced as approximants, particularly intervocalically. Interestingly, we find that Basque /ld/ sequences, where spirantization is not expected [Hualde (1991) Basque Phonology], are realized as a lateral approximant followed by a voiced lateral fricative. Second, in this variety of Basque, the historical three-way contrast among sibilants (two alveolars and one postalveolar) has been reduced to a two-way distinction. The original contrast, still found in other varieties, between a laminal alveolar and an apical alveolar has merged with different results depending on the continuancy of the sibilants. Third, Basque presents a contrast between trill and flap intervocalically. However, elsewhere this is neutralized, and the precise realization of this segment varies from trill to frication. Finally, the Basque five-vowel inventory allows for almost any sequence of two vowels. The same vowel sequence might be a diphthong (tautosyllabic) or a hiatus (heterosyllabic) depending on the lexical item. That is, diphthongs and hiatus are contrastive. [Submitted for the student paper competition.]

2aSC24. Acquisition of stress and pitch accent in English-Spanish bilingual children. Sahyang Kim, Jean Andruski (Dept. of Audiol. and Speech-Lang. Pathol., Wayne State Univ., Detroit, MI 48202), Geoffrey S. Nathan, Eugenia Casielles, and Richard Work (Wayne State Univ., Detroit, MI 48202)

Although understanding of prosodic development is considered crucial for understanding of language acquisition in general, few studies have focused on how children develop native-like prosody in their speech production. This study will examine the acquisition of lexical stress and postlexical pitch accent in two English-Spanish bilingual children. Prosodic characteristics of English and Spanish are different in terms of frequent stress patterns (trochaic versus penultimate), phonetic realization of stress (reduced unstressed vowel versus full unstressed vowel), and frequent pitch accent types (H^* versus L^*+H), among others. Thus, English-Spanish bilingual children's prosodic development may provide evidence of their awareness of language differences relatively early during language development, and illustrate the influence of markedness or input frequency in prosodic acquisition. For this study, recordings from the children's one-word stage are used. Durations of stressed and unstressed syllables and F_0 peak alignment are measured, and pitch accent types in different accentual positions (nuclear versus prenuclear) are transcribed using American English ToBI and Spanish ToBI. Prosodic development is compared across ages within each language and across languages at each age. Furthermore, the bilingual children's productions are compared with monolingual English and Spanish parents' productions.

2aSC25. Prosodic resolution of a syntactic ambiguity in Korean learners of English. HyeKyung Hwang and Amy J. Schafer (Univ. of Hawaii at Manoa, 569 Moore Hall, 1890 East-West Rd., Honolulu, HI 96822)

Research has discussed disambiguating effects of the relative strength of prosodic boundaries in native-language sentence processing (e.g., Carlson *et al.*, 2001; Schafer *et al.*, 2000), but not in second language processing. In this study, Korean learners of English (L2ers) and native English speakers (L1ers) listened to the initial portion of sentences with a temporary ambiguity in clause-boundary location (e.g., when that moves the square), and chose one of two visually presented disambiguating continuations [(1) it will . . . (2) will . . .]. The stimuli were quasispontaneously produced by untrained speakers, with prosody that varied in boundary strength at the correct and competing clause-boundary locations. As expected, pronunciations with the strongest prosodic boundary at the correct clause-boundary location successfully disambiguated most tokens for both L1ers and L2ers. Contrary to predictions of Carlson *et al.*, 2001, both groups were sensitive to the size of the correct versus competing boundary strength difference: e.g., a contrast between a correct-location intonation phrase boundary and a competing-location word boundary was more disambiguating than a contrast between an intonation and an intermediate phrase boundary. Additionally, L2ers showed some difficulty in utilizing intermediate phrase boundaries as disambiguating cues, suggesting a greater learning component to intermediate than intonation phrase use for L2ers.

2aSC26. New and contrastive focus in Taiwan Mandarin. Jia-rong Li (Dept. of Foreign Lang. and Lit., Natl. Chiao Tung Univ., 1001 Ta Hsueh Rd., Hsinchu, Taiwan)

This study investigated the influence of information structure on surface acoustical parameters in Taiwan Mandarin. There were two experiments, i.e., GN and GC experiment. In GN experiment, the noun phrases placed in initial (NP1) or medial (NP2) position in a Mandarin sentence were elicited through a game. Subjects answered experimenter's questions, e.g., "What is on pink truck's right side?" according to colored pictures in a 4 by 4 matrix. New or given information was placed on either NP1 or NP2. In GC experiment, subjects corrected or confirmed experimenter's description, such as Pink truck is yellow IDs right side, by placing either contrastive information on the color term and given information