

Recent years have witnessed a surge of studies on the effects of different linguistic features on second language (L2) perception (e.g., Trofimovich et al., 2012; Saito et al., 2016; Crowther et al., 2018). In the field of Chinese as a second language (CSL), several studies have begun to disentangle the contributions of segments and prosody to L2 perception (Yang, 2016; Yang et al., 2011; Neil, 2023), though further research is needed. This study investigates how various linguistic features, together with task type and proficiency in L2 Chinese, influence comprehensibility and accentedness ratings by native (L1) Chinese judges.

Ten intermediate and ten advanced CSL learners completed a passage reading task and a retelling task, yielding 212 sentences from the reading passage and 125 sentences from the spontaneous retelling speech. Segmental, tonal, prosodic, lexical, and grammatical errors were transcribed, and speech rate was measured. Linear mixed-effects regression models were used to examine the relationships between these predictors and listener ratings. Random forest models were also employed to validate the robustness of the findings.

Results showed that, for comprehensibility ratings, all factors except consonant and vowel errors were significant predictors, including proficiency level, task type, tone errors, prosody errors, lexical errors, grammatical errors, and speech rate. Among these predictors, proficiency level and task type exhibited medium to large effects, whereas linguistic features generally showed small effects, with tone errors and speech rate emerging as relatively stronger predictors. For accentedness ratings, all predictors except grammatical errors were significant, including proficiency level, task type, and all other linguistic measures. Proficiency level showed a large effect, tone errors and task type showed medium effects, and the remaining linguistic features showed small effects, with speech rate again standing out as a comparatively strong predictor. Interestingly, phonemic and phonetic errors showed different patterns of association: phonemic errors emerged as a small but significant predictor, whereas phonetic errors showed negligible predictive strength for comprehensibility and accentedness. In addition, comprehensibility and accentedness ratings were negatively correlated.

The findings largely align with previous research showing that multiple linguistic domains contribute to comprehensibility. However, unlike earlier studies that emphasize phonological features as primary drivers of accentedness, the present results suggest that accentedness in L2 Chinese is associated with a broader range of linguistic domains such as lexical factors. Tone (at the prosodic level) and speech rate appear to be particularly salient for both comprehensibility and accentedness. Notably, task type and proficiency level accounted for substantially more variance than linguistic features in the present dataset. Additionally, in contrast to previous studies reporting that phonemic deviations influence both comprehensibility and accentedness whereas phonetic deviations primarily affect accentedness, the present study found evidence only for effects of phonemic errors, with phonetic errors showing negligible contributions. Finally, the negative correlation between comprehensibility and accentedness replicates patterns reported in prior studies on L2 Chinese, while contrasting with findings from many Western languages, where accentedness and comprehensibility are often dissociable. These results carry important theoretical and pedagogical implications for L2 Chinese speech learning and assessment.