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### **Almost but not quite: Using formulaicity to assess L2 oral proficiency**

The notion that native speakers tend to produce language that is more formulaic—words that tend to go together—than language learners is widely held (Wray & Perkins, 2000; Wray, 2002).

Research on second language proficiency has attempted to measure the formulaicity of learner language (cf., Wood, 2010, 2015), sometimes captured as the pointwise mutual information (MI) of contiguous words in an utterance (cf., Serrano et al., 2015; Quan, forthcoming). Yet such a linear approach to formulaicity falls short due to the variability of n-grams within a given phrase, as well as the propensity for language learners to make syntactic errors (Ellis, 2012). A dependency grammar framework provides an alternate solution to measuring formulaicity. Unlike a phrase-structure grammar, a dependency grammar is built from the relationship between a head word and its dependent words, which need not be adjacent (Tesnière, 1959). Further, recent SLA work has shown that a dependency approach is able to describe previously unexplored facets of L2 learner proficiency (Ouyang & Jiang, 2017). Therefore, this paper proposes that the MI of each pair of words within a dependency relationship can be used as a quantified measure of formulaicity.

The current exploratory study applies such an approach to the oral transcripts of five L2 Spanish learners of varying proficiency levels and five native Spanish speakers. Utilizing the Universal Dependencies corpora (Nivre et al., 2016), the findings show that the average MI of the native speaker data is higher than that of the L2 learners. In addition, more advanced L2 learners show higher average MI compared to their less advanced counterparts. In other words, as learners increase their L2 proficiency, the formulaicity of their speech also increases. These results provide initial empirical evidence for the validity of a dependency grammar approach to measuring formulaicity. Moreover, the approach provides insight into the assessment of L2 oral speech, as it seems to capture an aspect of the subtle differences between an advanced language learner and a target language speaker, warranting further research with a larger data set.

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