**What is the role of L1 representations in a grammar-input model of L2 acquisition?**

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Yang’s (2018) variational language acquisition model provides a promising framework for understanding how languages are acquired. The focus of Yang’s epistemological paper is to extend his model to the domain of adult second language (L2) acquisition. His main proposal is that the interaction of target language input and universal, domain-specific mechanisms of rule-inferencing—summarised in his three equations—is sufficient to explain language acquisition. In this model, language acquisition mainly involves a process by which learners have to determine a set of productive rules from the available input. Yang acknowledges that the rule-inferencing mechanism that he proposes for child language acquisition does not fully explain why, unlike children, L2 learners are often unsuccessful. To address this issue, he proposes that learners’ vocabulary size, which is bigger than children’s, interferes with the inductive process. Having a large vocabulary raises the threshold for productivity, which, in turn, makes learning rules more challenging. Adult learners are, thus, disadvantaged in the acquisition process with respect to children, as adults are cognitively mature and know too much about language.

While we are sympathetic to Yang’s mechanistic approach, in that it operates on strong hypotheses and thus consistently generates empirically falsifiable predictions, we believe that his take on adult non-native acquisition data somewhat disregards or downplays the fundamental role of L1 representations which already exist in the grammars of learners. This is despite the fact that decades of work, particularly since the 1990s, have established the pervasiveness of L1 transfer effects and the constraints they impose on L2 learnability—e.g., Full Transfer/Full Access (Schwartz & Sprouse, 1996); representational deficit hypotheses (Hawkins and Chan, 1997; Hawkins & Liszka 2003; Tsimpli & Dimitrakopoulou, 2007); Feature Reassembly accounts (Lardiere 2009; Choi & Lardiere, 2006). We would like to highlight that some effects of L1 representations in L2 acquisition are not incompatible with Yang’s general approach. However, we believe that developing an extension of the model to non-native language acquisition without factoring in previous linguistic experience as a main variable is missing a large part of the picture that research into L2 acquisition has uncover. In this commentary, we elaborate on the reasons to do so and provide evidence from some well-known L2 data that cannot be accounted for by Yang’s model as it currently stands.

The three equations Yang proposes in the first part of the article efficiently conspire to derive sophisticated rules of, for example, the regular past tense in English. For Yang, the bulk of the task of constructing past tense during language acquisition falls on identifying the rules that allow verbs in English to be marked with ‘–ed’. What remains unclear, however, is how such rules are integrated into a broader grammatical system, above and beyond their immediate application in parsing; in our view, the model does not provide an explanation for how learners map the rules they learn onto the abstract features and categories that underlie syntactic operations. For instance, in inducing the rules of verbal inflection as it relates to the past tense, do learners acquire a [+tense] feature? Assuming that they do, how does this impact their representation of a Tense Phrase? And, crucially in our view, how is the mapping between these abstract categories and the language-specific functional morphology established?

These issues have non-trivial implications for the way in which child grammars develop into their adult state and, consequently—and importantly here—for the kind of initial conditions one implicitly or explicitly assumes in sequential adult acquisition. Adult learners have already acquired at least one native grammar and so they already have access to language-specific rules and syntax-to-form mappings of abstract features—e.g., that number agreement can be established between nouns and adjectives, articles, demonstratives, verbs and one or more of their arguments, etc. The learning task in this case is, thus, subtly different to that of L1 acquisition even if all underlying mechanisms are one and the same: not all L2 abstract features need to be mapped anew onto the morphology; rather, for some of them, the L2 learner must determine how those very same mappings (beyond their morphophonological exponents) differ between the L1(s) and the L2. In other words, learners must (i) learn new rules for properties not instantiated in the L1(s); (ii) learn new rules for contexts in which the native grammar did not instantiate a given property/feature that is nevertheless present in other domains; and (iii) reconfigure the mappings of different features. Crucially, (ii) and (iii) are absent from the L1 learning task, because they stem from the availability of one or more previously acquired grammars. In the two scenarios which are unique to L2 learners, potential influence from the L1 has to be considered.

This is, indeed, what existing evidence from L2 acquisition literature has revealed over the last few decades, in particular, evidence from studies focusing on the acquisition of past tense. While speakers of languages which arguably lack morphosyntactic expressions of Tense (such as Chinese) often omit ‘–ed’ in English, (Lardiere, 2006, 2009), Hawkins and Liszka (2003) report that German and Japanese learners of English show consistent targetlike use of past tense markings (German, Japanese and English being languages with similar morphosyntactic properties which relate to the Tense Phrase). Lardiere’s longitudinal study of a Chinese (Mandarin and Hokkien) experienced learner of English in the US, known as Patty, similarly shows low use of past tense marking as Patty only marks past tense with ‘–ed’ 34 per cent of the time, even though she has had ample opportunity to infer the underlying rule. According to Yang’s assumptions, the rule responsible for marking past tense verbs with ‘–ed’ is not productive in Patty’s case. We see the logic in reaching this conclusion if one assumes that language learning is a process based on detection of productive rules from the distributional properties of the input. However, one must wonder why it is the case that speakers of languages without morphological expressions of tense have significantly greater difficulties in discovering the productive rule of past tense marking in English in the studies cited above (see Cabrelli Amaro et. al., 2017, for a different view). A further unresolved issue is that, whereas Patty does not always mark past tense (i.e., she has not figured out the corresponding productive rule in Yang’s model), she shows higher use of other rule-based structures such as plural ‘–s’ (58 per cent) and definite articles (84 per cent). Based on this evidence, two key remaining questions are, first, why the same individual internalized vocabulary can only determine a subset of the productive rules successfully (i.e., why the “add ‘–ed’” rule should be more challenging than the “add‘–s’” rule), and, second, why Patty applies some of the learned rules optionally (only 58 per cent of plural ‘–s’ are supplied), a phenomenon which is well documented in L2 acquisition.

We agree with Yang that rule learning on the basis of the available input is a fundamental part of the language acquisition process across contexts, but how those rules are mapped onto actual grammatical representations is crucial as well, and so is the (well-known) fact that L2 speakers are influenced by the grammars of their first language. In our view, assuming that one single mechanism of language learning (namely rule induction) can account for the whole of the L2/bilingual acquisition process does not do justice to the complexity of the phenomenon. L2 learners, unlike monolingual children, need to overcome the challenges that their own native language poses to the L2 learning task. Yang’s model will need to accommodate the possibility of L1 influence in order to successfully account for (child and adult) bilingual acquisition.

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