

Complexity in child and adult language acquisition

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Phillips and Ehrenhofer (2015) (henceforth P&E) is an interesting piece of work, which makes suggestions and bold speculations about some of the big issues in language acquisition: the effects of processing on the timing and success of child language acquisition and on possible explanations for the difference between child and adult learners. This is a laudable endeavor and one that necessarily requires a certain distance from details. The authors also pull together an impressive body of relevant research on these topics and ask important and timely questions. They further provide some convincing data and arguments, especially with respect to what they refer to as Level 2 accounts ('Learning effects as processing effects'), where they report on a number of online comprehension studies finding that "adults' first interpretation is children's only interpretation" (p. 10, 4th paragraph). Having already shown, by reference to what they call Level 1 accounts ('Processing in learners'), that young children are quite poor at reanalysis, P&E can account for children's non-adultlike behavior with respect to various complex syntactic and semantic phenomena as a general cognitive limitation that makes it difficult for children to get rid of their first analysis.

In my view, the strength of this paper is to some extent also its weakness, as a focus on the big issues affects clarity and attention to detail. In this commentary, I would like to discuss the concept of complexity, which is notoriously difficult to define in linguistics. P&E do not seem to want to offer a definition and explicitly state that their goal "is not to explain what is easy or hard" (p. 2, last paragraph). Nevertheless, they repeatedly refer to complexity and complex cues, and for readers to be able to evaluate their claims, it is crucial to understand what they mean by this. Defining what is hard to acquire is also important for P&E, as they assert that "[i]n order to figure out when and where children outperform adult learners, we need to first know what language phenomena cause the greatest difficulty for adult learners, and then find out when children master those phenomena" (p. 19, section 5.3, 2nd paragraph).

Thus, a pertinent question is what P&E consider to be a complex cue. In section 2.5, where the authors discuss findings from ERP experiments showing that speakers' predictions may be fast or slow depending on complexity (e.g. simple word associations are faster than argument role information), they indicate that complex cues involve "either multiple cues or relational cues (such as "agent of")" (p. 5, last paragraph). Thus, an example of a complex cue may be a memory query such as "what type of events involve landlords as patients?" But this is different from what they discuss later in the article, where adult learners are assumed to "have the

greatest difficulty with forms that are used optionally, especially if the optionality is conditioned by discourse or pragmatics” (pp. 19-20). Without specifically mentioning the Interface Hypothesis, the references made (e.g. to Sorace 2011) indicate that they adopt this hypothesis to identify complexity in language acquisition. In the section called “What makes the hard stuff so hard”, they also repeatedly mention that complexity is related to “integrating information across domains” (p. 21, 1st paragraph).

However, while certain interface issues are clearly problematic for several populations of learners, there is an increasing body of research showing that such phenomena do not have a special status with respect to complexity in language acquisition (e.g. Rothman, 2009; Slabakova, Kempchinsky, & Rothman, 2012; Anderssen & Bentzen, 2013). In fact, Slabakova (2013) shows that certain linguistic phenomena involving interfaces (syntax-semantics, syntax-discourse and semantics-pragmatics) are relatively unproblematic in L2 acquisition. Instead, she refers to a number of studies showing that what L2 learners struggle with the most is functional morphology, i.e. providing correct forms and integrating inflections with related syntactic phenomena. For example, while the development of finiteness morphology and verb movement is clearly linked in L1 acquisition, there is a major dissociation of the two in L2 acquisition (for both child and adult learners), inflectional morphology lagging considerably behind word order (see White 2003: 189 for an overview). Slabakova uses findings such as these to propose the Bottleneck Hypothesis, where functional morphology represents the bottleneck for the acquisition of syntax and semantics in an L2 context.

In what P&E refer to as Level 3 approaches (‘Explaining learning via processing’), their goals are to understand why children’s limited processing abilities do not constitute a barrier to language acquisition and furthermore, how different learners’ processing abilities “could somehow contribute to explaining their learning outcomes, including an understanding of why children outperform adults” (p. 16, last paragraph). In their own words, the latter is a particularly optimistic goal, given that the many studies referred to earlier in the article show that children are in fact not especially good at parsing (complex) linguistic input. P&E also, rightly in my view, dismiss what they refer to as the *Less is More* proposal, viz. the claim that children are better language learners precisely because of their limited cognitive abilities.

Nevertheless, they propose a variant of this view, which they call *Less is (Eventually) More*, arguing that with respect to particularly complex linguistic phenomena, children are relatively late learners. In fact, this is a critical part of their argument, as it means that it is not due to children’s limited cognitive abilities that they are better learners than adults. Instead, children are argued to outperform adults only at a later stage in development, when their cognitive and processing abilities have improved. Again, it becomes important to identify what aspects of language are the most difficult ones to learn, both for adults and children. According to P&E, their “impression is that the phenomena that adults struggle with the most are not things

that children typically master at a very young age” (p. 20, 2nd paragraph), and more specifically, they refer to these as linguistic phenomena that typically involve syntactic operations that are semantically or pragmatically conditioned.

While clearly interesting and novel, the *Less is (Eventually) More* proposal is presented in a section that is quite short, and it is therefore difficult to evaluate it properly. Furthermore, contrary to the reader’s expectation, the proposal does not really address why children are such excellent language learners. Instead, P&E mainly discuss why adults are such poor language learners, suggesting that “they are held back by what they learned at earlier stages of learning” and that their “early successes [...] somehow lock them into sentence processing routines that make them less sensitive to [...] new information” (p. 22, 4th paragraph). While such processes are of course possible and perhaps even likely, it is unclear how the *Less is (Eventually) More* proposal can account for this, and more specifically, how it can explain the nature of the mechanisms that hold adults back and lock them into these rigid routines. In my view, it would also be important to know whether and how this proposal is related to the fact that, unlike (monolingual) children, adults are learning a 2nd (or perhaps a 3rd or 4th) language.

Moreover, according to Slabakova’s Bottleneck Hypothesis, the sticking point in L2 acquisition is not interface phenomena, but functional morphology. This means that if the Bottleneck Hypothesis is right, children are in fact good at the stuff that adults are bad at, since inflectional morphology does not represent a typical problem in child language acquisition. According to Wexler, young children are “little inflection machines” (1998: 27), and a number of studies have shown that as soon as inflectional morphology appears in early child language, it is virtually always target-consistent (e.g. Clahsen & Penke, 1992). Furthermore, there is considerable research indicating that children are quite good at learning syntactic phenomena where the input offers variation that is based on information structure (e.g. Westergaard 2014), phenomena which, according to P&E, should be difficult for children and adults alike.

P&E conclude the paper by identifying areas for further research, including “research that compares adult and child learners, especially the specific areas where children outstrip adult learners” (p. 23, 2nd paragraph). My small contribution to this is a suggestion where one might want to look.

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