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Straw man: Who thought exposure was the ONLY factor?*

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Carroll (Carroll) purports to contrast one view of language development in bilinguals, based on exposure, with another, based on processing. She claims that some researchers view language acquisition in bilinguals as founded solely on exposure and argues that language acquisition involves more than this, including analogy, associative learning, instance-based learning, rule-learning, and statistical learning.

The article seems to involve some selective reading and potential misunderstandings. Because of space limitations, I will restrict my comments to the following key statements.

First, Carroll says, "One specific claim is: the quantity and quality of exposure to a given language matters regardless of the particular linguistic phenomenon under investigation." My reading is that none of the researchers Carroll cites in support of an important role for exposure would agree with this statement, and, in fact, many have highlighted the important roles of other factors. In my own work, I have consistently counted several factors alongside exposure as influencing acquisition in both monolinguals and bilinguals. For example, Gathercole (2007) includes all of the following as contributory to patterns of acquisition: "piecemeal acquisition," "acquisition in context," "emergence of structure from accumulated knowledge," and "influence of the language being learned on timing of acquisition." The importance of the transparency/opacity of form-function mappings is also highlighted (e.g., Gathercole, 2002, 2007, in press). Additional factors that have been cited by researchers favoring the importance of exposure in bilingual acquisition are the similarities and differences between the two languages being learned, socioeconomic status, and language of peers (see discussion in Gathercole, 2014).

Carroll adds, "A second specific claim is: the quantity and quality of input matter regardless of the age of the learner. " In particular, "many studies report data from simultaneous bilinguals (2L1) grouped with data from child L2 learners . . . "; "this practice will fail to capture important differences between the groups, in particular differences between children who have distinct mother tongues (L1s)." In fact, the examination of different groups has been manipulated as a control variable in the design of many studies (e.g., in Oller & Eilers, 2002, one of the first studies to do this) precisely IN ORDER TO EXAMINE the similarities and differences across groups. Further, very serious investigations into possible transfer between a bilingual's two languages, and into possible acceleration because of bootstrapping from one language to another belie her second statement.

Carroll also asks, "Why are some phenomena acquired early and some late? . . . [O]ne can readily find claims that what is acquired early is acquired early precisely because relevant input is frequent while what is acquired late is acquired late because relevant input is infrequent . . . ." This appears to be an over-simplification of many researchers' much more nuanced approaches to acquisition of simpler versus more complex constructions, to acquisition in heritage speakers versus L2 speakers, to attrition versus incomplete acquisition in bilinguals. There are very careful and meticulous explorations of these matters available – e.g., in the work of Montrul and colleagues (e.g., Montrul, de la Fuente, Davidson & Foote, 2013; Montrul & Foote, 2014).

Another complaint of Carroll's is that "It is unsound to start from a hypothetical, and probably unattainable, notion of a balanced bilingual who is equally proficient in each language and indistinguishable from monolinguals in all communicative contexts and all registers." To be fair, researchers have been extremely careful to caution against such an assumption. An eloquent example comes from Kohnert (2010):

> For children learning two languages, absolute changes in each language system are often accompanied by relative differences in proficiency between the two languages: which language is strongest or ''dominant'' may fluctuate across age and learning opportunities. . . . [I]f tested on the full range of tasks that comprise language proficiency at any point during the very

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dynamic period of language development, bilingual children may perform better on some tasks in one language and better in the other language on different tasks . . . . Uneven performance across tasks, settings, and languages may be most apparent in . . . [language use with] different partners . . . in different settings . . . for different purposes . . . . (458–59)

One final area I wish to comment on is Carroll's section "Exposure matters to language acquisition, so what?" She says, "This claim is trivial and is, moreover, readily conceded by everyone . . . ." I beg to differ. First, the recognition that exposure matters has been a long time coming, and only through the hard work of investigators. As recently as 1991, Huttenlocher, Haight, Bryk, Seltzer and Lyons (1991) say, even in relation to first-language acquisition, "variations in exposure have not been systematically explored" (236). And one of the earliest examinations of input effects in bilinguals did not come until the late nineties (Pearson, Fernández, Lewedeg & Oller, 1997).

And in response to the "so what": Recognition of the role of exposure in acquisition is pivotal for the understanding and treatment of bilingual children in practical contexts. Most importantly, it is key to determining best practices in educational and therapeutic settings. Bilingual children are at risk of over-identification for language impairments or of being treated as developmentally delayed when the influence of exposure is ignored; much work is aimed at rectifying this problem (Armon-Lote-Lotem, de Jong & Meir, 2015; Kohnert, 2010; Pearson, 2013; Peña & Bedore, 2011; Hoff, 2013).

What is Carroll's real message here? It appears to be that some researchers do not recognize children's "mental grammars". However, even those who favor an emergentist view over a nativist perspective of language development (see Unsworth, in press) can firmly endorse mechanisms for processing incoming language and abstracting from that language – via analogy, associative learning, instance-based learning, rule-learning and statistical learning – structures that go well beyond what has been heard on the surface (see, e.g., Tomasello, 1995; discussion in Gathercole & Hoff, 2007).

Carroll's failure to recognize the very meticulous and conscientious work of many researchers to tease apart the effects of exposure to a language relative to the effects of a variety of other variables influencing acquisition in bilinguals does not really provide an accurate representation of the nature of much of that work.

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