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The invisible gorilla of piecemeal, lexically-specific acquisition*

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Tsimpli (this volume) attempts to make the case that linguistic status interacts with input factors and age of acquisition in determining acquisition processes and outcomes in bilingual children. The determinants of acquisition in bilingual children is of both theoretical and practical interest, so success in such an endeavor would be a welcome contribution to the field. Such an attempt must make clear and accurate predictions, however, and the validity of the position is contingent on the accuracy of those predictions.

Tsimpli's model differentiates "early" and "late" acquisitions. Early acquisitions (a) involve narrow syntax, devoid of semantic content, (b) are language-internal, and (c) involve macroparameters (core, universally given features, the "backbone defining the type of language the learner is exposed to" (Tsimpli, this volume, p.285)). These early acquisitions require a "minimal threshold of input" (Tsimpli, this volume, p.290). In contrast, late acquisitions (a) go beyond narrow syntax, involving semantics, (b) include language-external components such as pragmatics, discourse, and working memory, and (c) involve microparameters (language-specific spellout of syntax) of the language.

The potential validity and strength of Tsimpli's model hinge on several fundamental claims:

- a. early, rapid, error-free acquisition of the macro/core components of the grammar;
- b. the lack of input effects in the acquisition of the early, macro/core components;
- c. fundamental differences in macro/core components and micro components of the grammar, and in how they are acquired;
- d. the presence of input effects, but lack of age of acquisition effects, in the acquisition of late, micro components of the grammar

There is little controversy on whether input matters in the later acquisition of language in monolinguals and bilinguals, so we will not address that here. But the claims that initial stages are input-impervious, error-free, and relatively quick can be challenged with data from both monolingual and bilingual children. We will focus in particular on two claims: that monolingual children master complex paradigms of subject-verb agreement early, and that bilinguals identify grammatical gender in two phases, corresponding to a “pure syntactic/core” phase and a spell-out morphological stage.

Tsimplici applies her position that the core, macro elements of the grammar only “require brief exposure to input since neither real developmental trends nor target-deviant structures are attested in numbers...” (Tsimplici, this volume, p. 289) to, among others, the early acquisition of agreement morphology in Spanish. Close examination of early use of agreement in Spanish by monolingual children has revealed, however, that the process of acquiring agreement is protracted: It begins with very limited productivity, and initial knowledge, of both tense and person, is not in terms of “pure syntax” but is, instead, piecemeal and lexically-specified knowledge (Gathercole, Sebastián, & Soto, 1999, 2002a, 2002b; Aguado-Orea & Pine, 2005; Sebastián, Soto, & Gathercole, 2004). In addition, what children produce early on is highly correlated with what they hear in the input (Gathercole et al, 1999; Aguado-Orea & Pine, 2003), and if one looks beyond the use of the 3rd p singular, which acts as a sort of unanalyzed “default”, error rates can be high (Rubino & Pine, 1998; Aguado-Orea & Pine, 2005; Gathercole et al, 1999). These facts call into question any assertions of easy, error-free acquisition contingent on only minimal input.

Let us turn to the acquisition of grammatical gender by bilinguals. Tsimplici makes a clear prediction that children learn quickly whether the language they are learning is a grammatical gender language or not (the macro element of gender, as a core element of nouns); in contrast, it may take them long to sort out the morphological marking of gender, which she considers a microparametric element.

It can be incredibly difficult to disentangle these two components of the acquisition of gender. First, it is theoretically debatable whether — at least for acquisition (other than L2 acquisition) — knowledge that each noun belongs to a certain “class” [i.e., “has” gender] can be separated from knowledge of (at least some of) the distributional properties of those classes. What does grammatical gender mean other than that nouns fall into separable classes on the basis of their distributional patterns? How can one separate knowledge of gender “as a feature of nouns” from knowledge of the morphological spellout of gender? It could be argued that the morphological spellout IS gender. But leaving that aside, let us assume they can be separated. If we can find some evidence that a given child “knows” on some level that his/her language has grammatical gender, is it possible

to find evidence to support Tsimpli's position that that knowledge comes without influence from the input, that it comes relatively early and error-free, and is global in nature? Or do the data challenge that position?

A case in point is the acquisition of Welsh grammatical gender. Welsh grammatical gender is a useful place to look because of the complexities of the system, making the full acquisition of the system take well into the early teen years (Gathercole, Thomas, & Laporte, 2001; Gathercole & Thomas, 2005; Thomas & Gathercole, 2007). This makes it possible to examine closely individual steps towards that mastery.

The Welsh system involves, among others, the following morphological components:

- a. Nouns: feminine nouns undergo soft mutation (a phonological process of lenition) when those nouns occur with the definite article. Thus, the feminine noun *cadair* '(a) chair' becomes *y gadair* 'the chair'; the feminine *pont* '(a) bridge' becomes *y bont* 'the bridge'. (See Gathercole et al., 2001, for details.) Masculine nouns, by definition, do not undergo mutation in this context.
- b. Adjectives: feminine gender in adjectives is also marked through soft mutation. Thus, *coch* 'red' turns into *goch* in, e.g., *cadair goch* '(a) red chair' and *y gadair goch* 'the red chair'; *pont goch* '(a) red bridge' and *y bont goch* 'the red bridge'. Adjectives modifying masculine nouns, by definition, do not undergo mutation.
- c. Pronouns: pronouns agree with the gender of the antecedent noun.
- d. Numerals: several numerals are marked for gender — e.g., *dwy* (M)/*dau* (F) 'two', *tri* (M)/*tair* (F) 'three'.

What might constitute evidence that a child knows that Welsh has grammatical gender (i.e., the "core" component)? One test could be the following: Consider a hypothetical case in which a child uses at least one of the above constructs, let's say feminine N marking, fairly productively — i.e., with a substantial number of feminine nouns, and not with masculine nouns. Thus, for example, let's say a child mutates *cadair* 'chair' (A) and several other feminine nouns (B, C) appropriately when they occur with the definite article. This suggests some knowledge of grammatical gender in Welsh. But that alone does not indicate whether the child "knows" that Welsh is a grammatical gender language. One piece of evidence that could help establish that a child has the "core" of grammatical gender early, and before the morphological spellout, would be if all nouns that the same child "knew" were feminine were also used with that initial construct, feminine N marking. One indication that the given child knows that some other words are feminine would be their use with one of the other feminine markings. Let's say, for example, that the given child also uses the feminine noun *pont* 'bridge' (D) and some others, E and F,

appropriately with the feminine pronoun. If that child also marks *pont* and E and F appropriately when they occur with the definite article, then we can feel confident that the child “knows” that Welsh has grammatical gender: By Tsimpli’s two-part account (macro/core vs micro/morphological), the child will have known early and easily that Welsh is a grammatical gender language, and once s/he has discovered the morphological means for marking gender on feminine nouns with definite articles, it should be easy for him/her to apply that marking to all the feminine nouns s/he knows. (And, conversely, s/he should also use the nouns *cadair*, B, and C appropriately with the feminine pronoun.)

But what if the child does not mark all feminine nouns s/he knows with every means for marking feminine gender s/he has learned? That is, in this example, s/he does not use *pont* and E and F appropriately when these occur with the definite article, or does not use *cadair* and B and C with the appropriate pronoun. The fact that the child does NOT use these feminine nouns appropriately with all the available feminine markings would constitute evidence against a two-part account for the acquisition of gender. It would argue against global knowledge that Welsh is a gender language, in favor of a more piecemeal, lexically-based acquisitional account of the development of grammatical gender.

We have such evidence from bilingual children learning Welsh. In a recent study of 4- to 9-year-olds’ acquisition of the above four constructs in Welsh (Sharp, 2013; Sharp & Gathercole, in preparation), children were tested for their production of all of the above four constructs across a range of tasks. Crucially, the tasks elicited the constructs for the same nouns across all of the tasks, so it was possible to examine each child’s consistency in marking for each noun across the four means of marking feminine gender.

For each child, and for each noun, we determined whether that child marked gender in one, two, three, or four ways. These data are reported in full in Sharp & Gathercole (in preparation). For the purposes of this commentary, the data from the 4- to 7-year-olds from the only-Welsh-speaking homes were re-analyzed. Because the marking of the feminine noun constructs provides the crucial window into gender acquisition, these children’s performance on the 24 feminine nouns for these tasks was extracted, and the data from those children (N = 22) who marked at least 75% of those nouns (mean 86%) in at least one of the 4 ways for feminine gender were examined closely. For each child, the type of marking that was employed most often was considered the dominant marking, and the type marked next most often the second most productive. In three cases the children did not use their secondary marking with at least 33% of the nouns marked, an arbitrarily set minimum. Of the remaining 19 children, one child used all four constructs quite productively, indicating she was approaching adult-like performance. For the remaining 18 children, feminine gender was marked with the dominant marking for

an average of 80% of the nouns (range: 58% — 100%), and with the second most productive marking for an average of 57% of the nouns (range: 33%–83%). (The dominant marking was the pronoun in 11 cases, the adjective in 8 cases, the noun in 1 case, and the numeral in 1 case; the second most productive marking was the pronoun in 8 cases, the adjective in 10 cases, and the noun in 3 cases.)

We can look at the overlap between the dominant and the second most productive patterns of marking in two ways: Every time the dominant marking was employed, the secondary marking was employed with the same noun an average of 48% of the time (range: 18% — 71%); every time the secondary marking was employed the dominant marking was employed with the same noun an average of 67% of the time (range: 36% — 93%). This means that in 33% to 52% of the cases, there was no overlap in children's application of their two main means of marking feminine gender. This lack of overlap argues against some global knowledge that Welsh is a grammatical gender language and in favor of lexically-based, piecemeal learning.

Such data argue against the separability of pure, early syntax and later syntax in acquisition. All evidence supports early piecemeal, lexically-specific learning for pure (early) syntax. The fact that some elements of a grammar are easier to learn than others has long been recognized. But what makes some easier than others has to do with factors, which Tsimpli acknowledges, such as syntactic complexity, semantic complexity, pragmatic felicity, cognitive control in memory, inferencing, social cognition, and we might add, crucially, opacity in the form-function mapping. These factors necessarily interact with each other in the acquisition of language. But the evidence to date citing a need to differentiate two types of structures (core/macro vs micro) and add that to the mix in order to fully explain timing and processes in acquisition is unconvincing.

Note

* Work by Chabris & Simons (2010) shows how easily we miss some aspects of an event if we are focusing intently on some other aspect.

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