Grammatical gender vs. natural gender in French Williams syndrome

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1. Introduction

Several studies have now examined grammatical gender abilities in French individuals with Williams syndrome (WS). In the first study on this issue, Karmiloff-Smith et al. (1997) reported elicited production data that, they claimed, demonstrated deficiencies in WS (N = 14), both in gender attribution and in gender agreement. Monnery, Seigneuric, Zagar, and Robichon (2002) subsequently reported divergent results. Data from an explicit categorization task showed that WS participants (N = 10) could rely on nouns endings/suffixes as predictors to nouns’ gender just as controls did. Furthermore, WS participants’ elicited production data showed a high level of accuracy in gender agreement as well. In both studies, gender agreement was defined as the ability to make the article form and adjective form agree in gender. Gender attribution ability was defined as the ability to guess the gender of concocted nouns on the basis of their endings/suffixes. Under the view advocated for by Karmiloff-Smith (1979) and others (e.g., Tucker, Lambert, & Rigault, 1977), this latter aspect of gender competency plays a pivotal role in the learning of nouns’ gender in the typical French child.

Boloh, Ibernon, Royer, Escudier, and Danillon (2009) recently pointed out a number of problems in those studies, including disputable conceptual decisions hidden in coding schemes, disputable decisions regarding the grouping of the data, and an unfortunate failure to provide detailed results from the masculine vs. feminine items. Based on a larger WS sample (N = 24), they reported elicited production data which showed two things. First, although WS participants’ agreement scores displayed the same qualitative profile than those of controls, they were clearly lower than those of MA-controls but also lower than those of MA-controls (although not significantly so) in one case: NPs involving feminine determiners. In addition, WS participants’ agreement scores in this condition did not improve with age. Both results thus pointed to a possible permanent disability in this area of gender production rather than to a simple delay. Extrapolating to a deficit in gender agreement competency per se would be premature, however. By their very nature, agreement production...
data are subject to many possible alternative interpretations, which preclude any straightforward inference regarding gender agreement competency.

Second, they showed that WS participants’ skills in gender attribution exactly mirrored those of TD controls: when presented with nonce nouns whose endings/suffixes were the only cue to gender subclass, they massively opted for the masculine gender. In all three groups, scores for masculine suffixes were at ceiling and significantly above scores for feminine suffixes. In this latter case, scores were never above chance level. This pattern of data exactly fitted the one reported in Boloh and Ibernon (2010), based on a much larger sample of TD children. Although an account combining true suffix-based responses with differential suffixes’ frequencies in the input could not be definitively ruled out, some authors put forth some further arguments favoring an alternative view of how children solve the gender attribution problem. Children, be they TD or WS, would posit the masculine as the default gender and only relax this assumption when faced with contrary evidence: that is, they would only learn the gender of feminine nouns, item by item, on the basis of their co-occurrence with the article. Under this view, neither TD nor WS children would bother inducing dozens of probabilistic phonological assignment “rules”. If anything like a “rule” is applied, this is the one whereby the masculine operates as the default, something which could not be directly extracted from the input statistics (see Boloh & Ibernon, 2010 and Boloh et al., 2009).

Under the Karmiloff-Smith et al’s (1997) perspective, a further and very interesting test case for their claim of a deficit in WS participants’ ability to rely on the phonological procedure should have been the classic experiment from Karmiloff-Smith (1979: experiment 10, p. 162) where natural gender was pitted against grammatical gender. As is well known, Karmiloff-Smith presented 3–11-year-old children pictures of Martian-like persons who were obviously either males or females and who were introduced with nonce nouns bearing, respectively, feminine suffixes or masculine suffixes. Children up to age 9 used suffix-congruent article forms to refer to males as well as to females: they used a feminine article to refer to males and a masculine article to refer to females. Had it been included in the Karmiloff-Smith et al.’s (1997) WS study, this experiment should have shown lower suffix-congruent scores in WS as compared to controls.

However, the Karmiloff-Smith’s (1979) results in TDs were not replicated in a recent study involving more than two hundred 4–18-year olds (Boloh & Ibernon, submitted for publication). These authors found that younger participants massively opted for the masculine gender disregarding the sex of the referent. Suffix-congruent scores for males introduced with nonce nouns bearing feminine suffixes were never above chance and slowly declined from 39% at age 4 to 0% at ages 15 and 18. Suffix-congruent scores for females introduced with nonce nouns bearing masculine suffixes were at ceiling from age 4 to age 12 (ranging from 82% to 91%). There was then an abrupt shift towards sex-based responses such that suffix-congruent responses declined to values around 37% at ages 15 and 18. This later finding suggested that, for whatever reason, the sex vs. suffixes contradiction might not have been part of younger participants’ representation during the task (despite the fact that they were perfectly able to identify and discriminate males vs. females at the beginning of each trial). Whether or not it was the case, the pattern of data did not fit Karmiloff-Smith’s (1979) results. First, suffix-congruent responses were never above chance for feminine suffixes. Second, due to the symmetrical nature of the two conditions, the overall pattern of data up to age 12 logically warranted a masculine as default account, with feminine suffixes only blocking it to a moderate degree (i.e., the nature of those few responses were truly suffix-based in this latter case). Third, responses became obviously sex-based from age 15 onwards.

The present article examines this issue in French individuals with Williams syndrome (N = 28) matched with MA- and CA-controls. Considering the linguistic side of the problem first, one can derive the following predictions for younger participants. (1) If Karmiloff-Smith (1979) and Karmiloff-Smith et al. (1997) are correct one should observe suffix-based responses in both conditions in controls with significantly lower scores in WS participants, due to their purported inability to use endings/suffixes as predictors of gender subclass membership. (2) If Boloh and Ibernon (2010, submitted for publication) and Boloh et al. (2009) are correct, WS and control participants’ responses should display the ‘masculine as default’ pattern of data, up to the point where responses shift to sex-based ones.

A further issue is precisely to know whether and when WS participants would also supply, or shift to, sex-based responses, something for which we have no clear predictions. For our further purposes, it is nevertheless relevant to clarify what a “sex-based” response actually means. The two French gender subclasses are labeled “masculine” and “feminine”, a very misleading labeling when it comes to reflections on first language acquisition. These are meta-linguistic labels whose semantics can only be justified a posteriori by the fact that, generally, nouns referring to males co-occur with a given set of determiners (the so-called masculine set) while nouns referring to females co-occur with the other set (i.e., the feminine determiners). This correspondence only involves 10% of the total of French nouns (Séguin, 1969). Thus, a learner could only be said to supply a “sex-based” response either if he has sliced up the lexicon up to the point where the correspondence has been found or if he knows those meta-linguistic labels and their semantics, as a L2 learner would. This could only occur later, however, as meta-linguistic abilities become available. The former requirement implies a consequent amount of tacit

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1 Note that the binary nature of the possible responses in this experiment is only apparent: a suffix-congruent response is not ipso facto a suffix-based one, and a non-suffix-congruent response is not necessarily a sex-based one.

2 The contradiction between “natural gender” and “grammatical gender” is therefore not one between biology and grammar, which would just be meaningless. It is one between, e.g., the masculine article that would be expected to co-occur with a noun referring to males and the feminine probabilistic value of this noun’s ending.
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