How children deal with word order variation in the input: Evidence from elicited repetition of embedded clauses in German

This paper investigates the acquisition of verb placement in German embedded clauses that allow for variation between verb-second (V2) and verb-final (V-final) and sheds light onto how children succeed in acquiring this parametric specification (Westergaard 2009). In embedded clauses in German the verb is usually V-final, but in specific syntactic environments embedded V2 clauses are licensed. This concerns complement clauses (1a/b), *weil* 'because' clauses (2a/b), and relative clauses (RCs) (3a/b) (Reis 1985, 1997). Whereas V-final is always a grammatical option, i.e. the underspecified value, embedded V2 is legitimate only if certain syntactic, semantic, and prosodic licensing conditions are met (Reis 1997 for complement clauses; Reis 2013, 2015 for *weil*-clauses; Gärtner 2001 for RCs). Previous acquisition studies on German have provided mixed results regarding children's setting of the verb parameter in these embedded clauses. Based on spontaneous speech data, Brandt et al. (2010) find that up to age 4 children mainly produce V2 RC structures and, up to age 5, produce complement clauses only with V2, selected by verbs such as *believe* or *say*, mirroring the input they hear. The authors conclude that children set the verb parameter first to V2 and later to V-final. However, a closer look to the data indicates that many instances of embedded V2 structures could be main clauses (with a left dislocation in case of RCs, with a preceding parenthetical structure for complement clauses). Rothweiler (1993), on the other hand, reports a preference for V-final in these types of embedded clause in spontaneous speech. Likewise, focusing on RCs, Sanfelici et al. (2017) find that in experimentally controlled contexts children up to age 5 exhibit a strong preference for V-final over V2 RCs. Hence, in the present study we investigate whether children allow for the alternation between V-final and V2 word orders in complement clauses, *weil*-clauses and RCs (1-3a/b) and whether they show a preference for one verb parameter value in these structures. We developed a picture-supported delayed-imitation task that required participants to repeat the three types of embedded clauses presented with either V-final or V2 word order as in (1-3a/b). 59 3- to 5-year-old monolingual German-speaking children (Age 3: n=12; Age 4: n=24; Age 5: n=23) and 28 adults were tested. The task consisted of three parts: i) listening to the prerecorded target sentence; ii) pointing to the visual scene matching the sentence (4); iii) repeating the target sentence heard. The experiment comprised 24 test items, 8 items for each embedded clause type, which differed in verb placement only: one half with V-final (1a), and the other half with V2 order (1b). All stimuli met the linguistic restrictions for licensing both V-final and V2 order. Children's responses were analyzed w.r.t. how often verb placement of the test item was repeated correctly (Correct) and how often it was changed (V-Change) (V2➜V-final; V-final➜ V2), which, given our task, are not in complementary distribution. We investigated whether the percentages of Correct and V-Change repetitions differed between V-final and V2 conditions. The child groups did not differ sig. (Kruskal-Wallis test, all ps n.s.); hence the child data are reported as a group. While the adult controls performed at ceiling in both conditions, children correctly repeated the V-final variants significantly more often than the V2 structures in the three syntactic environments (Fig. 1) (Wilcoxon related samples, complements: Z=-3.01, p=.002; *weil*: Z=-5.3, p<.001; RCs: Z=-2.9, p=.004). Moreover, V2 structures were changed to V-final clauses significantly more often than V-final clauses into V2 ones (Wilcoxon related samples, complements: Z=-3.04, p=.001; *weil*: Z=-5.1, p<.001; RCs: Z=-2, p=.05).

In sum, our experimental findings reveal a robust preference for V-final over V2 structures, confirming the data in Rothweiler (1993) and the results in Sanfelici et al. (2017) for RCs and extending them to complement and *weil* clauses. We argue that this preference for V-final is in line with an economy-based strategy that in case of variation in the primary linguistic data favors the underspecified value – because their licensing conditions form a superset of those of the other variant (V2).

(1)   *Anna sagt,*   a. *dass ein Junge eine Ziege **gemalt hat**.*   V-final
                              b. *ein Junge **hat** eine Ziege **gemalt**.*   V2
        "Anna says that a boy painted a goat."

(2)   *Der Igel trinkt Wasser,*   a. *weil er wirklich sehr viel Durst **hat**.*   V-final
                                      b. *weil er **hat** wirklich sehr viel Durst.*   V2
        "The hedgehog drinks water, because it is really very thirsty."

(3)   *Hier gibt es einen Mann,*   a. *der ein gefährliches Krokodil **eingefangen hat**.*   V-final
                                        b. *der **hat** ein gefährliches Krokodil **eingefangen**.*   V2
        "There is a man who has caught a dangerous crocodile."

(4)   Picture paired to test item (1)

Fig. 1. *Percentages of children's Correct and V-Change repetitions in V-final and V2 condition across types of embedded clauses*
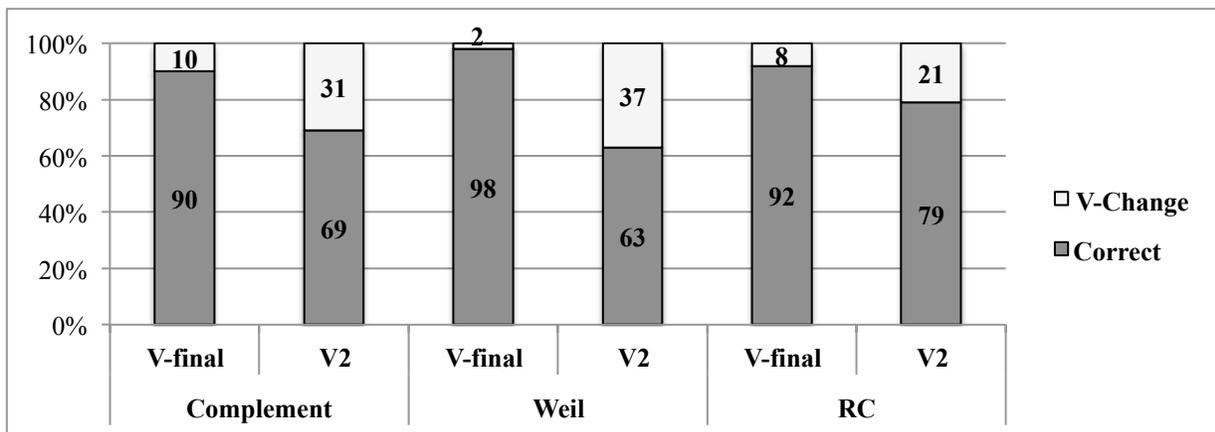
Selected references: Brandt, S., Lieven, E. & M. Tomasello (2010). Development of word order in German complement-clause constructions: effects of input frequencies, lexical items, and discourse function. *Language* 86(3): 583-610.[*]Reis, M. (1997). Zum syntaktischen Status unselbständiger Verbzweit-Sätze. In: D'Avis & Lutz (eds.). *Zur Satzstruktur des Deutschen. Arbeitspapiere des SFB 340 Nr90. Stuttgart/Tübingen.* 121–142.[*]Sanfelici, E., Schulz, P. & C. Trabandt (2017). On German V2 "relative clauses": Linguistic theory meets acquisition. In: E., di Domenico (ed.). *Complexity in acquisition*. Cambridge Scholars Press.[*]Westergaard, M. (2009). *The Acquisition of Word Order: Micro-cues, information structure, and economy.* Amsterdam/Philadelphia: John Benjamins.