Sensitivity to grammatical gender assignment in German:
Effects of age, formal cues and vocabulary

Learning the grammatical gender of German nouns is notoriously difficult for L2 learners. Yet, children acquiring German seem to master this task seemingly effortlessly. Corpus studies show that first determiners marking a noun's gender are produced around the second birthday and that errors are rather rare (Mills, 1990; Szagun, 2019; Szagun et al., 2007). Studies investigating the early sensitivity to grammatical gender marking seem to be missing for German-learning children. For French-learning children it has been shown that they become sensitive to grammatical gender mismatches (in determiner-noun combinations) around the age of 18-20 months (Cyr & Shi, 2013; van Heugten & Christophe, 2015). After their second birthday children are even able to use gender information to identify visual referents (Johnson, 2005; Lew-Williams & Fernald, 2007; van Heugten & Shi, 2009) and to represent abstract gender information (Melançon & Shi, 2015). The languages investigated in these studies (French or Spanish) all mark two different genders and no case. In German, there are three genders and four case categories all of which affect the form of the determiner making the mapping between the determiner form and gender less transparent.

In this study we ask whether German-learning 18- and 24-month-old children are sensitive to grammatical gender marking. The first two experiments (unpublished but presented at a conference before) probes the sensitivity for gender marking of known nouns in the absence of any cue to gender assignment. The third experiment uses familiar nouns that contain morpho-phonological cues to gender, which have been shown to affect children's early determiner-noun productions (Szagun et al, 2007; Walter et al., 2021).

We tested 97 monolingual German-learning children (Exp. 1: N=31, mean age: 18.1 months; Exp. 2: N = 37, mean age: 23.9 months; Exp. 3: N = 29, mean age: 24.0 months) using the head-turn preference paradigm, measuring how long they listened to grammatical and ungrammatical (i.e. gender-mismatch) combinations of determiners with highly familiar nouns. In addition, we obtained vocabulary scores for each child from parental questionnaires to explore potential connections to the looking behaviour during the test. Data acquisition is still ongoing for Exp. 3.

The two experiments in which nouns did not contain a cue to gender revealed no looking time differences: Children looked equally long to grammatical and ungrammatical determiner-noun combinations (Fig. 1). In Exp. 3, there is a trend for longer looking times to grammatical combinations (t = 1.94, p = 0.062). For none of the experiments we find a reliable relation between productive vocabulary and looking times.

In contrast to children acquiring a Romance language, children learning German do not show a sensitivity to (in)correct gender marking prior to their second birthday. Even though children start to produce correct determiners at this age, they need additional formal cues to detect incorrect combinations. This in line with children acquiring Dutch who start to become sensitive around 24 months of age for particularly strong cues to gender (van Heugten & Johnson, 2010). More data is currently being collected and will be presented by the time of the conference.

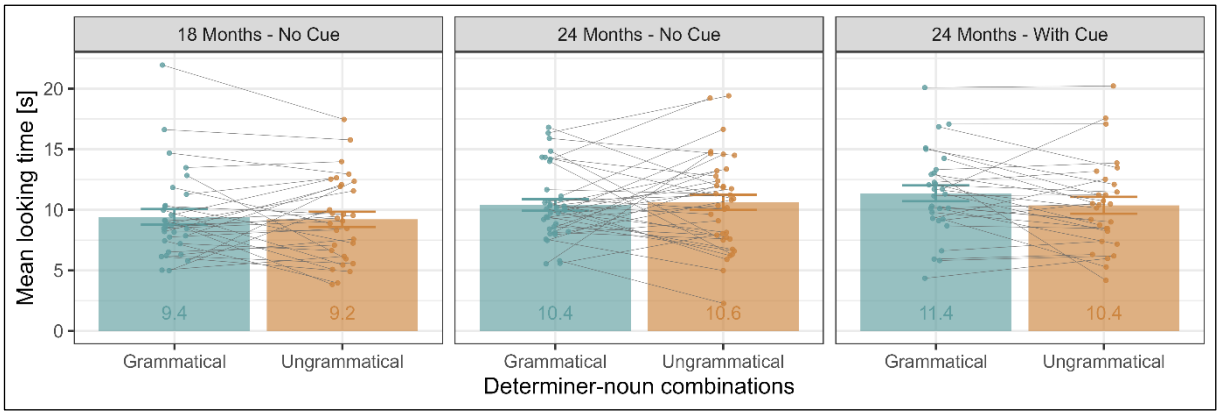

Figure 1. Average looking times in the three experiments.

References

Cyr, M., & Shi, R. (2013). Development of abstract grammatical categorization in infants. *Child Development*, *84*(2), 617–629. https://doi.org/10.1111/j.1467-8624.2012.01869.x

Johnson, E. K. (2005). Grammatical gender and early word recognition in Dutch. In A. Brugos, M. R. Clark-Cotton, & S. Ha (Eds.), *Proceedings of the 29th Annual Boston University Conference on Language Development* (Vol. 1, pp. 320–330). Cascadilla Press.

Lew-Williams, C., & Fernald, A. (2007). Young children learning Spanish make rapid use of grammatical gender in spoken word recognition. *Psychological Science*, *18*(3), 193–198. https://doi.org/10.1111/j.1467-9280.2007.01871.x

Melançon, A., & Shi, R. (2015). Representations of abstract grammatical feature agreement in young children. *Journal of Child Language*, *42*(6), 1379–1393. https://doi.org/10.1017/S0305000914000804

Mills, A. E. (1986). *The Acquisition of Gender. A Study of English and German*. Springer. https://doi.org/10.1007/978-3-642-71362-0

Szagun, G. (2019). *Sprachentwicklung beim Kind [7th edition]*. Beltz.

Szagun, G., Stumper, B., Sondag, N., & Franik, M. (2007). The acquisition of gender marking by young German-speaking children: Evidence for learning guided by phonological regularities. *Journal of Child Language*, *34*(3), 445–471. https://doi.org/10.1017/S0305000906007951

van Heugten, M., & Christophe, A. (2015). Infants' acquisition of grammatical gender dependencies. *Infancy*, *20*(6), 675–683. https://doi.org/10.1111/infa.12094

van Heugten, M., & Johnson, E. K. (2010). Linking infants' distributional learning abilities to natural language acquisition. *Journal of Memory and Language*, *63*(2), 197–209. https://doi.org/10.1016/j.jml.2010.04.001

van Heugten, M., & Shi, R. (2009). French-learning toddlers use gender information on determiners during word recognition. *Developmental Science*, *12*(3), 419–425. https://doi.org/10.1111/j.1467-7687.2008.00788.x

Walter, A., Fritzsche, T., & Höhle, B. (2021). Grammatical gender acquisition in German: Three-year-old children use phonological cues to learn the gender of novel nouns. In D. Dionne & L.-A. Vidal Covas (Eds.), *Proceedings of the 45th annual Boston University Conference on Language Development* (Vol. 2, pp. 746–760). Cascadilla Press. http://www.cascadilla.com/bucld45toc.html