

# COMPREHENSION OF WHO QUESTIONS IN GERMAN CHILDREN WITH MODERATE HEARING IMPAIRMENT

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## Introduction

The ability to understand *wh*-questions is a necessary prerequisite to manage situations in every-day communication. For children with a permanent hearing impairment (HI) this might be particularly challenging because they have often only restricted access to spoken language input during periods considered as critical during language acquisition. To date, only a few studies have tested syntactic abilities in HI children, most of them only include children with severe hearing losses. Friedmann et al. (2006, 2008) observed difficulties in hard-of-hearing children with respect to the comprehension of different sentence structures which, they claim, result from a syntactic deficit. By testing the comprehension of *who* questions the present study investigates whether the restricted auditory input in children with a moderate form of hearing loss leads indeed to syntactic deficits.

## Method

We report results of a picture pointing task conducted with 23 German toddlers (nine 3-year-olds and 14 4-year-olds) with a moderate bilateral sensorineural HI (32-75dB) since birth and 23 age- and IQ-matched typically developing (TD) children (11 3-year-olds and 12 4-year-olds). Subjects had to point to one of two persons in the picture to answer an auditorily presented short *who* question which was preceded by three sentences introducing the scene. 10 *who* subject questions (e.g. *Wer kämmt den Jungen*, 'Who is brushing the boy?') and 10 *who* object questions (e.g. *Wen kitzelt der Junge*, 'Who is the boy tickling?') were tested. The pictures depicted semantically reversible actions and the position of the persons in the picture varied.

## Results

Data analysis reveals that the performance is dependent on age and on the type of *who* question in both groups: Performance increases from age group three to four and non-canonical *who* object questions are harder to understand than canonical *who* subject questions (cf. fig.1). The latter 'subject-object asymmetry' is typically found in German hearing children younger than four years (e.g. Siegmüller et al. 2005).

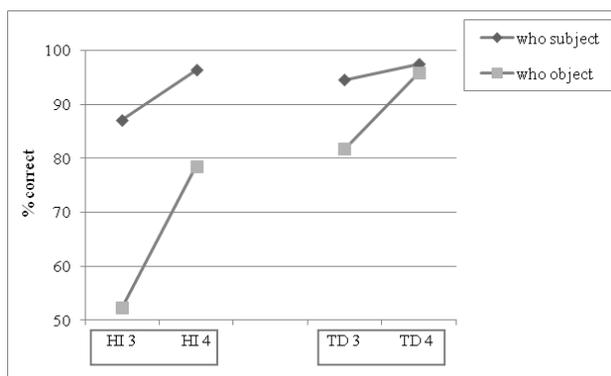


Fig. 1 correctness scores of *who* question types in 3- and 4-year-old HI and TD children

At the age of three both groups perform relatively well on *who* subject questions, but the performance of *who* object questions is significantly worse in HI children. Crucially, at the age of four the performance of HI children resembles the performance of the 3-year-old hearing group: Similar to these younger TD children, most of the 4-year-old HI children perform well on both questions types whereas some subjects still show subject-object asymmetries at this stage. The behavior of HI children thus points to a delay in the acquisition of *who* questions rather than a syntactic deficit. This is also evident by the fact that the observed problems were not present in every single HI child.

### Conclusion

Our study provides evidence that children with a moderate hearing loss lag behind their hearing peers with respect to their development in the comprehension of *who* questions. The specific difficulties with *who* object questions might result from the computational load with this complex, non-canonical sentence type that exceeds the available processing capacities of young HI children due to their auditory deficit.

### References

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