

## Acquisition of auxiliary inversion in *wh*-questions: evidence from Bulgarian

*Introduction.* In producing *wh*-questions in English, young children's most common errors are failure to include an obligatory auxiliary or failure, if they do include an auxiliary, to invert it before the subject. The source of children's errors – for example, an optional inversion rule (Erreich, 1984), incorrect representation of the location of the *wh*-element (de Villiers, 1991; Plunkett, 1991) difficulty with morphology (Santelmann, Berk, Austin, Somashekar, and Lust, 2002), item-by-item learning (Rowland and Pine, 2000) – remains a matter of dispute. Our analysis is that the inconsistent inclusion of an overt auxiliary and subject-auxiliary inversion in early *wh*-questions is due to a) the variable realization of tense and movement of the auxiliary across clause types in English; b) the dissociation between auxiliaries and lexical verbs with respect to inversion which makes it difficult for the child to learn when to apply an inversion rule; c) optional inversion in English *yes/no* questions which leads children to generalize over all types of questions;

The present study investigates children's production of *wh*-questions in Bulgarian in order to test competing accounts of *wh*-question errors in English. Bulgarian and English differ in several crucial aspects that can help tease apart the relevant factors in children's acquisition of *wh*-questions. Unlike English, Bulgarian subject-auxiliary inversion is obligatory both in root and embedded *wh*-questions. Second, Bulgarian *wh*-questions require subject-verb inversion in addition to aux inversion. English, in contrast, does not allow inversion of verbs, only auxiliaries. Third, Bulgarian *yes/no* questions do not involve verb or auxiliary inversion. These unique characteristics of Bulgarian *wh*-questions suggest that the input for Bulgarian learners is more transparent and unambiguous than in English. Given our analysis of the English errors, we predict that Bulgarian children will correctly invert an auxiliary if present. We expect main verb inversion rates to be high as well.

*Method.* We used an elicited imitation task to evaluate the production of 11 monolingual Bulgarian-speaking children aged 2;5 to 3;3. Each child repeated a set of 24 target *wh*-questions. Two experimental conditions were manipulated: a) presence / absence of an auxiliary and b) type of *wh*-word (argument, e.g., *what* vs. adjunct, e.g., *where*). Half of the experimental stimuli contained the argument *wh*-element ('*kakvo*' = *what*) and half contained the adjunct *wh*-word ('*kude*' = *when*). We used two auxiliaries: '*shte*' (*will*) and '*sum*' (*be/have*) which were also balanced across the stimuli set. All target questions were counterbalanced to control for factors such as word length, gender, and order of presentation. Examples of target questions are shown in (1) and (2).

(1) Kakvo shte iade kuklata dnes?  
What will eat-3p.sg.pres doll-the today

(2) Kude e sviril pak mecho?  
Where be-3p.sg.pres. play-music-past participle again teddy bear

*Results:* The data strongly support our predictions. Bulgarian children correctly placed the auxiliary in 100 % of the utterances that contained an auxiliary, compared to 64 % and 45 % in English, as reported by Erreich (1984) and Valian and Casey (2003), respectively. Lexical verbs were inverted 91 % of the time, whether an auxiliary was present or not.

*Discussion.* Bulgarian children know a) that auxiliaries and lexical verbs invert with the subject and b) that inversion is obligatory in *wh*-questions. Their performance is essentially error-free, in marked contrast to English-speaking children's performance. The uniformly correct position of the aux in Bulgarian early questions argues that the English errors are due to the noisy and ambiguous input that children are exposed to rather than lack of abstract structural representations. Unlike Bulgarian children, English learners receive misleading evidence for non-inversion in embedded *wh*-questions such as (3), which influences how quickly they master the inversion requirement.

(3) I know where daddy has gone.

Another aspect of the noisy input is that English auxiliaries and lexical verbs behave differently with respect to inversion – the former must invert and the latter cannot. Thus English children face the challenge of distinguishing between the two categories while their Bulgarian peers do not – auxiliaries and verbs behave similarly in their language. Furthermore, the optionality of inversion in English *yes/no* questions leads the learner to employ an optional inversion rule to *wh*-questions as well. If a child thinks that inversion is optional because she treats *yes/no* and *wh*-questions in a similar way, she will need plenty of positive evidence for inversion in *wh*-questions to abandon the optional hypothesis. This is in line with English children's low inversion rate at an age when Bulgarian children perform at ceiling. The Bulgarian learner does not have a reason to treat *wh*- and *yes/no* questions similarly because the latter do not involve inversion.

In conclusion, Bulgarian children's near-perfect performance on auxiliary and verb inversion in *wh*-questions, and the fact that none of the ambiguous features of the English input apply in Bulgarian suggest that inversion difficulties in English must be a function of the mixed evidence rather than a deficit in children's structural representations.

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