

## WHICH CHILDREN DID THEY SHOW OBEY STRONG CROSSOVER?\*

### 1. INTRODUCTION

This study examines children's knowledge of strong crossover in two-clause sentences. The relevant constructions are illustrated in Types I to IV below, where the intended interpretation of each question is indicated by indexing in the question. The answers provided correspond to the indexing in the question.

*Type I*

Who<sub>i</sub> t<sub>i</sub> said he<sub>j</sub> was under the blanket?

They<sub>k</sub> said he<sub>j</sub> was.

*Type II*

Who<sub>i</sub> did he<sub>j</sub> say t<sub>i</sub> was under the blanket?

He<sub>j</sub> said they<sub>k</sub> were.

*Type III*

Who<sub>i</sub> t<sub>i</sub> said he<sub>i</sub> was under the blanket?

He<sub>j</sub> said that he<sub>j</sub> was and he<sub>k</sub> said that he<sub>k</sub> was.

(He<sub>j</sub> did and he<sub>k</sub> did.)

*Type IV*

\*Who<sub>i</sub> did he<sub>i</sub> say t<sub>i</sub> was under the blanket?

He<sub>j</sub> said that he<sub>j</sub> was and he<sub>k</sub> said that he<sub>k</sub> was.

(He<sub>j</sub> did and he<sub>k</sub> did.)

Notice that the questions in Types I and II are phonetically identical to those in Types III and IV, respectively. The difference is in the interpretation.

In the Type I and II questions, *he* is a simple pronoun, referring to a specific individual. The logical form representations of the questions in I and II are given in (1a) and (1b) respectively.

(1) (a) for which *x*, *x* said he was under the blanket

(b) for which *x*, he said *x* was under the blanket

In the answers to these questions, *he* refers to the same individual as in the question. In the Type III and IV questions, *he* is a bound variable, coindexed with the *wh*-phrase. The Type III and IV questions both have the logical form representation given in (2).

(2) for which *x*, *x* said *x* was under the blanket

In these cases the answer consists of the set of people that satisfy *x*, that is, which are the subject of both the predicate 'say . . .' and the predicate 'be under the blanket'. The bound variable interpretation is possible in the Type III construction, but not in the Type IV. In Chomsky (1981) and subsequent work, the unavailability of the bound variable interpretation for the question in Type IV is attributed to a principle of Universal Grammar, i.e., Principle C of Binding Theory. This principle states that an R-expression (e.g., a *wh*-trace) must not be bound by an element in argument position.<sup>1</sup> In the interpretations shown in Types III and IV, *he* is a bound variable; it is coindexed with both the *wh*-phrase and the trace. This is unproblematic in the Type III question. But in the Type IV question, this same coindexation of the *wh*-trace and *he* violates Principle C; this is because in this case *he*, which is in an argument (subject) position, binds the trace. This phenomenon is referred to as strong crossover (since in the Type IV case, the *wh*-phrase 'crosses over' the pronoun).

Since a principle of Universal Grammar is involved, knowledge of the Impossibility of the Type IV question is hypothesized to be innate. There have been several studies investigating children's knowledge of Principle C in constructions that do not involve strong crossover. The earlier studies of Chomsky (1969), Tavakolian (1978), Lust (1981), and Solan (1983) suggest that children master Binding Principle C relatively late (after age 5). However, more recent work by Crain and McKee (1985, 1987) and McDaniel, Cairns and Hsu (1990) indicates that Principle C is respected by children as young as age 3.

We turn now to studies investigating children's knowledge of Prin-