setting of the ECP should have the adult grammar. Thus, they should not ask questions that are ‘that-trace’ violations since these would violate the ECP.\textsuperscript{129}

Despite some problems with the details of this proposal, the idea that the relationship between the initial trace and the intermediate trace is responsible for the medial-Wh seems correct. This view is pursued further in the framework of Rizzi (1990), which modifies some of the ideas in Chomsky (1986b) (Barriers). To anticipate the proposal briefly, I will propose that the medial-Wh and that-trace “errors” can be unified as reflecting the same phenomenon. Parsimony argues for this step, as do the empirical data. The proposal draws on Rizzi’s version of the ECP, and analyzes both medial-Wh and that-complementizers as reflections of Spec-Head agreement. As markers of Spec-Head agreement, their presence is to satisfy the ECP. Before illustrating how this proposal works, it will be necessary to introduce the mechanics of the ECP in Chomsky (1986b) and in Rizzi’s (1990) system.

\textbf{The ECP in the Rizzi (1990) Framework}

One of the innovations in Chomsky (1986b) was to extend the X’-framework to treat all syntactic projections alike. In this framework, COMP is handled like other syntactic heads; it projects to \textit{C} and to a maximal projection CP, which contains

\textbf{129} To explain children’s that-trace violations, one might pursue the idea that children think that a trace can be realized overtly as that. This is not too far-fetched, given that both traces and complementizers are positioned in COMP. More evidence that might lead children to the conclusion that that is a licit overt antecedent governor comes from relative clauses. In English subject relatives, that does serve as a proper governor for the subject trace (see Pesetsky, 1981).

\textbf{a Specifier}. In this conception of phrase structure, complementizers, as lexical heads, are positioned in COMP, and Wh-movement proceeds through the Specifier position. The CP projection in the Barriers framework is compared with the EST framework below:

\textbf{(85a)} \begin{center} $S'$ \\
COMP \ S
\end{center}

\textbf{(85b)} \begin{center} \textit{CP} \\
\textit{Spec} \ C'
\end{center}

\textit{C (COMP)}

One immediate consequence of this system of phrase structure was that that-trace violations were no longer ruled out. In long-distance subject extraction questions like (86), Wh-movement through the Spec of CP leaves a trace that commands the subject trace in the embedded clause.\textsuperscript{130} The relevant structure is shown below:

\textbf{(86) Who do you think [CP t \textit{C}, that \textit{CP} t left}}

If we assume a disjunctive version of the ECP that requires traces to either be lexically governed or antecedent governed, now, because there are two positions available in the CP projection, the subject trace in (86) can be antecedent governed by the trace in the intermediate Spec. Thus, the ECP is not violated, despite the presence of the complementizer in COMP. Responding to this problem, Chomsky (1986b) proposed that the ungrammaticality of subject extraction ques-

\textbf{130} More specifically, in the Barriers framework, in order to avoid a Subjacency violation, the trace first moves through the CP Spec, then adjoins to the matrix verb before moving into the matrix Spec of CP.
tions like (86), which have a complementizer, is due to the Minimality Condition, which blocks government by an element if there is a closer potential governor. The explanation in Chomsky (1986b) is as follows. In (86) the trace in Spec is blocked as an antecedent governor of the subject because the complementizer serves as a closer potential governor (in this case a lexical governor). Although the complementizer is a closer potential governor, it is, in fact, inert for government itself, and so cannot govern the subject trace. When the complementizer is null, on the other hand, it does not count as a potential governor because it lacks features. In this way the Minimality Condition is circumvented and the intermediate trace in the Spec position serves as an antecedent governor for the subject trace.

Approaching a wider range of data, Rizzi (1990) advances a different approach to the Minimality Condition. Recall that Chomsky allowed government to be blocked by a nearer potential governor, whether it is an antecedent governor or a lexical governor. Rizzi’s notion of Relativized Minimality is that government is blocked only if the nearer typical potential governor is the same kind of governor. That is, government of a trace by an antecedent governor is only blocked by a nearer antecedent governor, and head government is only blocked if there is a nearer head governor. Therefore, Revising Minimality in this way, however, renders ineffective as an account of ‘that-trace’ effects. Consider (86) again. According to Relativized Minimality, the complementizer that is a head governor and so does not block antecedent government of the subject trace. This leaves the intermediate trace in the Spec of CP free to antecedent govern the subject trace, and satisfy the ECP.

To explain ‘that-trace’ effects, Rizzi revises what counts as ‘proper government’ of an empty category. Initially he considers a conjunctive formulation of the ECP in which non-pronominal empty categories are required to be (i) either antecedent governed or Theta-governed (identification) and (ii) head governed (Licensing). To eliminate redundancy in the conjunctive formulation, Rizzi subsequently abandons the identification requirement. The result is a statement of the ECP as a requirement on head government. The head government requirement is given in (87):

(87) The Empty Category Principle:
A non-pronominal empty category must be properly head-governed (Formal Licensing) (Rizzi, 1990, p.87)

(88) Head Government: X head governs Y iff
(i) X ∈ (A, N, P, V Agr, T)
(ii) X m-commands Y
(iii) no barrier intervenes
(iv) Relativized Minimality is respected

Typical Potential Governor: (relevant cases only)
Z is a typical potential head governor for Y = Z is a head m-commanding Y
is a typical potential antecedent governor for Y, in an A’-chain = Z is an A’ specifier c-commanding Y (See Rizzi (1990) pp.67 for further details).

134 X m-commands Y if neither X dominates Y nor vice versa, and the first maximal projection dominating X dominates Y as well (Rizzi, p.111)
Although the ‘antecedent government or Theta-government’ clause is eliminated from the ECP, these concepts are nevertheless incorporated into the grammar. The move to eliminate identification from the ECP was initiated in part by Rizzi’s (1990) manner of dealing with the fact that, in some instances, ‘long extraction’ out of a Wh-Island yields a grammatical derivation. Noting that extraction out of Wh-Islands is possible when the extracted element is associated with a referential theta-role, Rizzi suggests that in such cases it is sufficient to connect the Wh-operator to its trace by Referential Binding. He proposes that any position that receives a referential theta-role at D-structure is assigned a referential index that is carried with it if it moves. Binding is then stated as follows:

\[(89) \quad X \text{ binds } y \iff (i) \quad X \text{ c-commands } Y \\
(ii) \quad X \text{ and } Y \text{ have the same referential index} \]

Rizzi p. 87

Adjuncts are not (usually) assigned a referential theta-role at D-structure. So, the Wh-operator of an adjunct is not connected to its variable by Referential Binding, but by government. Compare:

\[(90) \quad \text{Who did you see?} \quad \text{How did you behave?} \]

\[(91) \quad \text{How do you think } \left[ \text{cp } t \quad \text{(that) } \left[ \text{cp be case } t \right] \right] \]

Thus, in the adjunct example the intermediate trace is needed to complete the chain. A chain is defined as:

\[(a_1, \ldots, a_n) \text{ is a chain only if, for } 1 \leq i < n, a_i \text{ antecedent-governs } a_{i+1}. \]

Antecedent government is defined as:

\[X \text{ antecedent-governs } Y \iff (i) \quad X \text{ and } Y \text{ are nondistinct} \\
(ii) \quad X \text{ c-commands } Y \\
(iii) \quad X \text{ c-commands } Y \\
(iv) \quad \text{Relative Minimality is respected} \]

In complex questions, the only way for an adjunct Wh-operator to be connected to its variable is by a chain of local antecedent government relations.
plementizer that is 'inert' for government. If head government fails when a complementizer is present, the natural question to ask is why questions with no complementizer satisfy head government of the subject trace. Rizzi suggests that a null complementizer can be a proper head governor in special circumstances: when its Spec is occupied by a Wh-operator or trace. That is, the null complementizer has the potential to become a proper head governor in the following configuration:

(93) \[ [t_{Wh} [C \emptyset]] \]

When COMP is null as above, Rizzi proposes that C can be expanded as Agr, one member of the class of governors (see 88). (This will be indicated as \( \emptyset_{Agr} \).)

However the Agr expansion can only take place if the clause is tensed; an infinitival COMP cannot be expanded as Agr.

(94) \[
\begin{align*}
[t_{\emptyset}] & \rightarrow \emptyset_{Agr} \\
[+Tense] & \text{that}
\end{align*}
\]

In order to serve as a proper governor, however, Agr must be coindexed with its Spec, a form of Spec-Head agreement:

(95) \[ [t_1 [C \emptyset_{Agr}]] \]

By Spec-Head agreement, then, the null complementizer becomes an 'agreeing complementizer', licensing it as a proper head governor. The agreeing complementizer now properly head governs the trace in subject position.

(96) Who do you think \([t_{Wh} \emptyset_{Agr} t_1 \text{left}]\)

Note that Spec-Head agreement is not needed for satisfaction of the ECP when objects or adjuncts are extracted from an embedded clause. An object trace in an embedded clause is head governed by the verb, and an adjunct trace is head governed by the verb or Tense. Thus the only representation in which an intermediate trace is required for the ECP is subject extraction, where it triggers the necessary Spec-Head agreement on the null complementizer.\(^{128}\)

We now proceed to consider extraction from infinitival complements. In tensed clauses, we saw that the complementizer was specified as \([+\text{Tense}]\) and could carry Agr features to enable proper head government of an adjacent subject trace. By contrast, infinitival clauses are headed by (null) complementizers specified as \([-\text{Tense}]\):  

(97) \[
\begin{align*}
[t_{\emptyset}] & \rightarrow \emptyset \\
[-\text{Tense}] & \text{for}
\end{align*}
\]

\(^{128}\) An intermediate trace is needed for interpretation of the Operator/variable link in adjunct extraction questions. In contrast, nothing requires the intermediate trace in object extraction questions, though Rizzi specifies it may be present if it is playing an "active role". This includes being part of a chain connecting operator and variable, even if it is not strictly needed because Referential Binding is available as an alternative means of making the connection (see Rizzi p. 129, fn. 14).
The [-Tense] feature inhibits the expansion of COMP as Agr, and as a consequence, proper head government of a subject trace is not possible. Thus subject extraction is blocked, as shown in (98). On the other hand, a PRO subject is allowed, since PRO cannot be properly governed. This is illustrated in (99) with the verb try:

(98) *Who did Bill try [CP t [CP t [CP [CP [CP t to win the race?]
(99) Bill tried [CP t [CP t [CP t PRO to win the race

In contrast to verbs like try, Exceptional Case Marking (ECM) verbs allow subject extraction because proper head government is fulfilled by the matrix verb. Rizzi (1990, p.35) gives an example illustrating proper head government of a subject trace by an ECM verb involving Heavy NP Shift:

(100) I believe [t be intelligent] all the students who can solve this problem.

This contrasts to subject extraction questions where extraction is from a tensed clause. There the subject trace was head governed by the element in [C], after Spec-Head agreement had taken place with the trace in CP Spec. In ECM questions extracting the subject from an infinitival clause, the presence of the intermediate trace is not required, since Spec-Head agreement is not necessary for satisfaction of the ECP. In fact, since Rizzi states that Exceptional Case-marking cannot take place across a CP level, we can assume that there is no CP, and that the verb want optionally selects for IP. Thus, the Wh-Operator and its variable can be linked directly by Referential Binding:

(101) Who do you want [IP t to win the race?

This concludes the discussion of how the ECP is formulated in Rizzi's system. The next section completes setting the stage for my analysis of children's medi- al-Wh questions and 'that-trace' errors. The last background set concerns the variation in Spec-Head agreement in COMP that occurs cross-linguistically.

Spec-Head Agreement Across Languages

Evidence for the general process of Spec-Head agreement within the domain of COMP can be drawn from several languages. Variation in its instantiation is seen to be the consequence of a few parameters which are part of the theory of agreement. According to Rizzi, Spec-Head agreement in COMP is parameterized as follows:142

• Agreement of COMP is with: (a) the Specifier, (b) the complements (c) the complements and Specifier
• Agreement takes place when COMP is: (a) [+Wh] (b) [-Wh] (c) [± Wh]
• Agreement is: (a) obligatory (b) optional
• Agreement is: (a) overt (b) covert

142 The overt/covert parameter is my addition. This may not be a parameter, but is a distinction that is important to the analysis proposed in the next section.
Some languages such as English, as we saw in the last section, require Spec-Head agreement only in cases of subject extraction. Other languages use a Spec-Head agreement process that is more general. Interpreting data in Chung and McCloskey (1987), Rizzi notes that in Irish, Spec-Head agreement takes place obligatorily in any clause from which a Wh-element is moved. It occurs in a range of structures, such as Wh-questions, relative clauses, clefts, pseudo-clefts and comparatives. In these structures Spec-Head agreement is indicated by a special form of the complementizer, al, which replaces the complementizer go.

Example (102) and (103) illustrate a declarative sentences with the sentential complementizer go (gurl, is the past tense form) and its Wh-question counterpart with the complementizer al.\(^{143}\) Examples (104) and (105) illustrate the use of the complementizer al with object and adjunct extraction (the data is taken from McCloskey, 1978).\(^{144}\)

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\(^{143}\) I take it that the passive question in (103) is an example of subject extraction, but since the pronoun appears to have accusative case, this assumption may be incorrect.

\(^{144}\) An example with adjunct extraction from an embedded clause would be ideal, but I was unable to find such an example. In the matrix questions in (105) with extraction of an adjunct, Spec-Head agreement is not triggered by a trace in the intermediate COMP as in the other questions, but presumably by the overt Wh-phrase. As far as I can tell from the data, however, the matrix questions show that extraction of an adjunct invokes the Spec-Head agreement process marked by the complementizer al.

---

(102) Creideann siad gurl maraíodh inné ón amhras mhaith. They COMP were killed yesterday he believes.

(103) Cén fear an chreideann siad al maraíodh inné? Which man COMP believe they COMP was killed yesterday?

(104) Cén t-ógnaí [cp eil in euinn sé] thug sé 'Which novel did I think he said he understood?'

(105) Cé a shinice [al bhí tú amháin?] frequency COMP were you there 'How often were you there?'

Cé a bhíodh díol [al d'ité sé] amount apples COMP ate be 'How many apples did he eat?'

---

Drawing on Schneider-Zioga (1987), Rizzi draws attention to a language in the Bantu family, Kinande, in which interrogatives agree in class with the element in COMP. The agreement process is reported as obligatory with an overt Wh-element in SPEC, and optional when there's a trace. That is, Spec-Head agreement is obligatory when the COMP is a \([+Wh]\), but optional when the COMP is specified \([-Wh]\). In the examples noun class number is indicated in parentheses.

---

(106) a. lyundl yó kambale alangIra
    who (1) that (1) Kambale saw

b. aнеl Bo kambale alangIra
    who (2) that (2) Kambale saw

c. EKIlIl kyo kambale alangIra
    what (7) that (7) Kambale saw

d. ERIlIl ByO kambale alangIra
    what (8) that (8) Kambale saw

---

As noted earlier, Spec-Head agreement only occurs with subject extraction in many languages, to ensure proper head government of the subject trace. In French, the Spec-Head is shown overtly, by a change in the complementizer from que to qu. As Rizzi notes, In French, Spec-Head agreement only takes place
when the C agrees simultaneously with its Spec and its complement. Quoting Rizzi (p.57), "t agrees with C, t agrees with t^r, and hence, as t and t' are identical, by transitivity C^t agrees with the maximal projection of t^r, its complement IP^r.

(107) \[ t' \ C^t [ t t^r \ldots ] \]

[-wh]

Thus, in French, Spec-Head agreement only occurs when the local subject is moved through COMP; it does not occur when the COMP is not adjacent to the initial subject trace. Some relevant examples (taken from Rizzi, p.118) meeting this condition are given in (108) - (110):

(108) L'homme que je crois [Ct que/qu] [Ip] Jean connaît
\quad the man that I believe that John knows
\quad 'The man who I believe John knows'

(109) L'homme que je crois [Ct que/qu] [Ip] viendra
\quad the man that I believe that will come
\quad 'The man who I believe will come'

(110) Qu'a-tu dit [Ct t [Ct que/qu] [Ip] t est arrivé
\quad what have-you said that happened
\quad 'What did you say happened?'

In fact, the picture for French is not as neat as this. For some speakers, Spec-Head agreement occurs only in relative clauses like (109), but other speakers apply it more generally in cases of subject extraction, and extend its use to questions like (110). (This example is from Friedemann, 1989, cited in Rizzi 1990, p.118. See also Pesetsky (1982) for related discussion.)

Another interesting case of dialectal variation in Spec-Head agreement occurs in Norwegian. This variation serves as a reminder to us that facts about agreement in COMP must be learned, a point that will play a prominent role when we discuss children's long-distance questions in English.

Like French, Norwegian shows Spec-Head agreement overtly, by use of a special agreeing complementizer. Analyzing data from Taraldsen (1986), Rizzi notes that a further similarity with French is that Spec-Head agreement takes place only with local extraction of a subject. The point of difference is that in Norwegian the overt complementizer som that marks Spec-Head agreement only appears in [+] COMPs, such as in embedded questions, for example:

(111) Standard Norwegian
\quad Vi vet [Ct hvem [Ct som t] snakker med Marit
\quad 'We know who that talks with Mary'

(112) *Vi vet [Ct hvem [Ct som Harit snakker med t
\quad 'We know who that Mary talks with'

Data in Nordgaard (1986) illustrates considerable dialectal variation in Norwegian, however. This data appears to be easily handled by the Spec-Head agreement parameters that Rizzi proposes. In the next few paragraphs, I introduce the data from Nordgaard, and show how it can be explained in Rizzi's system.

Citing Taraldsen (1986), Rizzi notes that the appearance of the agreeing complementizer is blocked in main questions in Norwegian because the verb moves into second position, taking the COMP position. According to Nordgaard there extraction questions with qui even in the linguistic environment of adult speakers who have the more restricted dialect (Dominique Estival, p.c.).
are dialects which do not exhibit such V2 effects in main questions. In these dialects som is obligatory. Interpreting this new data in Rizzi’s framework, we can say that since COMP is not filled by the verb, the conditions for agreement are met and the Spec-Head agreement rule must apply:

(113) Northern Norwegian and North Western Norwegian (dialects with no V2 in main questions) Hvem som har vært her? *Hvem har [ vært here? 'Who that has been here?'

Yet another pattern is exhibited by Mid-Norwegian. Nordgård reports that this dialect allows both possibilities in (113). Either the verb or som may appear in the COMP position. So in this dialect, Spec-Head agreement takes the optional value of the parameter.

In declarative sentences in which the verb subcategorizes for a [-Wh] COMP, the som complementizer is ungrammatical, and the [-Wh] form of the complementizer at must be used:

(114) (Standard Norwegian and all dialects) Neben tør som har vært her 'The neighbor believes that Peter has been here' Han håpet at minst ti gjester skulle komme 'He hoped that at least ten guests would come' Det er sannsynlig at studentene har gjort det 'It is probable that the students have done it'

According to Nordgård, when extracting a subject from an embedded clause, use of the complementizer at produces a marginally grammatical sentence, as illustated in (115). This is easily explained by Rizzi’s proposal. The complementizer at, like English complementizer that, can not carry Agr features. Thus it is precluded from assuming the status of a proper head governor of the subject trace.

(115) ??Hvem du tør at har vært her? 'Who do you believe that has been here?'

If the complementizer is deleted, however, questions like the one in (115) are grammatical. This suggests that in [-Wh] contexts, the null complementizer is the agreeing complementizer. Since the COMP is subcategorized [-Wh], this is not an environment in which som would be expected to appear. However, Nordgård reports that in the dialects, but not in Standard Norwegian, the overt som can be substituted for the null complementizer. In these dialects, the generalization seems to be that som carries Agr features for both [-Wh] COMPs.

Examples of som realizing Spec-Head agreement in a [-Wh] context follow:

(116) (Dialects) Hvem du tør som har vært her? 'Who do you believe that has been here?' Hvem mange gjester håpet han som skulle komme? 'How many guests hoped he that would come?' Hvem det er sannsynlig som har gjort det? 'Who is it probable that have done it?'

Given this classification, we can now consider the complementizer system in English. This will be of help when we turn to the child data. The first fact to observe is that in declaratives, the COMP is [-Wh] so either that or the null complementizer is used. Since there is no trace in these sentences, there is no element in Spec to agree with the head (COMP):
I think \([c' \text{ that } \text{ he is left} \text{ -Wh}]\)

I think \([c' \emptyset \text{ be left} \text{ -Wh}]\)

Complex questions with movement from the matrix clause function exactly the same way; there is no trace in the Spec and either that or \(\emptyset\) is the appropriate [-Wh] complementizer for the embedded COMP:

Who said \([c' \text{ that } \text{ he is intelligent} \text{ -Wh}]\)

Questions with extraction from the subject position of an embedded clause present a different situation. As before, the COMP is immediately adjacent to the subject trace, but there are two differences: First, the element in the embedded Spec is a trace not an overt Wh and, second, the COMP is [-Wh], not [+Wh]. Regardless of these differences, the appropriate complementizer to carry Spec-Head agreement is the null complementizer, as noted in the previous section:

Who do you think \([c' \text{ that } \text{ he is left} \text{ -Wh}]\)

Turning next to embedded questions, it can be seen that the combination of overt Wh-element and null complementizer in COMP also occurs in object and adjunct extraction questions. The null complementizer need not carry Agr, but no principle of grammar appears to prevent this from happening. This point will be important when we turn to the pattern of medial-Wh’s in the child data.
We now proceed to extend these observations and consider whether Spec-Head agreement is optional or obligatory in English. In all of the example questions covered in the discussion so far, extraction was strictly local, so that the agreeing COMP was adjacent to the initial trace. It is worth asking if Spec-Head agreement is restricted to agreement with the Spec and its complements, as in French, or whether the agreement is shown in all COMPs between the initial trace and the moved Wh-operator, as in Irish. The fact that Spec-Head agreement is covert in English and realized on the null complementizer does not make the answer obvious. The main yardstick we can use to answer this question is to take the presence of that as an indication that Spec-Head agreement is not obligatory.

(126) Who do you think that John said Ø t left?
Who do you think Ø John said Ø t left?

Examples like (126) demonstrate that it is possible to insert that in intermediate COMPs, leading to the conclusion that Spec-Head agreement is only obligatory in the COMP immediately adjacent to the trace, just as in French. That is, in adult English, Spec-Head agreement is only obligatory when needed to satisfy the ECP. It could be applied optionally in other contexts, but we cannot tell whether it has been applied or not, since in English Spec-Head agreement is covert. If Spec-Head agreement is optional in contexts when it is not required to fulfill the ECP, it would differ from French in this respect. In French, if Spec-Head agreement is realized with qui optionally on a COMP not immediately adjacent to the subject trace, the example is ungrammatical (Rizzi, 1990, p.56):

(127) L’homme que je pense [cp t [c-que/qui [f, Jean croit [f [c-qui] [j, viendra
The man that I think John believes will come

This theoretical background will be drawn on in the next section to make predictions about the appearance of the medial-Wh and complementizer in children’s questions.

Children’s Long-Distance Questions

In the sections that follow, children’s questions with overt ‘that’ complementizers and their medial-Wh questions will be discussed in turn. In the discussion, the term ‘that-questions’ will be used to refer to questions with an overt complementizer, regardless of the extraction site. The term ‘that-trace’ question will be used in its usual sense, to refer to a subject extraction question with an overt complementizer. Beginning with that-trace questions, it will be argued that, despite appearances to the contrary, these exceptional questions are not violations of the ECP, but are children’s attempts to preserve the ECP. This argument is followed by discussion of the developmental data and a theoretical proposal about the source of the purported “errors.” Turning next to medial-Wh questions, it will be argued that medial-Wh questions too, are attempts by children to satisfy the ECP. Specifically, I propose that both that-questions and medial-Wh questions are a reflex of Spec-Head agreement, which is necessary for the ECP. Both types of exceptional questions arise because children are responding to the limited and sometimes misleading positive data in their input. In the absence of abundant evidence on the matter, children attempt to settle on a unique form of complementizer that is appropriate for Spec-Head agreement. Some choose a medial-Wh and others choose that. The majority of children, however, select the correct form, the null complementizer. It should be pointed out that, until more comprehensive longitudinal studies are carried out on more children, the analy-
sis proposed here is necessarily speculative. Where appropriate, I will indicate
directions that might be taken in future research.

Questions with Overt Complementizers

The Data: Four children tested consistently asked long-distance questions with
overt complementizers. In the experiment on extraction from embedded clauses
reported in Chapter II, two children, Morgan and Tyler, regularly asked 'that
trace' questions which, as we have observed at length, are apparent violations
of the ECP. Another child tested in follow-up studies, Sarah, exhibited the same
pattern. Finally, Jennifer who initially vacillated between a medial-Wh and that
when tested in the ECP experiment, subsequently settled on the complementizer
that when tested in the Crossover elicitation experiment.

Detailed examination of the data indicates that children who asked that-trace
questions when extracting from subject position frequently also made use of an
overt complementizer in their questions involving object extraction. This is sur-
prising because, by using complementizers, these children are overriding the
general tendency to use reduced forms wherever possible (Hammouda, 1988;
Lasnik 1990). At some later stage, the trend seems to indicate that the 'extra'
that drops out of object extraction questions, but persists in subject extraction
questions. Finally, the extra element drops out altogether.147

148 In the experiments on Strong Crossover, Sarah is referred to as SRb.
147 Later in the chapter, it will be suggested that an alternative path to the adult
grammar is also possible.

This developmental trend has been pieced together from data from several
experiments with children of different ages, and by longitudinal studies of two
children. Data from these two children, Sarah and Jennifer, will be used to sup-
port the proposed analysis, and the unfolding of events just described. Additional
data will be presented from follow-up studies with Sarah. Some examples of
these children's long-distance questions follow:

(128) Sarah 3;11

What do you think that's under the swimming pool?
Who do you think that's snoring under the blanket?
What do you think that Cookie Monster eats?
What do you think that Oscar's holding?

(129) Jennifer 5;5

What do you think that Cookie Monster eats?

(130) Tyler 3;9

Which one do you think that has a tail?
Who do you think that's in the box?
What do you think that babies drink?
What do you think that Grover wants to hug really really really?148

(131) Morgan 3:9

What do you think that's in this box?
What do you think that's in here?
What do you think that, that that pigs talk?
What do you think really that babies drink?

148 Thirteen long-distance questions were elicited from Tyler; 9/13 had a com-
plementizer; the 4 questions with no complementizer were all subject ex-
traction questions with really intervening between the matrix verb and the
COMP position.
Evidence against That-trace Questions as ECP Violations

Several observations warrant the inference that these children's that-trace questions are not violations of the ECP. First, there is evidence that these children avoid another kind of ECP violation (Koopman, 1983; Rizzi 1990). Note that inversion in (132), like the presence of that in (133), prevents proper head government of the subject trace.\footnote{149}

(132) *Who did t come?
(133) *Who do you think that t left?

If these children were violating the ECP in producing questions like (133), then they should also be able to produce questions like (132). Yet, children who asked questions like (133) in the experiment on extraction from embedded clauses were not found to produce simple ECP violations like (132).\footnote{150} To explore this possibility further, matrix subject extraction questions were elicited from Sarah, a child who consistently produced 'that-trace' questions when extracting from tensed embedded clauses. An elicited production task was devised to elicit matrix questions in situations that favored the ungrammatical question with inversion. As in earlier studies, the bias was in the lead-in with "Ask the Rat who did". Admittedly, this is a use of did associated with VP anaphora, but a child predisposed to inversion might have taken the bait. Sarah did not, and only asked questions with no inversion. In the control questions with object and adjunct extraction, however, the same lead-in evoked Subject-Aux inversion.

(134) Sarah R. 3;11

Experimenter: Ask the Rat who did

Subjects

Who kicked the baby?
Who ate the egg?
Who ate the strawberry?

Object/Adjunct

Who did the Ninja Rabbit hit?
Why does he have shields on?
Why did he give it to the dinosaur?

Sarah’s unwillingness to invert in matrix questions is not proof that her questions like (133) are not ECP violations, but the idea that they are attempts at satisfying the ECP is worth pursuing on other grounds. The idea seems all the more reasonable when the basis for the ECP violations in (132) and (133) is examined more closely. In each case, the element in COMP is not a proper head governor, but for different reasons. In (132), INFL moves into C and governs the subject trace. But it is not a proper head governor because the trace is not within the immediate projection of the head (see Rizzi, p.31)\footnote{151} In (133), the overt complementizer is correctly positioned to be a head governor, but fails because it is not able to carry the requisite Agr features. The relevant structures are shown in (135) and (136):

\begin{itemize}
  \item In example (132), m-command is not a sufficient condition head government, and Rizzi exploits the hierarchical asymmetry of the trace not being in the immediate projection of the head in order to gain the desired result. As the trace in (135) shows, the subject trace is not in the maximal projection of the auxiliary which moves into C, and therefore is not properly head governed.
\end{itemize}
If Sarah had inverted in matrix subject extraction questions, this would indicate that she did not know the structural conditions on head government. This would indeed pose a serious threat to Universal Grammar, since it would seem to be impossible for her, or for any child, to learn the structural notion of "within the immediate projection of the head" from positive evidence. Her that-trace questions, on the other hand, suggest that she knows the hierarchical configurations under which head government takes place.

Further data point to Sarah's respect of the structural conditions on head government. The data come from an examination of Sarah's for clauses, as in the following paradigm:152

(137) I would prefer [ for Bill to win
(138) *Who would you prefer [ for t to win

The question in (138) is another ECP violation, for the same reason as inversion invokes a violation in the matrix subject extraction question: the subject trace is not in the immediate projection of the governor, the preposition 'for'.

(139) CP
     /   \
Spec   C'  
/     /  \
I     t  that   
\  /   
did

The 'prefer for' paradigm was tested in another elicitation game. One experimenter described an event that was to take place, and the Rat (manipulated by a second experimenter) and Sarah were asked to state their preferences about who should carry out the event. The Rat declared his preference first, and Sarah followed suit. The Rat used for as the appropriate complementizer in stating his preference. However the Rat's persistent use of the overt complementizer went unheeded. Without exception, Sarah used a null complementizer.

(140) Rat: I would prefer Porky Pig to eat the strawberry
Rat: I prefer Ø the bear to
Sarah: I would prefer for that guy to eat the bug
Sarah: I prefer Ø that guy to eat the bug too

In the next stage of the game, the first experimenter joined in. After the experimenter and the child had stated their preferences, the other experimenter asked the child to find out the Rat's preference. The lead-in was "Ask the Rat

152 According to Rizzi (1990), who quotes Chomsky and Lasnik (1977), the question is ungrammatical. In fact, in their study on the "for to" dialect, Chomsky and Lasnik (1977 fn. 82) state that they were unable to ascertain the facts. I will assume the paradigm to be correct.
who he prefers*. This put Sarah a position to ask a question like (138). Instead, Sarah asked the following questions:

(141) Experimenter: I would prefer for Ernie to eat the tomato
  Sarah: I prefer @ Ernie to eat the tomato
  Experimenter: Ask the rat who he prefers
  Sarah: Which one do you prefer that Ernie, that who will eat the tomato?
  Which one do you prefer that wants to eat the strawberry?
  Who do you prefer that wants to eat the egg?

Sarah explicitly avoided producing questions with a ‘for’ complementizer, in which the structural conditions on head government would be violated. Instead, she elected to use the complementizer that which is generated in C (and not attached to C under P). By choosing that as the complementizer, Sarah selected a form of the complementizer which is positioned to properly head govern the subject trace. In other words, that was being treated as a proper head governor, as discussed in the next section.

An ECP Preservation Account of That-Trace Questions

I propose that children who produce that-trace questions have incorrectly concluded that the complementizer that carries Agr features in long-distance questions. One thing that is attractive about this analysis is that it makes the grammars of these children nearly equivalent to adults’ grammars. Children generate the same syntactic representation with the only point of divergence being that children have not selected the correct form of the [-Wh] agreeing complementizer. On this analysis, children’s subject extraction questions have the representation in (142).

(142) Who do you think \[ t_1 \text{ that}_{Agr} \] \[ t_2 \text{ left} \]

Children do not treat the complementizer as inert for government. By the rule of Spec-Head agreement the complementizer is given agreement features, and as an agreeing complementizer, it properly head governs the subject trace. Therefore, the ECP is satisfied. The present analysis is, in fact, one that Rizzi gives to certain dialects of English with no ‘that-trace’ effects (i.e. certain dialects of Black English and some Midwestern dialects, as reported in Sobin, 1987).

This proposal explains children’s subject extraction ‘that-trace’ questions. However, examination of Sarah, Jennifer, Morgan and Tyler’s questions involving extraction from an embedded clause reveals that the complementizer is prevalent in their object extraction questions as well, at least initially. This is somewhat puzzling, since Spec-Head agreement is only required for satisfaction of the ECP in extraction from subject position. The data suggest that children are not aware of this, and apply Spec-Head agreement in extracting from object position. As noted in the section examining the process of Spec-Head agreement in English, this step does not have any consequences for the grammar. The representation for object extractions would be as follows:

(143) What \[ t_1 \] do you think \[ t_2 \text{ that}_{Agr} \] \[ t_3 \text{ pig} \] \[ t_4 \text{ they} \]?

To illustrate that the Spec-Head agreement rule is at first quite general, as it is in Irish, consider Sarah’s use of the complementizer in questions with two
degrees of embedding. If Sarah thought that the Spec-Head agreement rule was a local rule (limited to the CP containing the extraction site), then the prediction would be that no complementizer should appear in the COMP following "think". But Sarah used a complementizer on 2 of 3 occasions:\textsuperscript{153}

(144) Sarah 3:11
Session 2
What do you think that bears like Ø to eat?
Session 3
What do you think that Ninja Turtles like Ø to eat?

We should ask why children maintain Spec-Head agreement in object extraction questions when it is only actually required for satisfaction of the ECP in subject extraction questions. As we saw in the section on Spec-Head agreement, there is cross-linguistic variation in whether or not agreement takes place between a Head and its Specifier or between between a Head and both its Specifier and its complements (the option chosen by English). As Ken Wexler (p.c.) points out, however, the simpler assumption is that agreement takes place between a Head and its Specifier. The option realized in adult English (and French) involves further specification of the conditions under which agreement takes place.

Adjuncts raise certain questions for this analysis, however. The simplest assumption is for Spec and Head agree no matter what the extraction site, as in Irish. But it may be that adjuncts are special, and that Spec-Head agreement

obtains only for the traces of arguments. The issue remains unclear, so the discussion that follows is necessarily exploratory in nature.

Jennifer and Sarah's questions forms indicate that Spec-Head agreement takes place only for subjects and objects, and not for adjuncts, at least at the time represented in the set of data at hand.\textsuperscript{154} Neither child ever used a complementizer with their adjunct extraction questions. Questions with extraction of an adjunct were elicited from Sarah on three different occasions (but only a few days apart) and from Jennifer on two occasions, separated by several months. Some examples are illustrated below:

(145) Sarah R. 3:11
How do you think Ø witches fly?
How do you think Ø the baby stopped her crying?
How do you think Ø Tin Man keeps cool?
Why do you think Ø bananas are better than cherries?
Where do you think Ø the girl hid the ant?
Where do you think Ø Tin Man hid the ant?

Jennifer 5:1
How do you think Ø we can fix this girl?
How do you think Ø we can get this fixed?
How do you think Ø you can clean that?

One possibility is that at an earlier stage not captured by the present data set that Jennifer and Sarah did use complementizers in adjunct extraction questions. This matter can only be settled by a longitudinal study with more children.

\textsuperscript{153} Sarah produced one such question in Session 2, a session in which she used complementizers 100\% of the time in subject and object extraction questions. She produced two more questions with 2 degrees of embedding in Session 3, when some null complementizers had started to appear. In this session, one of the two questions had non-local Spec-Head agreement.

\textsuperscript{154} We will see that children who ask medial-Wh questions, use the medial-Wh across the board in argument and adjunct extraction questions. This makes the absence of that in Sarah and Jennifer's questions more mysterious.
We still need to explain why children distinguish argument extractions from adjunct extractions, as observed in Jennifer and Sarah's productions at this stage. One possibility worth considering is that arguments and adjuncts questions are distinguished by the level at which Wh-traces are present. According to Lasnik and Salto (forthcoming), traces are licensed only if their presence is needed to satisfy a principle of Universal Grammar. To satisfy the Projection Principle, argument traces, including the associated intermediate traces which link up the chain between the initial trace and operator, are present at all levels of representation. Adjunct traces, on the other hand, are not licensed until LF, where they are required to satisfy the principle of No Vacuous Quantification. On this view, the absence of the complementizer in adjunct extraction questions could reflect children's decision to treat Spec-Head agreement as occurring at S-structure. If so, Spec-Head agreement does not occur in adjunct extraction questions because, at this level of representation, there is no trace in the Spec for the COMP agree with. This analysis must be tempered somewhat in light of conflicting data from a medial-Wh child who will be examined in the next section.

My proposal is that the rule of Spec-Head agreement is obligatory in early child grammar. It is this rule that is responsible for the appearance of the complementizer in these children's grammars. This proposal has clear implications for these children's use of complementizer in other structures. Although an overt that in subject and object extraction questions should be an obligatory reflex of Spec-Head agreement, overt complementizers need not appear in the embedded COMP in declaratives and bound variable questions. In these structures there is no movement from the embedded subject position through the Specifier. Hence, there is no element in Spec with which the COMP should agree. Although complementizers are not needed, they may appear nonetheless, because (at least for adults) that is a non-agreeing form. As noted earlier, they should appear only infrequently, however, due to the tendency to use for reduced forms wherever possible.

With these observations in mind, it is possible to find support for the proposal that children use an overt complementizer in their subject extraction questions in order to satisfy the ECP. The support would come from examining children's use of complementizers in two-clause declaratives and bound variable questions. The expectation is that they should appear significantly less often in these constructions, since the ECP is not relevant.

Sarah and Jennifer's data were examined to evaluate the hypothesis that complementizers should not appear obligatorily in structures without an embedded subject trace. Data on declaratives were present in the transcripts from Sarah, and data on bound variables were available in Jennifer's corpus. In keeping with the analysis I propose, complementizers were almost entirely absent in these constructions. The declaratives elicted from Sarah all contained the verb "think", since this was the verb used in her that-trace questions, but she did not use an overt complementizer on any of the four trials. This result is further confirmed by her spontaneous productions. Examples are given in (146):

158 Sarah did not participate in the experiment eliciting bound variables.

157 There is one datum in Sarah's productions that this view cannot easily account for. Sarah used complementizers obligatorily in Yes/No questions (in 3/3 trials), an environment where Spec-Head agreement is irrelevant.

*Did the rat say that he's hungry?*

*Did the rat say that he wants to eat a ice cream?*
Protocol for Eliciting Declaratives

Sarah R. 3:11

Experimenter: He's gonna take a walk, I bet. What do you think?
Sarah: I think he's gonna take a walk too.

(Examples elicited in similar situations)
I think he's gonna light too.
I think he's gonna sit on the donut.
I think he's gonna eat three bugs.

(Examples from spontaneous production)
I bet all the kids are all the way down to the classroom and they're gone.
I thought you might wanted me to keep it warm.

Further confirmation for the proposal comes from Jennifer's productions in the experiment eliciting bound variable questions, reported in Chapter II. Eighteen bound variable questions were elicited in the experimental session, and in 17 of the 18 questions Jennifer elected to use a null complementizer. Some examples are given in (147):

(147) Jennifer 4:11
Who thinks the monster pushed them out of bed?
Who said he's the most strongest?
Who thinks they have ants in the pants?
Who thinks they have the blue marble?
Which baby thinks ants are good for you to eat?

The absence of complementizers in these structures suggests that their presence in questions extracting from tensed embedded clauses reflects a grammatical process. This supports the proposal that they appear as agreeing complementizers necessary for satisfaction of the ECP.

Another consequence of this proposal is that overt complementizers should not appear in COMPs heading infinitival clauses. On the present analysis, this is because COMPs heading infinitival clauses have the feature [-Tense] which blocks Spec-Head agreement. This prediction, too, is borne out. No child ever produced an overt complementizer in a question extracting from an infinitival complement. The ECP is not entirely irrelevant to questions extracting from infinitival clauses, however. It is still the case that in questions with Exceptional Case Marking verbs such as 'want', the subject trace in the embedded clause must be properly head governed. But in this case, proper head government is achieved by the matrix verb, whose status as an ECM verb gives it the capability to govern into the embedded clause. Some examples of Sarah, Jennifer and Tyler's ECM subject extraction questions follow:

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154 Sarah's data on the 'prefer to' paradigm is in line with this claim. Recall that although her choice of complementizer was that, it caused her to embed the infinitival clause within a tensed one. Clearly, Sarah was aware of the [ + Tense] features associated with the complementizer that.

158 Whether or not there is also a null complementizer specified [-Tense] in subject extraction questions with the ECM verb want depends on assumptions about the kind of complement it selects. If the assumption is that it selects a CP, then there is a null complementizer specified for [-Tense]. If it is assumed that want selects an IP, no complementizer is present in the structure.

160 No examples are available from Morgan. Morgan invariably asked "Who would you like..." instead of "Who do you want...".

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Did the rat say that he doesn't like grown ups?

The explanation may be simple. It may be that Sarah thinks that the verb "say" subcategorizes for an obligatory complementizer. If this is the reason, the complementizer should drop out when the verb is changed to "think", since we know from Sarah's declaratives, that she thinks it does not take an obligatory complementizer.
(148) Jennifer 3:6

Who do you want to clean your teeth?
Who do you want to eat the cookies?
Who do you want to take a nap?

Sarah 3:11

Who do you want to eat the bug?
Who do you want to eat the banana?
Who do you want to play with the bucket and shovel?
Which wave do you want Kermit to be on?

Tyler 3:9

Who do you want to eat the other pizza?
Who do you want to brush your teeth?

A Parallel Analysis of Children’s Medial-Wh Questions

This section presents an account of children’s medial-Wh questions. I propose to analyze children’s medial-Wh questions as another instance of ECP preservation. Like the unexpected complementizer in that-questions, the medial-Wh is seen to be a reflex of Spec-Head agreement.

Questions with a Medial-Wh

The Data: A comparison of the data from children who ask that-questions and children who ask medial-Wh questions reveals a strikingly similar pattern. Children who ask medial-Wh questions also appear to use the medial-Wh initially when extracting from both object and subject. The data also indicates that the medial-Wh drops out of object position first, lingering in subject position before its final demise, where it gives way to the adult grammar.\(^{101}\) In this respect, too, the pattern of development by medial-Wh children and children who ask that-questions is the same.

In the experiment on elicitation of long-distance questions reported in Chapter II, two of the 21 children, Matthew (3:3) and Tiffany (4:9) consistently produced medial-Wh questions, whether extraction was from object or subject. In follow-up research, another child, Kelly, (3:7) was also found to produce medial-Wh questions.\(^{102}\) Data from these three children are presented to support the proposed analysis. Some examples of subject and object extraction questions from these children are the following:

(149) Tiffany 4:9

What do you think really what’s in the yogurt can?
Who do you think who Grover wants to hug?

Matthew 3:3

What do you think what’s in that box?
What do you think really really really really what’s in there?
What do you think what Oscar the Drouch is eating?

Kelly 3:11

What do you think what is under this box?
Who do you think who drank the milk?
What do you think what Cookie Monster eats?

\(^{101}\) At the end of the section, it will be shown that an alternative developmental sequence is possible.

\(^{102}\) Kelly’s data shows more variation than the other two children’s. Kelly frequently used the partial movement structure, in addition to the medial-Wh structure. Tiffany also used the partial movement structure, but only in asking questions with a complex Wh-phrase "Which N".
In addition to subject and object extraction questions, questions with adjunct extraction were elicited from Kelly. The medial-Wh still appeared. This is the only respect in which the data differ from that obtained from children who ask that-questions.

One argument in favor of analyzing medial-Wh questions and that-questions as the same phenomenon is that both question types sometimes occurred in the speech of the same child. In the previous section, data from Jennifer at 5;5 was presented, illustrating her use of that in subject and object extraction questions. When Jennifer was first tested at 3;6, however, she vacillated between the two forms: 3 of her 7 subject extraction questions were medial-Wh questions and 3 were that-trace questions. Another question in the same session was included in the count of 7 long-distance questions because the embedded verb was omitted, but it illustrates Jennifer’s confusion about what element should fill the intermediate COMP:

(150) What do think what, that, who ...in here?

By the time Jennifer was 5;1, she favored that as the agreeing complementizer. In the Crossover elicitation experiment, she produced 24 subject extraction questions: 16 were that-trace questions, 2 were medial-Wh questions, and 6 were adult forms with a null complementizer. Other children also produced an alternative question form, only infrequently. For example, Sarah produced 49 subject and object extraction questions, with only 2 medial-Wh forms.

Another argument is offered in favor of treating that-questions and medial-Wh questions in the same way. This is to show that, like children who ask that-questions, medial-Wh children omit complementizers in constructions that do not require Spec-Head agreement. Prior to this demonstration, however, I wish to point out that both that-question and medial-Wh question children produce complementizers in certain constructions, where its appearance is strongly preferred. For example, questions beginning with “Is it true...” are more acceptable with an overt complementizer. This insight was used to test children’s use of complementizers. This was done in a game where children had to check with the rat whether various points of hearsay were true. In the following sample of data from this experiment, Matthew used some complementizers; that in an incomplete sentence, and if in a complete sentence:

(151) Matthew 3:3

Experimenter: I heard that rats can see in the dark, could you find out if it’s true?
Matthew: Is that true?
Rat: Is what true?
Matthew: That the night

Experimenter: I heard that rats have green eyes could you find out if it’s true?
Matthew: Is it true if rats have green eyes?

Kelly also produced a complementizer in the “Is it True?” game.

(152) Kelly: 4:5:

(Finding out if rats like orange ice cream)
Kelly: Is it true, rat?
Rat: What?
Kelly: That you like orange ice cream?
Kelly also demonstrated her knowledge of complementizers by asking a that-question on one trial, instead of a medial-Wh question. When asked for confirmation of what she had said, she repeated herself:

(153) Kelly 4:0
Kelly: Who do you think that ate this?
Rat: Excuse me?
Kelly: Who do you think that ate this?

Next, we offer evidence that the medial-Wh, like the comple mentizer, appears where Spec-Head agreement is required, but not in environments that are irrelevant to Spec-Head agreement. Evidence comes from Matthew’s Crossover questions and Bound Variable questions. The data were elicited in a pilot session in which the same scenario was used to elicit both question types. Despite the difficulty of switching back and forth between question types, Matthew always used a medial-Wh in Crossover questions and never in his Bound Variable questions. The data was collected when he was 4:3, a year after he was first observed to use medial-Wh questions. Portions of the transcript from the session are given below:

(154) Matthew 4:3

Hiding Blue Marbles Story
Experimenter: So two of these guys told the rat “I’ve got a blue marble.” Ask the rat who said that.
Matthew: Who said Ø they have a blue marble?
Experimenter: (Matthew and Rat’s friends make a guess)
Matthew: Who did they say who have blue marbles?

Flies and cockroach story
Experimenter: So two of these guys told the rat “I have a fly.” Ask the rat who said that.
Matthew: Rat, who said Ø they have the fly?
Experimenter: (Matthew and Rat guess)
Experimenter: So, two of these guys have a fly. Ask the rat who they said.
Child: Who did they say who had the fly?
Experimenter: (Game continues)
Experimenter: Let’s find out now who really had a fly. Two of them told the rat “I’ve got a fly.” Ask the rat who really said that.
Matthew: Who really said Ø they had the fly?

Complementizers are also absent from the declaratives of medial-Wh children. In the one example appearing in Matthew’s spontaneous speech at 3:3, there is no complementizer, and Kelly did not use an overt complementizer in any of the three two-clause declaratives elicited in a test situation:

(155) Matthew 3:3

(Game judging the length of various animals’ tails)
We think the longest one is this one

104 Here Kelly used an overt complementizer in a subject extraction question where she usually used a medial-Wh. The fact that the same situation triggered the appearance of the medial-Wh and overt complementizer points to the two extra medial elements as the same phenomenon.
(156)  Kelly 3:11

(One lens is missing from a pair of glasses)
Experimenter: This girl fell through the glasses, I bet. What do you think, Kelly?
Kelly: I think Ø her want through the glasses

(Elicited in same situation)
I think Ø her jumped through the hole
I think Ø him jumped through the glasses165

Inspection of medial-Wh children's questions with infinitival clauses again
turns up another parallel with children who ask that-questions. No complement-
izers appeared with the exception of one licit for complementizer in Matthew's
speech.166 Examples follow:

(157)  Matthew 3:3
Who do you want to, for to help you brush your teeth?

165 Kelly had some hearing problems in early childhood, and as a result certain
aspects of her grammar are lagging. Note, however, that the aspects of
grammar that are lagging are those that must be learned through exposure
to input, such as verb agreement, use of auxiliary verbs and Case assign-
ment. In the examples above, Kelly uses accusative case (often assumed to
be the default), instead of nominative case. Her use of accusative case ap-
ppears to be entirely irrelevant to the fact that she is attempting a two-clause
structure. In this regard, it is also noteworthy that Kelly used the accusative
case of pronouns in 1-clause sentences; for example, "Her all wet". Despite
these errors, it is important to recognize that Kelly performed almost perfectly
in tests of innate principles. For example, her comprehension data on the
Strong Crossover constraint (Principle B) and Principle B reported in Chapter
II demonstrates a firm (adult) knowledge of these principles of Universal
Grammar.

166 It should be noted that if the complementizer is licit for Matthew in Wh-
questions, then presumably, he is a speaker of the "for/to" dialect (see Chomsky
and Laznik, 1977). In this case, it would be expected that he produced de-
claratives such as "I want for to go".

Tiffany 4:9
Who do you want to brush your teeth?
Who do you want to eat the hamburger?
Which one do you wanna choose to take a nap?
Who do you want to help you eat the cookie?
Kelly 4:0
Who do you want to go down the slide?
Who do you want to go off the diving board?

The many parallels in the data of children who ask that-questions and children
who ask medial-Wh questions prompt a parallel analysis of medial-Wh in terms
of Spec-Head agreement. On this analysis, the medial-Wh, like the overt that,
signals obligatory Spec-Head agreement. However, we should not overlook the
possibility that the medial-Wh and the that appear in different positions in the
grammatical representations of these different groups of children. Although it is
conceivable that the medial-Wh is a complementizer carrying Agr features, par-
allel to 'that' in children's that-questions, there is also the possibility that it is an
overt Wh (trace) positioned in the Spec of CP position. These two alternatives
are represented below:

(158)  Who do you think [CP t₁ who øAGR] [IP t₁ left]
(159)  Who do you think [CP t₁ who øAGR] [IP t₁ left]

This issue will be addressed in the following section. Before we move on to that
issue, however, let us comment further on the difference between medial-Wh and
that-question children. On the whole, the CP system of medial-Wh children and
of those who ask that-questions are strikingly similar. The only place of diver-
genesis is with respect to adjunct extraction: Medial-Wh elements appear with ex-
traction of adjuncts from embedded clauses. The investigation of extraction of
adjuncts is still preliminary and the data limited to one child, Kelly. In the first time that adjuncts were elicited from Kelly, she was 3.7, and she used a medi- nal-adjunct on 3/3 questions elicited with how, but omitted it in one other question. In the second session which took place four months later, Kelly produced medial adjuncts on 5/6 trials. All of the examples were "how-questions". Some examples of her adjunct extraction questions follow:

(160) Kelly 3.7

Session 1:
How do you think how you put this wheel back together?
How do you think how you fix this truck?
How do you think how you turn this (into a transformer)?

Session 2:
How do you think how her head feels?
How do you think how her head feels?
How do you think how she feels?

Kelly’s data with a medial-Wh in adjunct extraction questions conflict with the data elicited from Sarah and Jennifer, who omitted the complementizer in adjunct extraction questions. The explanation proposed for the lack of a that comple- mentizer in Sarah and Jennifer’s adjunct questions was that there was no trace in the intermediate COMP at S-structure. No trace being present, Spec-Head agreement does not take place to yield the appearance of an agreeing comple- mentizer that. If, as Lasnik and Saito propose, adjunct traces are not present until

167 In a study eliciting long-distance subject, object and adjunct extraction ques- tions from normal and language disabled children, Karen Smith (p.c.) replicated the finding of medial-Whs in adjunct extraction questions. Smith elicited questions with wh- int, where, why and how adjuncts.

168 As noted, adjunct traces (and their associated intermediate traces that serve as antecedent governors) are not present until LF, where they are required to satisfy the principle of No Vacuous Quantification (Lasnik and Saito 1984; forthcoming).

169 In Irish, the complementizer aL induces lenition mutation on the following verb (Chung and McCloskey, 1997). This is presumably a PF process that feeds off S-structure. So if aL is to induce lenition even in adjunct extraction questions, the adjunct trace must be present before LF. A child learning to speak Irish who acts in accord with Universal Grammar will not have adjunct traces in S-structure representations, since no principle of UG requires them to be present. However, children who notice that aL induces lenition in adults’ Wh-ques- tions with adjunct extraction will realize that the trace must be present at S-structure. In other words, positive evidence will give them reason to have ad- junct traces before LF. This means that every Irish-speaking adult will project adjunct traces at S-structure and Spec-Head agreement is triggered.

It is not clear, however, how to explain the trace present in children’s medi- al-Wh adjunct extraction questions. It is possible that, along the same lines, the positive data drives children to have an adjunct trace, possibly to feed a PF pro- cess. However, at this point, I have no suggestion for what the process might be.

168 This suggestion was made by Howard Lasnik.

170 This was pointed out to me by Stephen Crain.
In most respects, there are striking similarities in the pattern of children who use that-questions and ones who use medial-Wh questions. I have proposed to capture these similarities by hypothesizing that both question forms appear as a reflection of the rule of Spec-Head agreement which licenses the medial-Wh or complementizer as the agreeing form. A question that has not been answered yet is why children come to use these two overt forms to realize Spec-Head agreement, in a position where the parsing preference is to delete the complementizer, or more correctly, where the preference is to use a null complementizer. The next section develops this point. Then, I offer an account of children’s convergence to the adult grammar.

Why Children Use an Overt Form

If the appearance of the medial-wh and complementizer in children’s questions are attempts to satisfy the ECP, we should ask why they opt for an overt element in their attempt, instead of using the correct, null complementizer. I propose that children’s choice of an overt complementizer or medial-Wh stems from a combination of factors, to which I now turn. I will consider first a scenario in which both that and the medial-Wh are agreeing complementizers positioned in C. Following this, I will consider what input might lead the child to a different analysis, one in which the medial-Wh is positioned in the Spec of CP.

It should be acknowledged, first, that children who ask medial-Wh questions and that-questions have no positive evidence for this exceptional question form.\textsuperscript{171} But if children have no evidence in favor of an overt form, they also may have little, if any, evidence against it. It may be that, as a matter of fact, three- and four-year-old children encounter few long-distance questions at all. Recall that in their own spontaneous speech, children are found to produce only a lim-\textsuperscript{172} ited variety of questions involving extraction from embedded clauses (de Villiers, Rooper, and Vainikka, 1988). As noted previously, they report only 16 occurrences of long-distance questions in Adam’s speech over a period of 3 1/2 years.\textsuperscript{172} A likely possibility is that there are few instances of long-distance questions appearing in corpora because in many cases, a question with the same meaning can be asked with a simpler derivation, that is with a matrix question instead of long-distance movement (see Chomsky, 1989). We have seen that the opportunities can be extended experimentally, by devising special contexts in which a matrix question is infelicitous. In these situations, children were enticed into producing questions that are not normally in their productive repertoire. These contexts force them to venture a choice of agreeing complementizer on the basis of their grammar at the time, which may be formed without having heard many instances of long-distance questions in the speech of their caretakers. In Chapter 1, it was noted that children reliably produce passives in controlled experimental environments, but only rarely in their spontaneous speech. Moreover, it has been documented that this construction is found only intre-

\textsuperscript{171} This generalization does not extend to children learning dialects of English

\textsuperscript{172} There is some evidence that children actually ignore what little evidence they do receive, although the evidence is only anecdotal. The following observation was made in a session with Kelly, who was being tested in her home. At the end of the session, her older six-year-old brother joined the game. Both children took turns in posing their long-distance questions to the puppet -- Kelly posed hers with a medial-Wh, and her brother posed his using the adult form. Neither child appeared to notice anything odd about their sibling’s questions. What this suggests is that in general children attend to the truth-value of utterances, and not their form.
quently in parental speech to children (Pinker et al., 1987). As a consequence, children who are asked to use passives in situations that are uniquely felicitous for them, are forced to guess the form of the preposition in the 'by'-phrase. Often they make the wrong guess, using 'from' instead of 'by,' for example. The question in the present research is why children guess that the agreeing form of the complementizer is overt.

The current proposal has several parts. First, it is assumed that Spec-Head agreement is obligatory, at least initially. This assumption is needed to explain why the overt form of the complementizer or the medial-Wh appears with both subject and object extraction questions. The second assumption is that children require a unique form to mark Spec-Head agreement, perhaps as a consequence of a Uniqueness Principle such as proposed by Wexler (1979). Finally, a Uniqueness Principle is assumed, to explain how children decide what form to use as the agreeing form of the complementizer. It is supposed further that children make a binary choice between the agreeing form and the nonagreeing form of the [-Wh] complementizer. The choices are fixed by the parameter introduced earlier in the chapter, namely whether Spec-Head agreement should be Overt or Covert.173

173 Another complication should be noted. I am assuming that the form of the [-Wh] complementizer is chosen independently of the [-Wh] complementizer that is at issue here. Clearly, children have productive use of matrix questions, another structure that requires proper head government of a subject trace. In these questions, the subject trace is properly governed by an agreeing null complementizer. Both Sarah's correct matrix questions in example (134), and Jennifer's correct production of bound variable questions in (147) illustrate their knowledge of these facts. Let us assume, then, that the grammar includes knowledge of the following:

I think Ø he came
Who said Ø he came
Who Ø came I came
I know who Ø came I came

These assumptions conspire to make some children select an Overt complementizer as the agreeing form, for purposes of Spec-Head agreement. As noted, the Uniqueness Principle requires that the [-Wh] agreeing COMP be either overt, or covert, and that the non-agreeing form take the opposite value. What children have to figure out is the agreeing [-Wh] COMP for use in long-distance questions. It seems reasonable to suppose that children will most often hear adult declarative sentences with no complementizers (in keeping with the parsing preference to reduce forms). If so, they will enter the non-agreeing [-Wh] complementizer in the lexicon as Ø. In attempting to generate the agreeing [-Wh] complementizer, for long-distance questions, they will therefore select the overt form. Since they are generating this form by hypothesis, and not in response to positive data, let us assume that this is marked as a "guess". This is accomplished, as in Pinker's (1984) system, by marking the form with "orphan nodes" to indicate that it can be expunged from the grammar if there is positive evidence for the alternative, covert, choice. Of course, eventually these children will encounter sufficient positive evidence that the [-Wh] agreeing form is the zero complementizer. These data are subject extraction long-distance questions. Consequently, they will override their assumption about uniqueness, and enter the zero complementizer for both [-Wh] forms of the complementizer.

Another question to raise is why children pick that or the medial-Wh as the appropriate overt form. A choice of that is not an odd choice, since this form does appear as a complementizer, but choice of a Wh-word is a little more surprising. However, a cursory review of cross-linguistic data uncovers languages in which the lexical items used for a Wh-word and complementizer are homophonous. There are several examples in the sample of languages discussed earlier. In Romani, for example, the Wh-word equivalent to what (used as a scope marker
in partial movement structures) and the complementizer so are homophonous; and in French likewise, both que and qui function as Wh-words and as complementizers.

However, in pursuing this possibility we must make an additional assumption about the Agr features shared in the process of Spec-Head agreement. It may be that agreement features differ according to the domain in which agreement takes place.\(^174\) We might assume that in the CP domain, the shared AGR features are \([+\text{Wh}]\), and possibly the features for person and gender (animate versus non-animate). What is intended by the \([+\text{Wh}]\) feature in this case is some kind of morphological feature that is carried by the Wh-word and its trace.\(^175\) Suppose that for production of a question extracting the subject from an embedded clause, some children think that the process of Spec-Head agreement requires that the \([-\text{Wh}]\) COMP position agree with the trace in Spec in features. This means that the trace in Spec would pass on \([+\text{Wh}]\) morphological features to the \([-\text{Wh}]\) COMP. In this case, the medial-Wh can be thought of as a complementizer that bears the transferred \([+\text{Wh}]\) morphological features. This attraction of this analysis is that it allows the overt complementizer and the medial-Wh to both receive the same analysis — both are \([-\text{Wh}]\) complementizers that have undergone Spec-Head agreement to become ‘agreeing’ complementizers.

\(^174\) Spec-Head agreement can take place between INFL and its head, the NP in subject position, for example.

\(^175\) This is to be differentiated from the the \([+\text{Wh}]\) feature used to distinguish the kinds of complements verbs subcategorize for. For example, the verb wonder takes a \([+\text{Wh}]\) complement (cf. I wonder why he said that vs. I wonder that he said that) whereas the verb think takes a \(-\text{Wh}\) complement (cf. I think that he left vs. I think what he left). As far as this subcategorization \([+\text{Wh}]\) feature is concerned, Wh-trace is \(-\text{Wh}\) (see Lasnik and Saito, 1984).

A different analysis of the positive data on the part of the child might not reduce to analysis of the medial-Wh as a complementizer, however. The child could produce a structure with the medial-Wh in the Spec of CP position. Let us consider how this might come about. In the account above, we assumed that the child was only concerned with the appropriate forms for agreeing and non-agreeing \([-\text{Wh}]\) complementizers. But suppose, the child’s focus is not on forms for \([-\text{Wh}]\) complementizers, but on forms of agreeing complementizers. In this case, they might notice in some questions they hear in the input that an agreeing complementizer is accompanied by an overt Wh-word in the Specifier position. This would be true if children attended to the form of agreeing complementizer found in matrix questions and embedded questions, for example. Acting on this observation might lead them to hypothesize that in Spec-Head agreement, the CP domain has the configuration \([\text{CP, Wh} \odot]\). If so, they might require any question to have an overt Wh-word in the Intermediate Spec of CP, including long-distance questions extracting from an embedded clause. This would, of course, lead the child to erroneously produce medial-Wh questions. On this analysis, the medial-Wh might be viewed as an overt trace, coindexed with the Wh-operator in the matrix Spec.\(^176\) On this account, children would be overriding Uniqueness on the basis of positive data to allow the null complementizer to serve as agreeing and non-agreeing complementizers.

\(^176\) This would not constitute a violation of the Bijection Principle (Koopman and Sportiche, 1982) because the initial trace would not be associated with two different operators. As an overt trace, the Wh in the Intermediate CP, Spec is not an operator.
sion in embedded clauses. The operation of Subject-Aux Inversion entails movement of the auxiliary into the embedded COMP so it follows that if the medial-Wh is in COMP (not Spec) position, it should not be possible to generate a medial-Wh question with Subject-Aux inversion in the embedded clause. If Subject-Aux inversion occurs, a medial-Wh should not be possible. This prediction was borne out in one production from Jennifer, at 3:6. In all but one of her subject extraction questions, she use a complementizer or a medial-Wh. In the one question without an overt medial-Wh or complementizer in the CP, she inverted in the embedded clause, as shown in (161).

(161) Jennifer 3:6

What do you think really is this?

Another child, Amber, filled the CP less regularly in her long-distance questions, 7 out of 19 times. On two occasions when she didn’t use a complementizer or medial-Wh, she inverted in the embedded clause, as shown in the following dialogue with the experiment playing the rat puppet:

(162) Child: What do you think’s this?
Rat: Ask me that again.
Child: What do you think is this in here?

While these data are not proof that the medial-Wh is a complementizer, it certainly supports this viewpoint.

In the course of discussion, however, children’s medial-Wh questions have been likened to the Wh-copying structure in German and Romani. The question to ask at this point, then, is whether the medial-Wh is in Spec of CP, or whether it is an agreeing complementizer. This is a matter of debate but the standard assumption, and that made by McDaniel (1986) is that the Wh-word is in Spec of CP. In the discussion that follows, however, I will set this issue aside, and will assume the first analysis, that the medial-Wh is an agreeing complementizer.

Converging on the Adult Grammar

The next step is to chart the path to the adult grammar taken by children who ask exceptional questions. In the early stage, we have observed that children use an overt form in both subject and object extraction questions. According to the present proposal, this is because they think Spec-Head agreement is obligatory. Later, they use this form only in subject extraction. Presumably, children have discovered that Spec-Head agreement is optional, and apply it only when it is required to satisfy the ECP. Finally, they abandon the overt form entirely, and use the adult question form. It remains to indicate how these last two stages are achieved on the basis of positive evidence. On the account I will give, some children may converge on adult grammar in one step, while others may proceed through both stages, depending on the nature of the positive data they receive.

What data could cause the child to proceed to the adult grammar in one fell swoop? One possible datum would be adult subject extraction questions. The theory of Universal Grammar informs children that in these questions the agreeing form of the complementizer is necessary for satisfaction of the ECP. Therefore, if they encounter subject extraction questions, there is no option but to recognize that the [-Wh] agreeing form of the complementizer is covert, not overt. Since children have presumably marked their own choice as hypothetical,
i.e., with "orphan nodes," it is abandoned in favor of the adult form. Uniqueness guarantees that the incorrect form is purged from the lexicon, although it could be readmitted if it turned out that there really was an option in the adult grammar.\textsuperscript{177}

A different set of observations about the positive data could lead the child to take an added step in which the overt complementizer is used only in subject extraction. One datum that could induce this step could be adult omissions of an overt complementizer in their object extraction questions. In this case, the child has the option of deciding that Spec-Head agreement is not obligatory, but is optional. On this account, children would not be using the absence of the expected overt complementizer in environments where it was expected as evidence that they had the wrong form. So they would not amend their hypothesis to state that, where Spec-Head agreement is required, the zero complementizer is the agreeing form. Rather, the data simply lead them to realize that Spec-Head agreement is not needed in object and adjunct questions after all. Since Universal Grammar will continue to inform children that Spec-Head agreement is necessary for subject extraction questions, they will continue for a time to use an overt complementizer (the form they think is the appropriate [-Wh] agreeing

\textsuperscript{177} There is a second, less likely, way that children might move directly to the adult grammar. It is possible that they could use the presence of the overt complementizer in declaratives as the basis to infer that a covert form is needed for Spec-Head agreement. On the learnability scenario I have offered children initially hypothesize that there is a unique [-Wh] agreeing form of complementizer, and that the same form cannot also be used as the non-agreeing form. Given this assumption of Uniqueness, they could take the observation that an overt complementizer can be a non-agreeing form as evidence that it is not also the agreeing form. This scenario is less likely, though, because adults do not generally use overt complementizers in their declaratives.

form) obligatorily in subject extraction questions, until they encounter the necessary positive data, as discussed above.

This two-step process was observed in the productions of two of the older children who participated in the study eliciting Crossover structures. In their object extractions, these children either used that or a null complementizer, but in their subject extraction questions, they always used a medial-Wh, the overt form they took to indicate Spec-head agreement.\textsuperscript{178},\textsuperscript{179}

(163) \textsuperscript{Leigh 4.11}

\begin{tabular}{l}
Object Extraction \hline
Who does he think that Snuffy painted? \\
Who does he think that...who...that the dog licked? \\
Who do they think that the dwarfs licked? (repeated) \\
Subject Extraction \hline
Who do they think who gets the ice creams? \\
Who do they say who gets the two marbles? \\
Who do they think who gets the two pet teddy bears? \\
\end{tabular}

(164) \textsuperscript{Shaun 5.9}

\begin{tabular}{l}
Object Extraction \hline
Rat, who does he think that the dog licked? \\
Who does the teddy think @ Snuffy painted on? \\
Which do you think & they pushed out of bed? \\
Subject Extraction \hline
Who do they think who has the blue marble? \\
Who do they say who had ants in their pants? \\
Who does the teddy think who loves to eat ants?
\end{tabular}

\textsuperscript{178} We can assume that these children who use a medial-Wh for a [-Wh] agreeing complementizer have concluded, on the basis of positive data, that both that and the null complementizer are non-agreeing forms.

\textsuperscript{179} Unfortunately, these children had not been tested prior to the study eliciting Crossover questions, so it is not possible to confirm the projected earlier stage of medial-Wh use in object and subject questions. One of the children, Leigh, was tested again at 5\textsuperscript{th} grade, and it was found that she had progressed to the adult grammar.
To make the final step to the adult grammar, these children must notice that adults do not use the covert form in subject extraction questions. This would inform them that the null complementizer is the adult agreeing form.

In charting the path to the adult grammar, we have relied on the assumption that there is a unique agreeing form of the [-Wh] complementizer. This was necessary to ensure that the child won’t overgenerate and will only be able to use alternative forms if there’s positive evidence for each alternative in the input. On the other hand, if the assumption of Uniqueness was not made, then children could guess that the agreeing form in long-distance subject extraction questions could be optionally either overt or covert. Then they would not encounter evidence to tell them that this was incorrect.

Now we are in a position to address experimental findings that are not entirely consistent with the syntactic account I have given. In Chapter II it was observed that several children used the adult null agreeing form most of the time, but used the occasional non-agreeing form. As an example, consider Peter M (5;1) (see Figure 3 for the data). Peter produced 11 subject extraction questions, 10 of which were correct adult forms, but one question exhibited an overt complementizer. If this aberrant question was indication that he thinks both forms are agreeing forms, he should continue to produce ECP violations all his life. Since longitudinal data have shown that children pass through the stage of producing exceptional questions, this clearly cannot be the reason why the occasional complementizer appears. My proposal is sometimes children regress to an earlier hypothesis. In the present case, this would entail that at an earlier stage Peter used the overt complementizer in his long-distance questions.

The same explanation – that a form from an earlier stage of grammar may appear in some circumstances – is not invoked to explain data from children like Jennifer, who at age 3;6 vacillated between the overt medial-WH and an overt that complementizer. We can assume that Jennifer had decided that, in contrast to the non-agreeing form, the agreeing form of the complementizer for use in long-distance questions should be overt. In this case, I would assume that Jennifer hasn’t yet managed to form a firm hypothesis and is simply randomly accessing lexical items that are candidates for the agreeing form. Not surprisingly, this kind of vacillation may extend for months or even years if data to resolve the selection process is not forthcoming. For example, Jennifer was still vacillating between these forms when she was when tested at 4;11. Two months later, at 5;1, she had settled on the overt complementizer. It was not until 5;8 that the complementizer was eliminated altogether and she attained the adult grammar.

This concludes our analysis of children’s that-questions and medial-WH questions. Questions of both kinds are interpreted not as violations of the ECP, but as the result of children’s efforts to satisfy it. The next two sections provide further support for this analysis of these exceptional questions. The next section begins the argument by showing that despite their differences in question formation, both a medial-WH child, Kelly, and a that-question child, Sarah, pattern alike in their treatment of relative clauses. These data are interpreted within Rizzi’s (1990) formulation of the Spec-Head agreement rule in relative clauses.
Relative Clauses

In this chapter, children's exceptional medial-Wh and that-questions have been analyzed as indicating ECP preservation: proper head government of a subject trace. Given that subject relatives also have a subject trace that must be properly head governed, it is worth investigating whether children treat them the same way. Relative clauses such as "The ball that fell on the floor" are reported anecdotally as occurring (Menyuk 1969; Radford 1988), so one might wonder whether these productions occur systematically in the speech of children with the medial-Wh grammar, or whether they can be dismissed as rarely occurring performance errors.

In the theoretical section we saw that subject extraction questions with an overt complementizer were deemed ungrammatical because the complementizer that is unable to carry the Agr features necessary to license it as a proper head governor. But as Rizzi points out, the analysis is immediately called into question by relative clauses, which exhibit exactly the opposite pattern. In relative clauses, that is apparently a proper head governor of the subject trace, while $\theta$ is not. The conflicting paradigms are shown below:

(165) What do you think $\theta$ happened?
    #What do you think that happened?
(166) the thing $\theta$ [t happened] is terrible
     the thing that [t happened] is terrible

The difference in the two paradigms is particularly striking because both in subject extraction questions and subject relatives, Spec-Head agreement is realized on a COMP specified [-Wh].

According to Rizzi, some languages, such as French and West Flemish use a C with the same form in both questions and relative clauses, as is illustrated for French:

(167) La chose qui t est arrivée est terrible
     "The thing that has happened is terrible"
     Que crois-tu qui t est arrivé?
     "What do you think that has happened?"

Other languages have a special form that distinguishes the complementizer used in relative clauses and the one used in questions. A different form surfaces for relative clauses in Swiss German (wo); in Modern Hebrew (tasher) and in Scandinavian (som) to cite a few from Rizzi. Observing that some languages have a special C for relative clauses, Rizzi extends the generalization to English, pointing out that the form for relatives that contrasts with $\theta$, the form used in questions extracting from embedded clauses. These two forms do distinguish by a feature [± pred] in addition to the [±Wh], feature already discussed.

This gives four possible feature combinations (from Rizzi p.68):

(168) [±Wh, -pred] (I wonder) what $\theta$ [you saw t]
     [±Wh, +pred] The thing which $\theta$ [you saw t]
     [-Wh, +pred] The thing Op. that # [you saw t]
     [-Wh, -pred] (I know) that # [you saw it]

Taking into account arguments to suggest that a complementizer can't agree with a null operator, Rizzi suggests that instead of agreeing with its A'-specifier, in

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160 The reader may remember that data from Nordgard showed that in dialects of Norwegian, the complementizer som can optionally be used as the agreeing complementizer in long-distance questions. So, in these dialects, som isn't exclusively the complementizer for relative clauses.
relative clauses the COMP agrees with its "subject of predication", the head noun
in A-position:

(169) The ball fell on that [t, rolled to the floor].

The [± Wh] [± pred] feature system can be exploited to rule out co-occurrence
of an overt Wh-operator and an overt complementizer, a combination traditionally
handled by the "Doubly Filled Comp" filter. Relative clauses like "The thing which
that I saw" which were acceptable in Middle English, but are ungrammatical in
Modern English, can be handled by disallowing an inconsistent feature between
a Spec and its head. The relative pronoun "which" in the CPSpec has the features
[+ Wh, + pred], and the complementizer "that" in the head position has the
features [-Wh, + pred]. It is not clear why this proposal of Rizzi's does not also
rule out examples like "I wonder what O you saw", however. It appears that the
Wh-phrase and the null complementizer would be assigned conflicting features.
The Wh-phrase "what" would receive the feature [± Wh], and the null comple-
mentizer in the head would be assigned [-Wh]. Whatever the explanation for the
lack of Doubly Filled Comps in English is, suffice it to say that none of the chil-
dren produced questions with an overt Spec and an overt complementizer.161
Turning to relative clauses, the sample of data collected clearly indicates that
medial-Wh children differentiate between the agreeing complementizer in a rel-
ative clause, and the agreeing complementizer in a long-distance question. A
particularly clear illustration comes from data collected from Dora in the Cross-
over elicitation experiment. In her endeavor to produce long-distance Crossover
questions she produced a variety of structures (e.g. topicalization) including rel-
ative clauses, always with the complementizer that. These contrasted with her
questions extracting from subject position in which she always used the neutral
medial-Wh form which.

(170) Dora 3;9

Was that the one, were the ones that, the ones that liked the peas, 
those two, are those these?

Which one was the one that was painted on the bottom?
Which one did he guess which was the one that was painted?

The guys that have the teddy bears, which were those?
Which guys did they say which had the marbles, I mean the teddy
bears?

Which two guys did they say, that, the guys that have the blue
marbles?
Which guy did they say which had the marble, the red, the orange
marble?

Which guys did they say which was pink, the ice cream, who wore
the guys that ate the pink ice cream?

Likewise it can be seen that Kelly, a medial-Wh child, and Sarah, who produces
that-questions, both produce grammatically correct relative clauses. Kelly does
not use a medial-Wh, as one might expect if the Spec-head agreement rule in
relative clauses was identical to that in long-distance questions. Instead of a
medial-Wh, in her relative clauses Kelly used the complementizer that.

(171) Sarah 3;11

Point to the guy who's talking to the Ninja Turtle
Point to the bear that's looking at the baby (2x)
Point to the bear that the baby is standing on

161 The only cases of "who" and "that" co-occurring were when children were
clearly vacillating between the two forms and couldn't decide which one to
use.
(172) Kelly 3;11

Point to this one that climbed over the strawberry
Point to the little girl that's doing somersaults

These data suggest that anecdotal data reporting relative clauses like "The cookie what fell on the floor" are unrelated to the medial-Wh. The different treatment of Spec-Head agreement uncovered in Kelly and Sarah's relative clauses further supports Rizzi's analysis differentiating the rule of Spec-Head agreement in the two instances. In the final section, I briefly point out some data that cannot be readily accommodated in Rizzi's framework.

A Puzzle

In the follow-up case studies conducted on Kelly and Sarah, a curious asymmetry showed up between questions with 'bare' Wh-phrases like who and what, and those with extraction of a complex Wh-phrase like Which Smurf. Both children realized Spec-Head agreement overtly in questions with bare Wh-phrases but omitted it on every trial in which a "Which N" Wh-phrase was extracted. Examples of Kelly and Sarah's questions follow:182

(173) Kelly 3;11

Which Smurf do you think Ø is holding the toothbrush?
Which baby do you think Ø have the bottle?

(174) Sarah 3;11

Which pig do you think Ø chased the pig?
What Smurf do you think Ø is wearing roller skates?
Which one do you think Ø can't stand up?
Which horse do you think Ø can move his head?
Which Batman do you think Ø is the real Batman?

The lack of a medial-Wh, in the case of Kelly, and of an overt complementizer in Sarah's case suggests that Spec-Head agreement has not taken place. This conclusion is at odds, however, with our predictions following from Rizzi's version of the ECP. According to Rizzi's ECP, Spec-Head agreement is obligatory in all subject extractions, whether the extracted Wh-phrase is a complex Wh-phrase or a bare Wh-phrase, so the expectation would be that the medial-Wh or complementizer should appear.

One possibility is that these questions with extraction of Which N are exotic data which trigger progression to the adult grammar. For medial-Wh children like Kelly, at least, this is a likely source of data. Recall that with Which N long-distance questions, the identical Which N phrase cannot occur in the medial position, and so children who use medial-Whs are forced to use an alternative structure. This may be the circumstance in which children reassess the positive data and realize that the correct agreeing complementizer is, in fact, null. For the moment, I have no further explanation of these data.

182 These are the only two "Which N" questions that were elicited from Kelly before her grammar changed, and the number of medial-Wh questions (as opposed to adult questions) decreased dramatically.