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**Principle B, VP Ellipsis, and  
Interpretation in Child  
Grammar**

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# Chapter 1

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## Introduction

### 1.1 The Framework

This book examines children's interpretation of pronouns. The investigation is carried out within the theory of Universal Grammar in the generative framework (Chomsky 1981, 1986, 1995). A basic tenet of this theory is that much linguistic knowledge is part of the child's genetic makeup, leading to the expectation that this knowledge will be manifested in all the world's languages—that is, that it will be “universal.” This knowledge is encoded in the form of universal principles. These principles help to explain the fact that any normally developing child can learn any natural language. Moreover, they help to explain other aspects of language development—for example, the fact that language acquisition proceeds at a characteristic pace, outdistancing other complex cognitive abilities, and the fact that children make few errors in the course of language development, considering the vast number of logically possible errors that could occur.

In the principles-and-parameters model of Universal Grammar, it is also maintained that certain aspects of language variation are encoded in the biological endowment of the species. More specifically, Universal Grammar endows each child with a number of parameters that account for language variation. These parameters can take different values within children's grammars depending on the language to which they are exposed.

Among the innate linguistic principles assumed by the theory of Universal Grammar are a set of properties known as the binding theory. These properties will be the focus of this book. Since Aristotle, language has been viewed as a mapping between sound and meaning. Within sentence grammar, the relevant mapping is between sentences and their

associated meanings. The principles of the binding theory constrain this mapping in two ways. First, they establish well-formedness conditions on sentences that contain noun phrases. Second, they place limitations on the range of interpretations that sentences with different kinds of noun phrases can and cannot have. In some instances, the binding principles exclude interpretations that might otherwise be expected to be assigned to sentences, given the range of meanings that can be assigned to related sentences. Our concern in this book is children's knowledge of the range of interpretations for three kinds of sentences that fall under the auspices of the binding theory: sentences with ordinary pronouns, ones with referring expressions, and ones in which a verb phrase has been elided.

An important assumption of this research is that the architecture of the language faculty is modular; in other words, the language module is "sealed off" from other cognitive systems (see Fodor 1983; Crain and Steedman 1985). On this view, the grammar cannot be influenced by performance factors, in most circumstances. Of course, even adults can be exposed to circumstances that cause them to fail a particular task. However, performance factors mask children's (and adults') grammatical knowledge for the most part only when they are tested in infelicitous circumstances. Thus, we reject a view in which the child's response in an experimental situation is taken to reflect a composite of competing factors of which the grammar is only one factor among many (for a critique of this view, see Crain and Thornton 1998; Crain and Wexler 1999). Our assumptions about modular architecture also put our approach at odds with psycholinguistic approaches such as that of Fodor, Bever, and Garrett (1974), which view children's linguistic behavior as the by-product of "strategies," for example.

On a modular view of the language faculty, the architecture of the grammatical system is invariant; information from the incoming speech stream is fed to the syntactic component. The output of the syntax is in turn fed to the semantics. The principles and parameters of Universal Grammar are housed within this architecture. Extending the view that linguistic knowledge is innately given, we also assume that children have access to a sentence-processing mechanism, a parser, that is uniform across the species. The parser transfers information from one component to the other and resolves ambiguities that arise within the syntactic and semantic components. So, we make the twofold assumption that the properties of Universal Grammar and the properties of the parser do not differ for children and adults. That children and adults have a common set of parsing principles is another assumption that is not shared by all

language acquisition researchers who work within the generative tradition. We take this to be the null hypothesis, however, in light of the learnability problems that would otherwise ensue. If children and adults have different parsing systems, for example, then we would have to ask how the child system changes so as to converge on the adult system.

Another difference between our approach and that of others in the field is methodological. We seek to investigate children's grammatical knowledge through experimental means, rather than relying on transcripts of their spontaneous speech, for example. Experimental techniques are now refined enough to be able to separate children's linguistic competence from the vagaries of performance, revealing their grammatical knowledge in many domains, including both syntax and semantics. One method that has been particularly successful at testing children's grammatical knowledge is the truth value judgment task (see Crain and McKee 1985 for the earliest use of the task, and Crain and Thornton 1998 for extended discussion of its design features).

The truth value judgment task is ideally suited to testing constraints such as the principles of the binding theory. In this task, events are acted out for children with toys and props in real time. Provided that rigorous attention is paid to methodology, nonadult behavior, should it be uncovered, cannot be ascribed to experimental artifacts; some other account for the behavior must be sought. A version of the truth value judgment task is used in this book to evaluate the interpretations children allow pronouns to have in a range of matrix and VP ellipsis sentences. In several instances, children's linguistic behavior is found to differ from that of adults. Therefore, much of the resulting discussion concerns the differences between children's and adults' linguistic knowledge.

According to the model of the language faculty we have outlined, children's nonadult responses in an experimental task should not be relegated to failure of the language-processing system, whenever possible. That is, every attempt is made to avoid exonerating the grammar of responsibility for children's nonadult behavior by laying the blame within their performance system. This is motivated by our supposition that children and adults share the same (universal) parser. In the absence of an articulated theory of the parser, blaming the parser for children's nonadult responses is a "nonexplanation." Worse still, learnability of properties of the parser becomes an issue: How does the child make the transition from a nonadult parsing system to an adult one?

This is not to say that the processing system has no place in explaining behavior uncovered in linguistic experiments. Where it is relevant, how-

ever, it will be a source of explanation for the performance of both children and adults. In this book, we will appeal to the processing system to explain both children's and adults' responses to experimental items governed by one of the binding principles, Principle C. Given that failure of the language processor cannot be used to explain *differences* between children and adults, however, our approach is to seek an account of children's nonadult behavior elsewhere.

One avenue for explaining young children's nonadult linguistic behavior is to invoke the grammar itself. Given the assumption that children are equipped with the principles of Universal Grammar, however, the kinds of grammatical mechanisms to which the variation between children and adults can be attributed is severely limited. These limits are dictated by the Strong Continuity Hypothesis (see Hyams 1986; Pinker 1984; Poeppel and Wexler 1993; Wexler and Culicover 1980), according to which children's grammars can differ from their target grammar only in those ways in which the grammars of different languages differ from each other. For example, an English-speaking child's grammar may reflect a parameter setting that is appropriate for some language other than English. In this case, the child's task is to identify the triggers, the data that express the "cues" for correct setting of the target language parameters (see Gibson and Wexler 1994; Lightfoot 1998).

Another possible source of differences between child and adult language is compatible with a slightly weakened version of the Strong Continuity Hypothesis: namely, that the principles of Universal Grammar remain intact, but specific grammatical operations undergo maturational change, becoming operational only at some later age (e.g., Borer and Wexler 1987, 1992; Radford 1990; Rizzi 1993; Wexler 1999). Still another possible source of difference is consistent with the architecture we are assuming: namely, that although the principles of Universal Grammar remain intact and operational, children differ from adults in pragmatic, or real-world, knowledge. This is the approach to children's nonadult behavior developed in some earlier research on the binding theory (e.g., Chien and Wexler 1990; Wexler and Chien 1985), and it is the approach we extend in this book.

## 1.2 Constraints and Negative Evidence

The technical implementation of the binding theory has changed as the theory of generative grammar has evolved, and it is still in flux as the

Minimalist Program is being developed (Chomsky 1995; Hornstein 1995; Uriagereka 1998). The exact implementation of the binding principles is not crucial to us, however. What is crucial is that the binding theory, however formulated, is part of the language apparatus and, presumably, part of children's innate knowledge. For our purposes, the following definitions of the binding principles will suffice to illustrate how they prohibit certain interpretations of sentences (see Chomsky 1981). The three principles deal separately with (1) reflexive and reciprocal phrases (e.g., *himself*, *herself*, *each other*), (2) pronouns (e.g., *him*, *her*, *they*), and (3) names or referring expressions (R-expressions) (e.g., *John*, *the table*).

(1) *The binding theory*

a. *Principle A*

A reflexive must be bound in its clause.

b. *Principle B*

A pronoun must be locally free (not bound).

c. *Principle C*

An R-expression must be free.

According to Principle A, a reflexive must have an antecedent in the same clause that both c-commands it and is coindexed with it. Consider the examples in (2).

(2) a. John<sub>i</sub> laughed at himself<sub>i</sub>.

b. \*John<sub>i</sub> said that Mary<sub>j</sub> laughed at himself<sub>i</sub>.

Sentence (2a) manifests the requirements of Principle A: the antecedent is in the same clause and c-commands the reflexive. In (2b), the reflexive has a c-commanding antecedent that is coindexed with it, but the antecedent is not local enough; it is not in the same clause as the reflexive. Therefore, (2b) violates Principle A and is deviant on the indicated interpretation; in other words, Principle A prevents (2b) from meaning that John said that Mary laughed at John. In this particular case, not only does Principle A rule out an illicit interpretation of the sentence; the sentence form itself is ungrammatical.

The examples in (3) illustrate facts relevant to Principle B.

(3) a. \*John<sub>i</sub> laughed at him<sub>i</sub>.

b. John<sub>i</sub> laughed at him<sub>j</sub>.

c. John<sub>i</sub> laughed at his<sub>i</sub> joke.

d. John<sub>i</sub> said that Mary<sub>j</sub> laughed at him<sub>i/k</sub>.

e. John<sub>i</sub> said that he<sub>i/k</sub> laughed at Mary<sub>j</sub>.

In (3a), the pronoun is coindexed with a local c-commanding antecedent, where *local* means 'in the same clause'. The example is ruled out by Principle B because a pronoun may not have a local antecedent. Instead, the pronoun must refer to some other individual, as shown by the indexing in (3b). The differing indices on the pronoun and the name are usually interpreted as meaning that the two noun phrases (NPs) do not have the same reference; they are disjoint in reference. Thus, *John laughed at him* is a grammatical sentence form, but it cannot have the meaning in which John laughs at himself (cf. (3a)). In (3c), however, the pronoun may have an antecedent in the same clause. In this sentence, it is the larger NP *his joke* that counts as the local domain for Principle B. Since the pronoun is free within this NP, it can be coreferential with a higher c-commanding coindexed NP in the same clause, such as *John*. The pronoun is also free in (3d) and (3e), where its antecedent is in a higher clause. In structures of this sort, the pronoun may refer to an antecedent in the higher clause or to some individual not mentioned in the sentence, as shown by the indices.

In contrast to reflexives and pronouns, names (and other R-expressions) cannot have a coindexed, c-commanding antecedent at all. This observation is captured by Principle C, as illustrated in (4).

- (4) a. \*He<sub>i</sub> laughed at John<sub>i</sub>.  
 b. \*He<sub>i</sub> said that Mary<sub>j</sub> laughed at John<sub>i</sub>.  
 c. He<sub>k</sub> laughed at John<sub>i</sub>.  
 d. He<sub>k</sub> said that Mary<sub>j</sub> laughed at John<sub>i</sub>.

Examples (4a) and (4b) show that the locality of the antecedent is not a factor. Whether the antecedent is in the same clause or a higher clause makes no difference; coreference between the name and the c-commanding pronoun is ruled out. Principle C rules out an interpretation of (4a) in which John laughs at himself, and an interpretation of (4b) in which John said that Mary laughed at John. In both examples, the pronoun must refer to an individual not mentioned in the sentence, as shown by the indices in (4c) and (4d).

The principles of the binding theory are often called *constraints* because they impose limits on the sentence forms and meanings that can be generated by the grammar. Constraints have assumed a central position in theories, such as Chomsky's theory of Universal Grammar, that endow the child with innate knowledge of syntactic properties. This is because the information conveyed by constraints is unlikely to be learned. Notice that constraints, by their nature, are negative statements, in the sense that they

decree which interpretations or sentence forms are *not* permitted in languages. Assuming that the linguistic input to children does not inform them about sentence forms and meanings that are not in the language (i.e., does not give them negative evidence), it is unlikely that constraints are learned on the basis of experience. The alternative is to suppose that they are innately specified as part of Universal Grammar. As illustration, consider the examples in (5).

- (5) a. Every bear is washing her face.  
b. Every bear is washing her.

Example (5a) is ambiguous. Two interpretations immediately come to mind. On one interpretation, every bear is washing her own face. On the other, every bear is washing someone else's face. Both interpretations are confirmed by positive evidence. That is, children will hear this sentence (or similar ones) uttered in different contexts appropriate for each meaning. For example, a child might see several bears washing their (own) faces and simultaneously hear a speaker utter (5a) as a description of the situation. On a different occasion, the child might see several bears washing someone else's face and hear a speaker utter (5a) as a description of this situation.

By contrast, (5b) has only one interpretation for which there will be positive evidence. The child encounters a sentence like this in the context in which every bear is washing someone else. The question is, what prevents a child from assuming, by analogy with (5a), that (5b) has another interpretation, namely, that every bear is washing herself? This interpretation is ruled out by Principle B. The availability of this meaning is neither confirmed by positive evidence, nor disconfirmed by it. As noted earlier, it is reasonably safe to assume that children lack relevant information from the environment concerning the meanings that sentences cannot have. Accordingly, they have no way to learn from experience that (5a) cannot mean that every bear is washing herself. By inference, children acquire this information from a different source; they are innately endowed with it by Universal Grammar.

The assumption that negative evidence is not available to children is crucial to the argument that linguistic principles, such as the principles of the binding theory, are innately specified (Wexler and Hamburger 1973). Various studies have investigated this issue. On the basis of these studies, we feel justified in concluding that negative evidence is not used in the acquisition of the binding principles. The consensus seems to be that not

all children are regularly informed about what sentences are ill formed or about what sentences cannot mean (see Marcus 1993 for a detailed review of the literature). If negative evidence is the means by which children converge on the adult grammar, then it must be available to all children, and be available in abundance. The evidence weighs heavily against this conclusion. Therefore, the inference we draw, as so many others do, is that the only source of the knowledge that is embodied in linguistic constraints is the child's inborn grammatical knowledge.<sup>1</sup>

One might go on to ask whether children receive some form of indirect negative evidence. For example, one might imagine that parents and other caretakers systematically recast or show signs of misunderstanding children's nonadult utterances. However, there is little empirical support for the idea that indirect forms of negative evidence are available or used in the course of language development (see Hirsh-Pasek, Treiman, and Schneiderman 1984; Morgan and Travis 1989; Wexler and Culicover 1980).

### 1.3 Children's Interpretation of Pronouns

We are now in position to adjudicate between the predictions of the theory of Universal Grammar and those based on learning-theoretic models of the acquisition of linguistic knowledge. As noted, the theory of Universal Grammar maintains that the knowledge that (5b) cannot mean that every bear is washing herself, for example, emerges from an innately specified principle of grammar (Principle B). If so, then children should be expected to demonstrate knowledge of this principle as soon as they have learned the relevant lexical items and as soon as they can be tested in a satisfactory way (maturation of nonlinguistic knowledge). On the other hand, if the knowledge about what meanings can and cannot be assigned to sentences like (5a) and (5b) is a product of children's experience, then errors are expected, as children test and refine hypotheses in an effort to converge on the adult grammar. The child might, by analogy with (5a), assume that the pronoun can be anaphorically related to *every bear* in (5b). In part because the Universal Grammar-based model and learning-theoretic models make different predictions about the course of acquisition, children's knowledge of constraints has been a fertile area of research in child language.

Many studies have tested children's knowledge of the binding theory. For the most part, these studies have revealed children's knowledge to be

in line with the predictions of Universal Grammar; that is, for the most part, children have been found to adhere to Principles A and C. Principle B, however, stands out as an empirical problem area. Specifically, some children have been found to allow a nonadult interpretation of sentences like (6). Although ruled out by Principle B, an illicit reading of (6), according to which Mama Bear washes herself, is often accepted by children.

(6) Mama Bear is washing her.

If children have innate knowledge of Principle B, then the fact that some children accept an interpretation that adults do not assign raises a language learnability puzzle (see, e.g., Wexler and Chien 1985; Manzini and Wexler 1987; Montalbetti and Wexler 1985; Wexler and Manzini 1987). How do children abandon this illicit interpretation, so as to converge on the adult grammar, in the absence of negative evidence?

There were hints about the relevant empirical phenomenon in earlier studies, but the first systematic reports of children's nonadult interpretation of sentences governed by Principle B are due to Jakubowicz (1984) and Wexler and Chien (1985). Jakubowicz (1984) suggested that the error in interpretation arises because children miscategorize pronouns as reflexives. As part of their study on the learning of binding parameters, Wexler and Manzini (1987) showed that Jakubowicz's hypothesis did not handle certain facts: for example, the same children who permitted a nonadult interpretation of sentences like (6) also permitted an interpretation according to which the pronoun referred to an individual not mentioned in the sentence. This deictic interpretation is not possible for reflexive pronouns (but see McKee, Nicol, and McDaniel 1993, which reports findings showing a small number of children did allow deictic interpretations of reflexives).

Studies by Wexler and Chien (1985) compared children's acquisition of Principles A and B. These studies showed that by no later than age 4, children responded correctly to sentences governed by Principle A. Since Principle A seems as abstract and difficult to learn as Principle B, the recalcitrant data on Principle B were a real puzzle. Moreover, Wexler and Chien's study showed that children's correct responses to Principle A sentences increased in the way one would expect if young children (at age 2;6, for example) had difficulty with the experiment but knew the principle. By contrast, behavior on Principle B constructions remained remarkably flat over a period of 4 years. There were divergent curves in the distributions of responses by children to sentences governed by Prin-

ciples A and B. This suggested that lack of mastery of the principle may have been responsible for children's responses, not difficulty with the task. However, even in this very first presentation of the data, Wexler and Chien argued on learnability grounds that children probably knew Principle B. They also offered an alternative account of the errors and proposed tests to examine the question experimentally.

Over a number of years, a scientific drama played out. For language learnability reasons, most researchers have continued to assume that children have knowledge of the binding principles, including Principle B, and have sought alternative explanations for the way in which children interpret pronouns in syntactic configurations governed by Principle B. Wexler and Chien focused on the pragmatic conditions associated with the interpretation of pronouns. This led to a series of empirical investigations, the results of which consistently showed that children apparently lack knowledge of Principle B but do have knowledge of Principles A and C. These studies looked closely at the pragmatic conditions that accompany pronominal use and considered other formulations of the binding theory, beyond that given above. In chapter 2, we examine some of these investigations.

#### 1.4 Further Interpretations of Pronouns

Partly as a result of the findings from these experimental investigations of child language, linguists and psycholinguists realized that more distinctions were needed concerning the possible interpretations for sentences like (6), repeated here, and sentences like (7). Consider the possible interpretations of (7).

(6) Mama Bear is washing her.

(7) Mama Bear is washing her face.

As with (5a), two interpretations of (7) immediately come to mind: one in which Mama Bear is washing someone else's face, and one in which she is washing her own face. It turns out that in order to make headway on the puzzle of why children allow (6) to have an illicit meaning, three interpretations that can be associated with (7) need to be distinguished. The three interpretations are given in (8). In an attempt to make the intuitions clearer about how these interpretations come about, we use arrows and initials as an informal way of indicating the real-world referents of the NPs.

(8) Mama Bear is washing her face.

a. Mama Bear is washing her face (deictic)



b. Mama Bear is washing her face (coreference)



c. Mama Bear is washing her face (bound variable)

Mama Bear ( $\lambda x$  ( $x$  is washing  $x$ 's face))



The interpretation on which the pronoun refers to an individual not mentioned in the sentence is called the *deictic* interpretation. In (8a), this is the interpretation on which Mama Bear washes, say, Snow White's (SW) face. The interpretations given in (8b) and (8c) are difficult to tell apart, because these interpretations yield the same truth conditions. Both interpretations express the proposition that Mama Bear is washing Mama Bear's face. The syntax gives rise to these truth conditions in different ways, however. On the *coreference* reading in (8b), the pronoun picks out Mama Bear (MB) as its referent. By contrast, in (8c) the pronoun is interpreted as a *bound variable*; that is, it is bound by a lambda operator. The lambda expression is a function that takes individuals as its argument. Its denotation is a set, namely, the set of individuals who wash their own faces. When this function is applied to an argument, in this case the NP *Mama Bear*, the result is a proposition that is true if Mama Bear is in that set of individuals, and false otherwise. The bound variable reading is only possible if the pronoun is c-commanded by its antecedent, as it is in (8).

Let us return now to example (6), where Principle B is operative. So far, we have suggested that these sentences have only one possible interpretation, on which the pronoun is used deictically. This will change shortly. For now, we will assume that the coreference reading is excluded by pragmatic rules. (We will expand on this in chapter 2.) The bound variable interpretation is excluded by Principle B. The potential range of interpretations for (6) is illustrated in (9).

(9) Mama Bear is washing her.

a. Mama Bear is washing her (deictic)



- b. \*Mama Bear is washing her (coreference)  
       ↓                                  ↓  
       MB                                  MB
- c. \*Mama Bear is washing her (bound variable)  
       Mama Bear ( $\lambda x$  ( $x$  is washing  $x$ ))  
       ↓  
       MB

At this point, it becomes relevant to consider the antecedent of the pronoun. The antecedent can be a name (i.e., a referential NP), as in (9). It can also be a quantificational expression, as in (10) below. This distinction is important because when quantificational NPs are the antecedents of pronouns, one reading—the coreference interpretation of the pronoun—is eliminated. We explain why in the next section.

### 1.5 The Antecedents of Pronouns

We have described three interpretations of pronouns. First, a pronoun may be used deictically to refer directly to an individual or set of individuals. Second, a pronoun may be interpreted as referring to an individual (or set) that has been introduced by a preceding NP. In both of these cases, the pronoun comes to pick out an individual (or individuals) as its referent. Third, a pronoun may be interpreted as a bound variable. In this case, despite being anaphorically linked to an antecedent, a c-commanding quantificational NP, a bound pronoun does not inherit any individual as its reference: because quantificational NPs do not have inherent reference, they are incapable of transmitting a referent to the variables (bound pronouns) that they bind.

The lack of inherent reference of quantificational NPs is perhaps best illustrated by those with the determiner *no*, such as *no bear*. In a sentence like *No bear is washing his face*, the NP *no bear* is clearly not referential. Therefore, the pronoun it binds cannot pick up a referent. The same holds for universally quantified NPs (e.g., *every bear*), as the logical form of sentences containing such NPs indicates. Consider the example *Every bear is washing her* in (10). The deictic interpretation is illustrated in (10a). Here, the pronoun refers to an individual, Snow White (SW). The pronoun cannot make reference to an individual or set of individuals in (10b), however. It cannot corefer with the NP, because there is no set picked out by the NP *every bear*.<sup>2</sup> The same is true of the bound variable interpre-

tation in (10c). The NP *every bear* is the antecedent of a conditional statement to the effect that if anything is a bear, then it is washing itself.

(10) Every bear is washing her.

a. Every bear is washing her (deictic)

↓  
SW

b. \*Every bear is washing her (coreference)

c. \*Every bear is washing her (bound variable)

$\forall x (\text{bear}(x) \rightarrow x \text{ is washing } x)$

The distinction between referential NPs and quantificational NPs turns out to be important for the study of child language because it allows us to probe the source of children's misinterpretations of sentences like *Mama Bear is washing her*. Wexler and Chien observed in their 1985 paper that when children allowed this sentence to have the interpretation in which Mama Bear washes herself, the source of the error was unclear. One possible source of the error is the absence of Principle B. If this is the source of children's nonadult behavior, then they should also accept an illicit interpretation of sentences with quantificational antecedents, such as *Every bear is washing her*.

Another possible source of children's nonadult responses to sentences like *Mama Bear is washing her* is that they could be permitting a coreference interpretation of the pronoun. As noted earlier, we are assuming that in ordinary circumstances, some principle of pragmatics excludes this interpretation, although we will also discuss certain pragmatic contexts in which it is available. The second source of children's nonadult behavior, therefore, could reside at the level of pragmatics, outside the computational system. Wexler and Chien argued that if pragmatics were the source of children's nonadult linguistic behavior, then they should respond in an adultlike manner to sentences such as *Every bear is washing her* with quantificational NPs as the linguistic antecedent for the pronoun. If children did not allow the illicit reading for such sentences, then we could conclude that they were not violating Principle B in response to sentences with referential NPs. Having exonerated the syntax, we would have to look elsewhere, presumably to pragmatics, in seeking an account of children's nonadult behavior.

Chien and Wexler 1990 was the first study to investigate this issue. Other findings are reported by Avrutin and Wexler (1992), Avrutin and Thornton (1994), McDaniel, Cairns, and Hsu (1990), McDaniel and

Maxfield (1992), and Thornton (1990), among others. The experimental finding was that those children who allow illicit readings of sentences like *Mama Bear is washing her* do not allow illicit readings of ones like *Every bear is washing her*.

## 1.6 Overview of the Book: Binding, Coreference, and VP Ellipsis

In the remainder of this chapter, we introduce the ideas on which the rest of the book is based.

### 1.6.1 Chapter 2: Overview of Previous Research

Children's knowledge of Principle B has engendered a great deal of research. The scientific events that have unfolded are noteworthy in several respects. The experimental investigation of children's nonadult responses to sentences governed by Principle B shows that linguistic theory and language acquisition, taken as two parts of the same field (the study of the human language capacity), benefit from the mutually informative interaction between theory and experiment. In chapter 2, we introduce the results of earlier investigations of Principle B, beginning with the study by Chien and Wexler (1990). Then we discuss various interpretations of these results and others represented in the research of Grodzinsky and Reinhart (1993), Grimshaw and Rosen (1990), McDaniel and Maxfield (1992), Avrutin (1994), and Cardinaletti and Starke (1995).

### 1.6.2 Chapter 3: A New Account

In chapter 3, we present our own updated account of children's behavior on sentences governed by Principle B. In brief, we maintain the conclusion originally reached by Chien and Wexler (1990), that children's misinterpretations of pronouns in sentences like *Mama Bear is washing her* are not violations of Principle B but result because children's knowledge of pragmatics is incomplete. As a consequence, children accept coreference between a pronoun and a name, what we will be terming a *local coreference interpretation*, in circumstances in which an adult would not.

What pragmatic knowledge do children lack? Broadly speaking, children appear to have difficulty evaluating other speakers' intentions. This has consequences in both production and comprehension of language. As speakers, children fail to distinguish between their knowledge and that of listeners. They seem to assume that listeners have the same mental model as they do. Children's failure to take the hearer's knowledge (or lack of it) into account explains their inappropriate use of pronouns, for example.