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THE ACQUISITION OF CONDITIONALS IN ENGLISH

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The Acquisition of Conditionals in English

A dissertation submitted in partial satisfaction of the
the requirements for the degree Doctor of Philosophy
in Linguistics

by

Judy Snitzer Reilly

1982

The dissertation of Judy Snitzer Reilly is approved.

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University of California, Los Angeles

1982

For Kate, Jamie and Charles

With love

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"Making the Absent Present: Facilitating the Transition from Sensorimotor to Linguistic Communication" with Zukow, P. and Greenfield, P. To appear in K. Nelson (Ed.) Child Language, Volume III; Gardner Press.

ABSTRACT OF THE DISSERTATION

The Acquisition of Conditionals in English

by

Judy Snitzer Reilly
Doctor of Philosophy in Linguistics
University of California, Los Angeles, 1982
Professor Sandra A. Thompson, Chair

The conditional system in English is semantically and morphologically complex; children start to produce conditionals at about two-and-a-half, but the full system is not mastered until age nine. Due to this extended time period and the complexity of conditionals, a study of their acquisition provides an opportunity not only to examine the growth of conditionals but also to investigate a number of issues pertinent to the general language learning process.

Using Schachter's (1971) semantic model of conditionals I collected longitudinal naturalistic data from three children aged 18 months to four, and cross-sectional experimental data from 28 children aged two to nine.

Results of the study show that the two- and three-year-olds use conditionals to refer to present situations

and to predict probable unrealized contingencies. Even though some twos and all the threes control the simple conditional morphology, they deny subjunctive counterfactual conditionals and relate them to personal experience, e.g. "What if you were a bird?" I'm not a bird, just a people. The fours can use conditionals to refer to events diverging from the real world, and, although the requisite morphology does not apear until eight, they do comprehend hypothetical and counterfactual conditionals. The gains at six, seven, and eight are morphological.

Language skills grow in fits and starts: the acquisition of a structure sometimes precedes and other times follows the acquisition of its cognitive correlate; a child may produce structures he does not fully comprehend, and he can also comprehend structures he cannot produce.

Language and cognition are independent yet interactive systems where cognitive development is basically responsible for the sequence of acquisition, but it is the linguistic complexity of a structure that determines when that structure will appear in a child's grammar; pragmatic and sociolinguistic factors are also influential.

Chapter I: The Problem with Conditionals

Conditional sentences occur in every language; they are a universal phenomenon and their analysis has been discussed and disputed for centuries. Philosophers, linguists and psychologists have offered a variety of explanations and analyses using different logical systems for these structures (Keenan, 1973; Puglielli and Giliberti, 1972; Wason and Johnson-Laird, 1972; Braine, 1978).

Developmentally, conditionals first appear in the child's production at about two and a half or three years old, during the same general time period in which other complex structures appear: complements, relative clauses, and a variety of conjoined structures (Limber, 1973; Bloom et al, 1980). However, conditionals differ from other complex structures in that the child does not acquire the full set of forms which comprise the conditional system until age eight or nine. Although it is not extraordinary for a structure to be used before it is entirely understood, six years is an unusually long time to learn a construction.

Although there are a few studies focussing on specific features of conditional development in Italian, French and English (which will be reviewed in Chapter II) there is, to my knowledge, no longitudinal developmental study

encompassing the whole conditional system. The English system of conditionals is morphologically and semantically complex; it requires a high degree of formal and cognitive sophistication on the part of the child. This complexity, occurring within the well defined limits of the conditional system, plus the extended acquisition period, provides a unique opportunity to examine not only the developmental sequence in acquiring conditionals, but also the interaction of a variety of phenomena contributing to the child's mastery of the conditional system. From both a philosophical and linguistic as well as a developmental perspective conditionals provide a fertile field for investigation.

In this dissertation there are a number of problems I will discuss:

1. When a child acquires the adult conditional system, what does he do, i.e. what is the developmental sequence?; when do the various types of conditionals appear; and how does he master this system?

2. How does the manner and sequence in which children acquire conditionals reflect and/or interact with the adult system and everyday adult usage of conditionals?

3. What does the acquisition sequence indicate about the relationship between language and cognition and about the role of pragmatic and sociolinguistic factors?

4. Given the narrow scope of my investigation, what do the specifics of conditional acquisition tell us about the language learning process in general?

To address these questions, I have collected naturalistic data from children and conducted experimental tasks based on a semantic model of the adult conditional system proposed by Schachter (1971).

To present the findings most efficiently the dissertation is organized in the following way:

The remainder of this chapter is devoted to a description of the adult conditional system. Some problems with an approach based on formal logic are briefly reviewed, and the semantically based description proposed by Schachter is presented.

Chapter II is a review of the relevant child language literature; it includes work on conditionals and later acquisition; especially relevant are studies on complex sentence acquisition.

Chapter III describes the experimental tasks and the naturalistic data collection; Chapter IV presents the results of these tasks with a brief commentary.

Chapter V is a developmental profile. It is a chronological description of pre-conditional and conditional development combining the naturalistic data and

the results from the experimental tasks. Chapter VI proposes an explanation for this developmental sequence.

Chapter VII addresses some general language learning issues from the perspective of conditionals, and Chapter VIII presents the conclusions.

The Syntax and Semantics of Conditionals

A conditional sentence in English consists of a subordinate adverbial clause, the antecedent, which is marked with the subordinator, *if*, and a main clause, the consequent, which may or may not begin with *then*. The basic structure is "If X, then Y" where X is some type of condition on which Y depends. The relationship obtaining between these two clauses has been described as that of logical implication, or entailment. Keenan defines entailment as, "S implies S' just in case S' is true in every world in which S is true" (Keenan, 1978).

In English, it is grammatical for these two clauses to occur in either order if *then* is omitted when the antecedent follows the consequent:

1. If his feet grow longer, (then) his shoes won't fit.

2. His shoes won't fit if his feet grow longer.

There are, however, discourse and narrative principles reflecting temporal constraints, whereby the order in (1) is preferred. Linde (1976) found that for adults in narrative and interview situations, the preponderance of conditionals are non-past, expressing background alternatives or conditions for the main clause proposition. Eighty percent of the conditionals in her data pre-pose the _if_ clause. She attributes this order to the general narrative and discourse principle of clausal order paralleling real world event order.

The remaining twenty per cent of her conditionals use the reverse order as in (2) above. These generally involve a negative or modal, both of which are potential irrealis markers and are claimed to be exempt from the temporal ordering constraint.

Linguists and philosophers have traditionally assumed that the meaning of _if,then_ constructions in formal logic and those of natural language were congruent, both behaving according to the principles of truth functional calculus.

Geis and Zwicky (1971) have suggested that English speakers do not respect a truth-functional analysis of conditionals. They argue, and Fillenbaum (1978) has experimentally confirmed, that in natural language speakers

commit the "fallacy of the negated antecedent", i.e. when the antecedent of a conditional is negated, speakers infer that the consequent is also negated. In truth-functional caculus the truth value of the consequent is independent of the truth value of the antecedent.

Furthermore, Fillenbaum asserts that the very meaning of a conditional threat is dependent on the hearer's drawing. The inference is that the consequent of a negated antecedent is also negated. For example, in the sentence, "If you steal that ruby, I'll shoot you," if it is the case that the consequent will be fulfilled regardless of the fulfillment of the antecedent, there is no reason not to steal the ruby. If hearers do not draw this "fallacious" inference, according to Fillenbaum, conditional threats would not succeed in preventing the action expressed in the antecedent.

Another problem in adapting formal logical analysis to natural language involves the type of propositions occurring in conditional sentences. "Even though the logical use of connectives permits any p and q to be conjoined, the everyday use of connectives requires some common topic for the connected propositions," (S. Fillenbaum, p.171).

To this end, various investigators (Wason and Johnson-Laird 1972 and Lakoff 1970) have cited principles governing relevance in conversational topic. Wason and

Johnson-Laird (1972) have found that performance on tasks has improved when the content of the two propositions in the conditional construction was concrete rather than abstract. In judgements on appropriateness of member constituents in conditionals, Fillenbaum (1975) found that sentences with unrelated antecedents and consequents were judged to be strange and "extraordinary" over 90% of the time, while conditional sentences whose constituents were related, that is, "respecting the topic constraint," were judged bizarre less than 5% of the time.

Many investigators (Braine 1978, Strawson 1952, Fillenbaum 1978, Johnson-Laird 1975) have put forth cogent arguments for considering factors besides propositional truth values in analyses of conditionals in natural language. Given the crucial role of semantics in early language acquisition (Brown 1973, Bloom 1970 and Bowerman 1973) the semantically based classification of conditionals proposed by Schachter (1971) provides an ideal framework in which to view the acquisition process.

Schachter divides conditionals into two basic semantic categories: those which signal reality and those which are used to refer to unreal events.

The <u>Reality</u> conditionals refer to some situation occurring in the real world; these can be present, past or generic:

1. Present: If Jamie is in the kitchen, he is eating the pies.
If Kate is eating the cherry pie, she is making a mess.

2. Past: If you stayed home last night, you heard the fireworks.

3. Generic: If you go out in the rain, you get wet.

The Unreality conditionals are divided into two groups: Predictives and Imaginatives. Predictives forecast the occurrence of some event in the real world in real time. However, they do refer to something which has not yet occurred and are therefore classified with the Unreality conditionals. The simple future tense appears in the consequent:

4. Predictive: If he eats one more pie, he will be ill.

There is a mildly non-standard variation where will also occurs in the antecedent clause:

5. If John will be home tonight, you will see him.

The Imaginatives express a divergence from the real world; this category includes hypotheticals and traditional counterfactuals.

6. Hypothetical: If he played better, he would be in the orchestra.

Hypothetical conditionals are used in situations which might occur, but which are not being claimed to obtain in the real world at the time of the speech act. In contrast,

counterfactuals are used when the situation either did not or could not occur.

7. Counterfactuals:
   a) If he had wanted fettucine, he would have ordered it. (did not occur)
   b) If I were Reagan, I would resign. (could not occur)

In the counterfactual cases, we interpret the antecedent, as being strongly negated. The semantic structure is represented, "If X, then Y [and not X]." To distinguish these two types of counterfactuals, I will refer to sentences like (7a) as <u>true counterfactuals</u> and sentences like (7b) as <u>subjunctive counterfactuals</u>.

In English, all the different semantic types of conditionals share the same major structural description and entailment relationship: "If X, then Y." It is the auxiliary of either or both clauses which signals the type of conditional meaning intended. <u>Simple conditionals</u>, including the <u>Real</u> and <u>Predictive</u> conditionals, allow a wide variety of tenses in both the antecedent and consequent (simple present or present progressive, simple past, present perfect and some modals such as <u>can or may</u>). However, <u>would</u> is not allowed in either of the two clauses:

8. ?*If you sing, I would hear you.
   *If you would sing, I hear you.

Another restriction on the auxiliary of simple conditionals is that <u>were</u> (subjunctive) cannot occur in the antecedent, e.g.

9. *If I were a motor, I buzz.

It is interesting that the predictive conditionals are classified with the <u>Unreality</u> conditionals, but as simple conditionals, they share the morphology of the <u>Reality</u> conditionals. As Longacre and Thompson (to appear) have pointed out, "A future prediction is about something that hasn't happened, so it is 'unreal', as are sentences about what didn't happen or what might happen. But it is also 'real' in that it is making a prediction about a state of affairs in the 'real world'"(p.36).

For example, in sentence (4) above, Jamie's pie eating is a frequently occurring real world phenomenon, but his predicted illness may or may not follow, although the speaker thinks it will.

The morphological mark of an imaginative conditional is <u>would</u> in the consequent. Other modals can also occur, but <u>will</u> may neither occur in the antecedent nor in the consequent of imaginatives:

10. If Jamie { should / were to / could / *will / *might } fall out of that tree, he { could / might / would / ?should / *will / *were to } break.

Counterfactuals expressing events which did not in fact occur have had+participle (past perfect) in the antecedent and would+have+participle (conditional perfect) in the consequent:

11. If we had seen the escaped gorilla, we would have tried to hypnotize him.

The other auxiliary morphology appearing in imaginatives is the present subjunctive (past tense) in the antecedent, and would+verb in the consequent. This structure is used for both hypotheticals (12) and the type of counterfactuals which could not occur, subjunctive counterfactuals (13):

12. If you were stung by a bee, it would hurt.

13. If you were two-headed, you could eat more.

This naturally leads to some semantic ambiguity, especially for children; is the occurrence of the antecedent possible or impossible?

In summary, there are two basic semantic types of conditional sentences: those which refer to events which occur in the real world, the Reality conditionals, and those which refer to events not occurring or diverging from the real world in some aspect, Unreality conditionals. Both these groups are further subdivided:

REALITY	UNREALITY	
Present	Predictive	
Past	Imaginative:	Hypothetical
Generic		Counterfactual
		true
		subjunctive

Morphologically, the predictives group with the Reality conditionals and use the indicative mood; these are the Simple Conditionals. The Imaginatives use the present subjunctive, the past tense or the past perfect in the antecedent and the conditional mood, signalled by the morpheme would, in the consequent.

With this model as a framework, we will use experimental and naturalistic data to investigate how the conditional system is acquired in English. Not only will these results provide us with a description of the developmental sequence, but they should also shed light on the influence on and relationship of various factors to the general acquisition process.

The next step however is to see how and where our study fits into the field of child language acquisition. This will be accomplished by reviewing work in the specific area of conditional development as well as other related topics.

Chapter II: The Relevant Child Language Literature

In the late sixties and early seventies the goal of child language research was to provide formal syntactic analyses of children's developing grammars (Klima and Bellugi, 1973; McNeill, 1966; Braine, 1969; Menyuk, 1969). Somewhat later work took a semantic approach where investigators used context to aid in disambiguating children's utterances and their intent (Bloom, 1970 and Bowerman, 1973).

The acknowledgement of the role of context in language acquisition triggered investigations in new directions. Explorations in the initial stages of language acquisition abounded (Greenfield and Smith, 1976; Carter 1975; Scollon, 1974), and investigators examined newborn infants and very early mother-child interaction (Bullowa, 1979; Stern, 1977; Bruner, 1975, 1977; and Schaffer 1977). The nativist versus constructionist controversy (where proponents of language as an innate self directing ability oppose those believing the child to actively construct hypotheses about the nature and form of language based on the external model) initiated studies on the role of input (Newport, 1975; Snow and Ferguson, 1977). The focus on context elicited

investigations on discourse and discourse abilities in children (Keenan and Klein, 1975; Keenan, Schieffelin and Platt, 1976; Greenfield and Smith, 1976; Ervin-Tripp and Mitchell-Kernan, 1977).

More recently there has been renewed interest in the topic of later acquisition; the syntactic development of specific complex and late occurring structures, e.g. relative clauses and the passive has been addressed. John Limber (1973) published an overview of the development of complex sentences in the language of three children. He found that his subjects had produced several tokens of most complex sentence types by the age of 3,1. In recent years, his findings have been augmented by a number of studies investigating the acquisition of specific kinds of complex sentences and other structures acquired late (see Bowerman, 1979, for a review).

In our review, we will focus on those studies which directly bear on conditional sentences, that is investigations which have treated the acquisition of conjunction, connectives, causal reasoning and causality, temporal reference in complex sentences, hypotheticality and the development of conditional sentences. We will touch very briefly upon children's performance on "conditional" or syllogistic reasoning tasks.

We will not include studies in later syntactic development which are not directly relevant to conditional acquisition, e.g. acquisition of the passive (see Beilin, 1975 for review), the development of relative clauses (Sheldon, 1974; Smith, 1974; and Brown, 1971) and the development of verb complementation (Chomsky, 1969; Tavakolian, 1977; Cromer, 1970; Gordon, ms.).

1. Order of acquisition of complex sentences

In terms of the general order of acquisition of different types of complex sentences, there have been a number of predictions as well as experimental and naturalistic studies to determine the acquisition order. Werner and Kaplan (1963) predicted that children would first juxtapose propositions, with the expression of the relationship between the propositions only implicit. Subsequently this relationship would be made explicit. Additionally they predicted coordination would precede subordination, and further, that the linguistic order of clauses would parallel the temporal order of the events.

In a discussion of seven- and eight-year-olds' misuse of because, where the cause and effect were inverted, Piaget (1955) claimed that causal events are globally represented for the child, i.e. that there is no explicit

relationship between events, and, as I interpret it, that events are undifferentiated with respect to cause and effect. Further, he suggested that for the child, the conjunction because has the same meaning as and; it indicates the "relation of juxtaposition" (p.129). "Statements are juxtaposed to the extent that there exists between them neither temporal, causal nor logical relations" (Piaget, 1955, p.130).

We can conclude from this that, for Piaget,the concept of coordination definitely precedes any notion of subordination, and that the concept of entailment, which underlies causality as well as conditionals, is not present until a later stage of development, presumably that of formal operations. According to Piaget's theory of cognitive development, the stage of formal operations is reached at about age eleven or twelve. Achievement of this stage is associated with the ability to verbally solve complex logico-mathematical problems which require the manipulation of several variables. Formal operational thinking is characterized by theories and reflections on various hypotheses.

There is some discrepancy in the findings of the various empirical studies undertaken on the acquisition of connectives, but these differences appear to be due to the investigators having looked at slightly different aspects of

connective acquisition or having used different age groups. Limber's (1973) results show that the very first complex sentences were verb+object complements for a small class of verbs, e.g. I wan' do it myself. These were followed by conjoined sentences with and, and then came wh-adverbials. At about the same time, causal and conditional sentences emerged, and finally relative clauses were acquired.

Hood, Lahey, Lifter and Bloom (1977) have been conducting a long term project on the acquisition of complex sentences with explicit connectives in children two to three years old. Their preliminary results are based on naturalistic data from five children from two to three years old. Structurally, they found the developmental sequence to be 1) two clauses are juxtaposed, 2) the clauses are conjoined (and is the most frequent conjunction) and 3) embedded clauses appear.

Their study also examines the relationship of form and content vis-a-vis the semantic relations that connectives encode. The three major relationships found were: concomitance, superordination and specification, appearing in that order. Concomitance is two independent clauses joined by a connective where no hierarchical relationship is reflected, as in coordination with and. Superordination is described as two events bound by some "superordinate

relationship" e.g. causality. I assume this refers to structures which are bound by some semantic relationship such as temporal order with and then.
The third relationship is specification, where one event is modified by a subordinate clause.

A more recent report from the same project (Bloom, Lahey, Hood, Lifter and Feiss, 1980) augments these findings with a discussion of the acquisition of the form and meaning of specific connectives and their use in discourse. The rank order of acquisition of connectives is: and, and then, because, what, when, so then, if, where , but, that and how. The most frequently occurring connectives are and, because, what when and so; less frequent are then, but, if, that, and where.
The order of emergence of connectives is individual with some of the children never achieving full productivity. (Productivity is at least 5 tokens in two sequential visits; visits are every three months.) The rank order of semantic relationships reflected by the connectives is the following:

1. Additive: two events or states were joined without an added dependency relationship

2. Temporal: a dependency relationship involving sequence or simultaneity

3. Causal: two events where the connective expressed cause and result or reason

4. Epistemic: a dependency relation involving certainty or uncertainty about the event or state in the second clause

5. Object Specification: relative clauses, or coordinate clauses where the second clause describes the object or event in the first clause

6. Adversative: contrastive relation between clauses where one negated or limited the other

7. Notice: Headless relatives where the first clause calls attention to the event in the second

8. Other complements

For our purposes, these studies provide a context or backdrop from which we can view the development of the conditional system. Additionally, this particular study (Bloom et al 1980) includes some specific information that is pertinent: _if_ is infrequently used, and for two of the children the epistemic function was expressed with _if_ at 2,10. The epistemic function is very briefly discussed and it is defined thusly: "The dependency relation in utterances in this category involved certainty or uncertainty on the part of the person named in the first clause (the child most often), about a particular state of affairs named in the second clause"(p.245). In this article, the example sentences contained _I don't know X_ and _I think that X_. In the first type of example, not

knowing does not necessarily imply uncertainty, but rather negation. The second example presented does reflect uncertainty on the part of the child and gives support for the child's comprehension of this facet of conditionals. Unfortunately, this study does not detail the use of the epistemic function with _if_ but only mentions it on a graph. Otherwise this study makes no direct mention of conditionals.

Chambaz, Leroy and Messeant (1975) have looked at the complex sentences of four French children, ages 3-6 years old and performed a frequency count on various types of connectives. They found that coordination preceded subordination, as have all such studies. Further, in addition to formal adult subordinators, the children used a variety of "petits mots", _alors_, _apres_, and _mais_ (then), (after), and (but). These sometimes functioned as fillers and sometimes as clausal connectives.

In a cross-linguistic study on conjunction acquisition in Turkish, German, Italian and English, Clancy, Jacobsen and Silva (1976) found that the rate and order of acquisition of the concepts underlying the various conjunctions was fairly constant across languages. The general developmental order was as follows:

1. Juxtaposition without explicit marking
   a. Symmetric coordination
   b. Antithesis (including negative anaphora)
   c. Sequence and Causality
   d. Conditional notions

2. Marked causal and purpose clauses

3. Conditionals and Temporal statements with <u>when</u>

4. Simultaneity with <u>when</u>

5. <u>Before</u> and <u>After</u>

As their purpose was to demonstrate that the order of emergence of semantic notions is constant across languages, it is not exactly clear when the connectives reflecting those particular notions are acquired for each of the languages studied.

These general studies provide some idea of where my investigation fits into the developmental sequence. As overviews, none of these studies has examined the details and interactions involved in the acquisition of a specific complex structure. We will now turn our attention to investigations which focus on specific structures and concepts that pertain to the acquisition of the conditional system. These are the linguistic expression of causality and hypotheticality, temporal adverbials and investigations of conditionals.

2. Cognitive notions related to the use of conditionals

2a. Causality: In this section we shall review those studies which discuss the development of certain concepts related to conditionals. The relationship between the antecedent and the consequent of a conditional structure is sometimes one of cause-effect, as in "If you go out in the rain, you will get wet". Therefore, the development of the expression of causality is quite relevant to a discussion of conditionals. Other cognitive skills related to the acquisition of conditionals are temporal and hypothetical referencing.

Hood (1977) investigated how children expressed causal notions and relationships. She used naturalistic data from eight children from two to three and a half years old. Hood found that for some children, individual ordering preferences appeared before the child explicitly marked causal sentences. When the conjunctions appeared, the child used the appropriate so or because as his ordering preference dictated. For example, those children who ordered their unmarked sentences cause-effect, first used the conjunction so, e.g "The tortoise has a runny nose so he has to stay in the house". On the other hand, those

first used because, e.g. "The tortoise has to stay in the house because he has a runny nose"..

The order of the acquisition of conjunctions reflected the child's ordering preference as we mentioned above; he first acquired the conjunction appropriate to his causal ordering preference, and then clause order subsequently shifted as new conjunctions were acquired. Hood also found that causal expressions first appeared in spontaneous speech, then in response to adult questions and finally in child-initiated questions.

Hood found very little error in the use of conjunctions, contrary to Piaget's prediction that children produce the clauses in causal utterances in random order because they see events as global, juxtaposed, and undifferentiated. Hood's findings imply that the children have some implicit knowledge of the relationship between the clauses and that this is not one unspecified relationship, but rather several differentiated ones.

2b. Temporal Reference: There have been a variety of studies devoted to the investigation of children's acquisition of temporal notions and their linguistic expression. For our purpose, those time concepts which are relevant to conditional acquisition are the knowledge of and the ability to refer to past and future time and the ability

to relate events in time, either sequentially or simultaneously and to express this relationship. For generic conditionals, a child must also be able to refer to events detached from the immediate time continuum.

Both Brown (1973) and Halliday (1975) have noted that before children formally mark their utterances with verb inflections or modals, children express notions of non-present time. Brown stated that by using contextual information, both he and caregivers attributed non-present semantic intentions to the early utterances with uninflected verbs; they are interpreted as referring to immediate past time or immediate future time in which case they usually involve the child's wants or intentions. (Two other meanings were also present, imperative and simultaneity with a short duration, but these do not immediately concern us.) Brown discovered that "as the child learns to inflect the verb and modify it with auxiliaries, it is just these senses that he first learns reliably to mark linguistically" (p.150).

Some studies have claimed that children first use the -ed past and the progressive -ing to mark aspect rather than time distinctions (Tanouye, Lifter, and Bloom, 1977, Ferreiro and Sinclair, 1971). However, there is general agreement that the notion of "past" and its marking is acquired by the child's fourth birthday (Brown, 1973;

deVilliers and deVilliers, 1973; Kuczaj, Antinucci and Miller, 1976; and Smith 1980).

In Piaget's (1971) work on temporal development, he described various stages. Three of these pertain to the age groups of our study:

1) Ages 1,6-4,6: temporal sequence coincides with spatial action or event order. Children can use before and after for two events but not reversibly. Children at this stage are egocentric and live in the present. There is no establishment of continuity between events, rather one event succeeds another in present time.

2) Ages 4,6-6,0: the child can articulate his intentions and is beginning to de-center. There is a gradual disassociation of temporal from spatial planes.

3) Ages 6,6-7,0: operational time (the child now has reached the concrete operational stage) where the child has achieved reversiblity in thought, and he can follow time in either direction. He is free from present time and spatial constraints.

Piaget's prediction that temporal sequencing would reflect real event order has been borne out by several studies. Clark (1970, 1971, and 1973) has carried on a number of investigations on the sequencing of events in complex sentences.

Clark (1970) examined the spontaneous temporal utterances of 15 three year olds, and she found the developmental order to be the following: 1) two juxtaposed simple sentences; 2) two coordinated propositions, usually related with and, produced in temporal order; 3) a complex sentence where the main clause is followed by the subordinate clause, and they are joined by the temporal conjunction before; 3) then a main-subordinate clause construction joined by after; and finally, 4) the subordinate clause beginning with a conjunction is preposed.

She suggests that three factors direct the developmental order: 1) order of mention (paralleling real event order is simpler than the reverse); 2) derivational complexity (main-subordinate order is easier than the reverse); and 3) "thematicity" (children initially use the first clause for the "theme").

Ferreiro (1971) found that young French children had difficulty comprehending complex sentences with reversed temporal order, but were able to spontaneously produce them. Ferreiro and Sinclair (1971) asked French speaking children to imitate and describe two events and then describe them, starting with the second event, i.e. reversing temporal order.

Like Clark, they found that the younger children (four-year-olds) combined propositions with and or then

(et and puis) in a sequence corresponding to event order. When asked to reverse the order, the fours could not use the appropriate temporal terms for the reversed order. In the next stage (at about five) descriptive order continued to match chronological order; when asked to reverse the clauses, so that the order of mention did not coincide with real event order, the children started the sentences with a temporal indicator, e.g. "Before I ate dinner, I had dessert". In the third stage (6-10 years), the children were successful with most tasks but had difficulty when tense was the only indication of the sequence. In the final stage (also 6-10 years) the children could perform all the tasks including producing descriptions where verb tense was the only indication of sequence. Ferreiro and Sinclair attributed these stages to achievement of certain milestones in the Piagetian developmental framework, the first of which is reversibility. This concept can be simplistically described as knowing that a substance remains constant in its identity and quantity regardless of the transformations imposed upon it. Other concepts they appeal to are: conservation of liquid where a child knows that pouring a liquid from one shaped vessel to another does not alter the quantity of the liquid and access to the operational notion of time. Hence cognitive stage, not age, predicted the child's level. It is not immediately apparent

how the conservation of liquid directly relates to the children's ability to express temporal events.

From these studies and that of Amidon and Carey (1972) it is clear that order of mention corresponding to real event order is an easier sequence to produce and to process than reversed temporal order. These investigations also demonstrate that the acquisition of complex temporal sentences follows the same basic path of other complex structures, that is, juxtaposition of two simple propositions, coordination of two simple propositions relying on order of mention to convey the notion of sequence, and finally explicit marking with temporal conjunctions. Before is acquired first, as it preserves real event order when the subordinate clause follows the main clause, and then after is acquired.

There is some conflict in the results of different studies with regard to the role of order of mention in determining clausal order. Hood (1977) reported children using both cause-effect and effect-cause orders from the very beginning, even before they were linguistically marked as purposive with so or causally marked with because.

It may be that cause-effect order is not sequential in the same way as before-after, but it seems to me that if order of mention's correspondence to real event ordering is so critical to the acquisition of temporal expression, it ought

to play some role in the acquisition of the expression of causality.

In relating these findings to conditionals, we would first expect to find simple propositions, first juxtaposed with no explicit marking and next coordinated with and. Then, if order of mention were initially to correspond with real time order, we would expect the child's first marked conditionals to be of the form "if X, then Y". There is a conflict here concerning Clark's prediction about derivational complexity. She claims that order of mention paralleling real event order and main clause preceding the subordinate clause are the simpler orders and will appear first. For conditionals to mirror real event order, condition-consequent, the subordinate clause must precede the main clause. Since both orders are grammatical (if the then is omitted) we shall have the opportunity to judge which strategy takes precedence.

The notion of timelesssness and its acquisition is the last area of temporal development relevant to the acquisition of conditionals. The concept of timelessness is the ability to detach oneself from the immediate time continuum and view time and events as independent from one's own perspective and experience.

From Piaget's description (on page 11) we would expect "timelessness" to begin to develop in the second stage, at

about four and a half, and to be completely acquired by age seven. There are several empirical studies which have discussed and found support for this sequence. Cromer (1968) found that four and a half was a crucial age in the development of temporal reference. One of the important occurrences at this time was the appearance of "true timeless" utterances. When these utterances first occur, they are contextually dependent or reflect the present on-going situation. However, at about four or four-and-a-half, they begin to appear detached from their environment. Cromer claims that these "true timeless" utterances develop from "timeless characterizing descriptions" which describe "what something does", "what something is for" or "how something works". These "timeless characterizing descriptions" (p.159) appear to be the type of generic utterance used by younger children, for example Cows say moo and Brooms are for sweeping. Generics, or "true timelessness utterances" then, for children under four, are limited to certain specified well-known contexts; it is not until four that this context is generalized.

During this same period (four- to four-and-a-half) Cromer found that other interesting and relevant semantic notions emerged. He describes this new development as "the emergence of the ability to free oneself from the immediate situation or from the actual order of events in

time. It is as if the child is now able to stand outside the event and its occurrence in time" (p. 165).

Although Smith (1980) claims to disagree with Cromer, her findings and conclusions do not appear to be in direct conflict with his. Smith posits three stages of development in the acquisition of "time-talk". In the first stage, children have a fixed orientation and can talk about a sequence of events. They can refer to times other than the present, but always from the vantage point of present time. At about four years old, Smith notes (as does Cromer) that a distinct change occurs, and the children can narrate a sequence of times from points of view other than the present. This appears to me to be similar in nature to the cognitive leap Cromer also found at about four or four-and-a-half.

In extending these findings and relating them to the acquisition of conditionals, we would expect to see the appearance of generic conditionals at age four or somewhere during the fifth year.

In a recent study, this is just what French and Nelson (1982) found. They asked children to talk about familiar events like going to the market or getting dressed. For the data set where generic conditionals were the focus they asked 43 children ranging in age from 2,11 to 5,6 years old questions of the form, "What do you do when...?" or "Can you

tell me what happens when...?" Eight percent of the subjects between 2,11 and 3,10 used if; this figure increased to 39% for the children 4,0-4,11 and to 63% for those between 5,0 and 5,6. French and Nelson comment that if constructions appear at about age four and are relatively frequent by five. It is probable that their data are not uniquely generic conditionals because one of the examples cited is a predictive with the simple future tense in the consequent and two are hypotheticals using the conditional modals would and could in the consequent. Nevertheless, it is clear that this particular context, discussion of very familiar past events, does elicit generic conditionals in four-and five-year-olds. In fact, a familiar routine is one level higher, but certainly in the same vein as Cromer's "timeless characterizing descriptions".

2c. Hypothetical Reference: The next area of interest is the development of hypotheticality or the child's awareness of irrealis and its expression and reflection in language. This includes the notions of possibility and uncertainty as well as the cognitive ability underlying these ideas, i.e. the creation of mental representations of situations detached or separated from the real world.

The ability to express future events or intentions reflects some notion of irrealis, in that the event has not yet occurred and is not yet a part of the present real world. For Piaget the development of symbolic thought and representation proceeds through stages quite similar to those of temporal development.

Between the ages of two and four the child develops the symbolic function, that is the ability to create a mental symbol to represent a non-present object, person or event. The creation of symbols, Piaget believes, derives from deferred imitation (1962). Two areas in which this development is relevant are language, of course, and symbolic play, both of which Piaget considers to be egocentric at this early stage (1955, 1962).

For Piaget,"objectivity of thought", i.e. the ability to de-center and take a perspective other than one's own, only occurs with the achievement of concrete operational thought, at about age six or seven. It is "through operational reversibility that thought becomes capable of preserving its notions despite the fluctuations of reality and incessant contact with the unexpected"(1962, p.166).

In a discussion of pretend or symbolic play, Piaget claims, "there is no question, therefore, in the early stages of symbolic play, of consciousness of make-believe like that of drama or poetry. It is only after the age of

seven that play really becomes make-believe in contrast to 'reflective belief'. The two-to four-year-old does not consider whether his ludic symbols are real or not "(1962, p.168). I understand ludic to be symbols used in play and reflective belief is defined as "belief as a result of a deduction or considered decision" (p. 167). From this we can infer that Piaget does not believe that conscious awareness of irrealis exists until the child reaches the concrete operational stage at age seven.

Several investigators have examined the acquisition of hypothetical reference in language. Cromer (1968) was one of the first. As in the area of timelessness, Cromer found that the first notions of possibility, uncertainty and hypotheticality appear during the fifth year. As we noted above, he views this constellation of abilites to arise from the same source, an ability to decenter, that is to detach oneself from the immediate environment, be it on a temporal plane or beyond the boundaries of reality.

French and Nelson (1982) also found some conditionals which they considered to be hypothetical when they asked children to describe familiar events. The examples cited are from children 4,8 to 5,6; they used the present and past tense verbs in the antecedent and present or simple conditional in the consequent. Of further interest is the use of adverbs like sometimes to show uncertainty. Both

of these would lead us to expect hypothetical conditionals to not appear until late in the fifth year. As we shall see, some older twos and all of the threes in my study produce hypothetical conditionals.

Kuczaj (in press), in a study on the relationship between form and function, found that different modals (can't, would, will, gonna, could, wouldn't, won't, couldn't, can, 'll and should) were used to express hypothetical meaning in children's utterances. The first instance of hypothetical expression was with can and would at 2,9.

In another study, Kuczaj and Daly (1979) examined hypothetical reference in single and multi-propositional utterances, using longitudinal and cross-sectional naturalistic data from children 2,6-5,6 years old. They found that preschoolers were indeed capable of hypothetical reference and that hypothetical reference in single propositional utterances is acquired before sequential hypothetical reference.

They also found that future hypothetical reference preceded past hypothetical reference. Kuczaj and Daly claim that increased syntactic complexity cannot be solely responsible for this sequence. They hypothesize that underlying future hypotheticals is the contrast between what will happen (unactual) and what could happen (also

unactual), and implicit in past hypotheticals is the contrast between what did happen (actual) and what could have happened but did not (unactual) . They suggest that the cross-category contrast (unactual-actual) in past hypotheticals is more difficult than within category comparison (unactual-unactual) reflected in future hypotheticals. In a subsequent study, Kuczaj (1981) experimentally confirmed their earlier hypothesis .

Although in my study of conditionals, the same sequence of development is predicted, i.e. hypothetical conditionals will appear before counterfactuals, I believe that their explanation is too narrow and that other crucial factors need to be considered. Kuczaj and Daly (1979) and Kuczaj (1981) made use of data where the children had been supplied with the appropriate auxiliary by an adult in the preceding utterance. This procedure renders the specifics of their findings about the auxiliaries somewhat questionable.

In the following chapters, we shall see that pragmatic factors and syntactic complexity as well as semantic complexity, play a role in the acquisition of hypothetical reference.

3. Conditionals

Now that we have reviewed the literature covering the acquisition of complex structures in general and the basic

cognitive notions presupposed in conditional acquisition, we can direct our attention to the acquisition of conditionals themselves. There have been a variety of studies devoted to this topic and they focus on several different areas. There are those concerned with logical thinking and the development of conditional or hypothetico-deductive reasoning; these generally concern older children, and we will only mention them briefly. Other investigations have examined the nature of the relationship between the clauses and the child's perception of the function of the antecedent and consequent in individual sentences. Finally there are a very few comprehensive studies (none of which are about English to my knowledge) concerned with the interaction of the linguistic forms and their functions which comprise the conditional system.

Those studies devoted to deductive reasoning and the logical development of conjunctions (Kodroff and Roberge, 1975; Taplin, Staudemayer and Taddonio, 1974; Kuhn, 1977, Staudemayer and Bourne, Paris 1973, O'Brien and Shapiro 1968) generally confirm the finding that children's interpretation of the conditional conjunction do not correlate with a truth-functional analysis, nor do children perform well on abstract conditional reasoning tasks before early adolescence.

The first finding is not unexpected. As we mentioned in Chapter I, adults also use connectives in ways that are not parallel to their behavior in truth-functional logic. Kuhn (1977) found better performance at an earlier age, i.e. at the concrete operational stage, when the tasks involved more concrete and less abstract content. This again is not surprising, as Wason and Johnson-Laird (1972) found this variable to be critical in adult performance. Tracing this path one step further, Kodroff and Roberge (1975) found that children perform even better with concrete rather than verbal presentation of the task. In addition to comprehending conditional sentences, these tasks often require the subject to make additional inferences, hence they do not shed additional light on the acquisition of conditionals per se and are not of direct concern to this study.

Amidon (1976) performed a comprehension experiment for conditional connectives with five- seven- and nine-year-old children. The fives responded correctly to <u>if</u>, <u>when</u> and <u>as soon as</u>, the sevens also gave correct responses to <u>before</u>, <u>after</u> and <u>if not</u>. At nine, <u>unless</u> and <u>unless not</u> were still problematic. She attributed the difficulty in understanding these conjunctions to 1) their syntactic complexity (claiming that information in main clauses is more accessible than information in subordinate clauses)

and 2) their semantic complexity (with no detailed explanation offered).

Wing (1978) and Wing and Scholnick (1981) have proposed a pragmatic rather than strictly logical or semantic explanation for the late acquisition of a somewhat similar group of conjunctions: because, although, if and unless. They found that children six, eight and ten years old made more accurate judgements about conjunctions with assertive functions: because and although, where the speaker believed the truth of his utterance then when he implied uncertainty or disbelief as with if+indicative and if+subjunctive. Sixes used semantic cues, not differentiating truth values or entailment. Eights and tens used syntactic cues and were sensitve to positive and negative implication.

My data differs somewhat in that although occurs much later in the naturalistic data than because and if. Further, as we shall see, even a three-year-old has some notion of entailment, at least when the conditional is self-initiated, and the fours show comprehension of counterfactuality. I can only suppose that it is the task and context which provide differing results.

Emerson (1980) asked children between the ages of 4,10 and 8,7 to make judgements of "sensible" or "silly" about sentences with correct and reversed order, e.g. "If X, then

Y" and "If Y, then X" where X is the antecedent and Y is the consequent. An example of a "silly" sentence would be, "He cycled a long way if his legs were tired". The experiment revealed several interesting points: 1) the comprehension of the full meaning of if is a late acquisition; although contingency is understood, at least in a causal sense, in all these age groups, there is a failure to fully differentiate correct and reversed order till age seven or eight. 2) There is a strong preference for the if clause to precede the main clause, i.e. children prefer the order of mention to parallel temporal order. 3) Content or semantic strategies are used rather than reordering strategies in those sentences with reversed order. For example, in the sentence above, it might be changed to "He didn't cycle a long way if his legs were tired". 4) Initially, the meaning of if is quite general, then it narrows to express first cause and contingency and finally unidirectionality.

This study raises some interesting questions : If if is used for causality alone, in the earlier stages, why would a child need three separate morphemes, because, so and if, to express one function? Also, what is the "general" function of if when it first appears? Thirdly, this test calls for an ability beyond just comprehension and judgement. In asking the children to "fix" or "correct" the

sentences, another metalinguistic ability is being tapped. It may or may not be the case that the children understand the ordering relationship shown by <u>if</u>, as an entirely different level of comprehension and linguistic awareness is needed to actively manipulate the clauses.

In a series of articles on the acquisition of conditionals in French and Spanish, Jakubowicz (1976, 1978, 1980 and 1981) has conducted a variety of experiments to test comprehension and elicit conditionals. In the 1978 study she looked at comprehension of two different types of conditionals:

a) Si j'ai une bille, je te la donne.
(If I have a marble, I will give it to you.)

b) Si j'avais une bille, je te la donnerais.
(If I had a marble, I would give it to you.)

Initially, both types of conditionals were interpreted as if they were two affirmative juxtaposed propositions, although a third of the children reflected some notion of uncertainty in their responses. Next, the counterfactual interpretation of b) was comprehended before the notion of uncertainty implicit in sentences of type a). Specifically, the implied negation of the antecedent in counterfactuals was comprehended prior to the understanding of uncertainty in the antecedents of predictives. Jakubowicz suggests that an assertive function or meaning precedes the notion of "possibility", i.e. children understand statements about

what is, is not, what did or did not and what will happen before comprehending reference to what might happen.

Jakubowicz explains her results in terms of different interpretation strategies by the children. The early strategy is to use word order alone, then the children consider verb inflections, which give the correct interpretation for the type b) sentences. Finally, the child considers all surface cues: word order, verb inflections and conjunctions. Although interpretation strategies are certainly interesting and relevant, they do not indicate the child's entire knowledge of a concept or construction. They do not tell us what he knows about when or how to use a certain structure or its meaning when he uses it.

In her 1981 paper, Jakubowicz brings up a relevant point and an as yet unsolved problem: her four- and five-year-old French subjects can and do produce type a) conditionals and supply paraphrases reflecting their knowledge of the various possibilites inherent in the situation. Why then does comprehension of this type of conditional in experimental situations not appear until age seven? She claims that the surface structure conveys different meanings at different ages, combining the relation of X and Y and the non-assertion of X. Specifically, for the younger children, the surface structure signifies that a

relationship of regularity and consecutive order obtains between X and Y.

The English conditional system is somewhat different from the French system in the verb tenses used and the presuppositions associated with the different types of conditionals. In examining the acquisition of the linguistic forms and their function, and by using both naturalistic data and data from simple experiments which require no additional inferential thinking on the part of the child, I hope to present a coherent picture of conditional development as well as answer some of the questions raised by these studies.

Various studies have mentioned that the conditional is a relatively late acquisition (Menyuk, 1969; Slobin, 1966; Kuczaj and Daly, 1979; and Bloom et al, 1980), with respect to many of the other linguistic structures a child learns; here three is considered late. However, Bates (1976), as we will discuss below, has found that Italian children master the counterfactual at about age five and a half. In my proposed study of English conditional development, although the conditionals first appear at about the end of the third year, we shall see that mastery of the full conditional system is a much later acquisition.

Bates (1976) investigation is, to my knowledge, the only acquisitional study of conditionals that includes an

exposition of the various linguistic forms used by the children. Although her study is limited to the acquisition of counterfactuals in Italian, and the Italian conditional system differs from English, this study is quite relevant. Hence, we will review it rather thoroughly.

According to the analysis used by Bates, Italian counterfactuals differ presuppositionally from English counterfactuals in that, in Italian, the antecedent is not necessarily presupposed to be false. This appears to be true because both hypotheticals and counterfactuals have the same morphology: the subjunctive occurs in the antecedent and the conditional appears in the consequent. However, according to Bates, "the conditional verb inflection in Italian is reserved only for counterfactuals" (p.218). It is not clear from Bates' treatment how hypotheticals are expressed or if they are presuppositionally or morphologically differentiated in Italian from counterfactuals.

According to a native Italian speaker[1], there are three types of unreality conditionals and these appear to function much like those in English:

1. Se mangio tre gelati, mi ammalo.
   If I eat three ice creams, I will get sick.

2. Se mangiassi tre gelati, mi ammalerei.
   If I ate three ice creams, I would be sick.

3. Se avessi mangiato tre gelati, mi sarei ammalato.
   If I had eaten three ice creams, I would have been sick.

Although not every Italian speaker may use all these forms, they do exist and differ presuppositionally. In example 2, there is the possibility of the event occurring in the future, whereas in example 3, the event did not occur. Bates mentions example 3, and claims it to be substandard, although available and sometimes used in casual speech by educated people. It appears to me that Bates is really discussing hypotheticals and subjunctive counterfactuals, and it is not clear that children differentiate between what might occur and what cannot possibly occur.

Bates did not find any counterfactuals in her naturalistic data of two children aged 2,0-4,6 years; that is, she found no use of the conditional form of the verb except in an idiomatic expression. However, conditional sentences with the present indicative and some contrary-to-fact references using alternative verb forms did occur.

In an experiment with children from 2,0-6,2 years old, Bates found that the youngest children use the present indicative or do not respond at all to hypothetical/ counterfactual questions, e.g. "If you were a cowboy, what would you do?" Children from 3,11 to 5,6 years old use a variety of alternative verb forms for responses. After five and a half, the conditional mood was the most common response.

Bates used a semantic/pragmatic analysis of Italian conditionals proposed by Puglielli and Giliberti (1972). They claim that causal sentences, simple conditionals and counterfactuals all share a common semantic core:

ENTAIL (X,Y)

The difference between the three structures is in the presuppositions, i.e. in the instructions to the hearer. These are based on the speaker's knowledge about the truth value of the antecedent.

According to Bates, the components necessary for counterfactuals seem to be present much earlier (by four) than the age at which they finally appear (5,6). Bates cites the following cognitive and linguistic evidence for the four-year-olds' requisite knowledge: 1) the child has been pretending or suspending reality for quite some time; 2) contingency relationships which are first expressed by <u>because</u> (<u>perche</u>) and <u>if not</u> (<u>se no</u>) are present by age three; 3) the <u>if-then</u> structure occurs with the present indicative slightly after <u>because</u>; and 4) by age four, the child is aware of the listener's perspective, and is able to signal the unreality of the situation. Between the time the child has control over all these components to the actual production of counterfactuals, there is a time lag of one and a half years. Bates proposes that in addition to the abilities cited above, the complete

suspension of reality (a reversible operation) is a necessary condition for counterfactuals. Reversibility is not achieved until the concrete operational stage. Bates then, attributes the year and a half lag in the appearance of counterfactuals to the fact that at age four, the child has not yet reached the Piagetian stage of concrete operations. Passage into this stage usually begins at five and lasts two years.

Bates believes the capacity to contrast real and possible truths to be present at four, and Cromer (1968) found decentration in relation to time and reality to occur at four and a half. Decentering allows the child to view the world from perspectives other than his own thus enabling him to entertain other possibilities which are detached and separate from his own experience. The necessary suspension of reality posited by Bates then does not seem to require an additional cognitive leap. Hence, I find Bates' appeal to reversible operations somewhat confusing.

According to my understanding, reversibility would only be necessary in the production and comprehension of conditionals if the child were required to use both clausal orders ("if X, then Y" and "Y, if X") in referring to the same situation. This implies a conceptualization of the conditional sequence as a whole composed of two manipulable and re-orderable propositions bound by contingency.

However, the ability to instantaneously re-order the clauses in a conditional structure is not a prerequisite to producing and comprehending them.

In my study we shall see that cognition is not the critical factor responsible for the late appearance of true counterfactuals in English. Moreover, the English conditional system can morphologically differentiate hypotheticals and counterfactuals. Therefore, my study of the development of English conditionals should be able to sort out some of the variables which are confounded in the Italian data and allow me to examine them independently. The separation of variables and the combined use of naturalistic and experimental data, both for comprehension and production will hopefully solve some of the problems raised by these other studies on the acquisition of conditionals.

Chapter III: Methodology

SUBJECTS

Naturalistic data: A written diary was kept of my daughter, Kate, from age 12 months to 38 months. This is supplemented with monthly audio recordings of play and meal times with the mother. Two other children were taped for one-and-a-half to two hours every three months from ages 2,9 to 4,1 in a naturalistic play situation.

Experimental data: Twenty-eight children were tested, four in each age group: 2,6-2,11; 3,0-3,11; 4,0-4,11; 5,0-5,11; 6,0-6,11; 7,0-7,11; and 8,0-8,11. The children were white, mono-lingual English speakers from middle and upper-middle class homes. The five through eight year old subjects came from one kindergarten class and two first through third grade classrooms in a Pasadena public school. The teachers selected children who were friends to maximize the amount of conversation. The twos, threes and fours were their younger siblings and neighbors.

TASK ADMINISTRATION

The fours and the school aged children were tested in pairs. Although this might encourage imitating the other

child's responses, I thought a greater gain would be in alleviating discomfort. The dyadic situation was also to foster conversations between the two children. In attempting to elicit a structure like conditionals, it often happens that children will expand on a task and continue by themselves. (This in fact occurred quite frequently.) I thought that having a friend would stimulate this kind of play and provide additional relevant data. The two- and three-year-olds were tested singly and sometimes, especially with the twos, several different visits were required.

The imitation arising from having partners was minimal; if it occurred at all, it appeared in the first interactions and then quickly decreased. If the first answers of a child were imitative of his or her partner, these were not counted.

The school aged children participated in tasks in a small unused space at school; the twos, threes, and fours either came to my house or were visited in their own homes. The sessions were recorded on a portable audio tape recorder and then transcribed.

TASKS

Procedure 1: <u>What if?</u>

Different "What if" questions elicit different types of responses. I have made the assumption that the child's response to these questions is related to and contingent upon the adult's question. There are several studies which support the notion that children construct propositions across a sequence of turns (Keenan, Schiefelin and Platt 1976, Greenfield and Smith 1976, Scollon 1977 and Reilly 1978).

If we view the question as the antecedent, the various auxiliary verbs it contains, in principle, elicit specific sets of auxiliaries in the response, i.e. the consequent e.g.

1. What if you eat goldfish?
   a) I get sick.
   b) I will get sick.

2. What if the dog is chasing Julie?
   a) He'll catch her.
   b) He's getting tired.
   c) He is tired.

3) What if Joe saw Dracula in New York?
   a) He was dreaming.
   b) He would be astonished.
   c) He hallucinated.

4 What if you were an eel?
   a) I would be slippery.

5. What if his dog had won third prize.
   a) He would have been disappointed.

Hence, the auxiliary verb of the What if? question is designed to elicit a response with one of the appropriate auxiliaries. The child's choice of response reflects his ability to distinguish the different auxiliary cues and to produce an appropriate consequent auxiliary form. Since in most cases the consequent auxiliary differs from that of the antecedent, this is not a case of simple imitation.

In this task, the children are told the story, Clifford Goes to the Circus (Bridwell 1977). As the story progresses, they are asked a variety of What if? questions in order to elicit different types of conditional consequents. After this story, other What if? questions are posed so that at least three tokens of each type of What if? question is answered by each subject. The questions are sequenced so that the auxiliary verb in the question is not the same for two questions in a row.

It is important not to supply the consequent auxiliary in the questions. For example, "What if you were a bear?" elicits a response where the child supplies the entire consequent auxiliary verb, e.g. "I would eat you up!" On the other hand, if one frames the stimulus question, "What would you do if you were a bear?" the child can respond by omitting the auxiliary or subject: "Eat you up!" Further, if the child does supply a response with a subject and auxiliary verb, it could be simply imitative. (The stimulus

questions for this and all other procedures can be found in Appendix I.)

Procedure 2: Pretend Game

This task focuses on the production of hypothetical conditionals and the use of the subjunctive were. The children are asked to pretend to be something and then tell about it. The experimenter begins, "We're going to play a pretending game. First, I'll pretend to be something, and I'll tell you about it. Then you take a turn. 'If I were a duck, I would swim in the water.' Now it's your turn."

Next, the children are asked to pretend something about their partner or, in the case of the younger children who are tested separately, about a friend or sibling. The experimenter says, "Okay, now I want you to pretend that your friend is something, for example, 'If Steven were Superman, he would have X-ray vision'. Now you try it." This second part of the task is to elicit hypotheticals with third person singular subjects.

The last part of this task involves pretending to do something; the children are given the model sentence, "If I ate four elephants, I would get sick."

If the children have any trouble with the task, they are given more examples.

Procedure 3: Lion's Face Construction

This task is designed to demonstrate comprehension and production of predictive conditionals. It is assumed that if a child is able to both act out and produce a conditional sequence, this indicates a certain level of control of the structure.

A blank lion's face is placed on the table with a bowl of marshmallows and small pieces of colored paper of various shapes.

The experimenter says, "Now we are going to play a game, and we're going to give the lion a face. I will go first, and then you can play with your partner. Now, Jeff, if you give the lion a mouth, I will give you a marshmallow". The child takes a paper shape and puts it on the lion. The experimenter then gives the child a marshmallow, and says, "Now it's your turn to ask Lindsey". The two children build the lion's face till all the conceivable parts are positioned.

If the child uses constructions other than conditionals, the adult says, "Can you say it the way I told you? Remember, 'If you put on the eyes...'". If this second prompt is ineffective, no others are given. The child's responses are recorded as uttered.

Procedure 4: Lion's Face Transformation

Once the lion's face is complete from Procedure 3, the children are asked a series of What if? counterfactual questions about the lion in order to elicit counterfactual consequents, e.g. What if the lion had been an elephant? With the lion's face still on the table the experimenter says, "now I would like to ask you some questions about the lion," and asks the questions in Appendix A.

Procedure 5: Bears and Pigs

The goal of this task is two-fold: to investigate comprehension of counterfactuals and to elicit counterfactual consequents.

The children are told the stories of The Three Little Pigs (Galdone 1970) and The Three Bears (Galdone 1972). The stories are discussed with the aid of the picture books so that it is clear that the children understand the various incidents. Then the experimenter shows one scene with a known result, e.g. the straw house which is blown down by the wolf, and asks the child what would occur if the situation were varied in some crucial aspect. For example, "What if the straw house had been made of bricks?" From the child's response, we can see if he comprehends the notion of counterfactuality and the morphology he uses for counterfactual consequents. (Stimuli are in Appendix I.)

Procedure 6: Imitation

This last procedure is a traditional imitation task; basically this serves as a complement to the other procedures. Although there is some disagreement as to the value of imitative tasks in elucidating comprehension, several studies have shown that imitated utterances are processed as language and do work through comprehension. (Slobin and Welsh 1973 and Menyuk 1963, Smith 1973). Imitation is not solely a perceptual-motor skill.

The children are requested to "say just what I say. First I'll say something, then you say exactly what I said, okay?" (The sentences are included in the Appendix I).

TALLYING and CLASSIFICATION

After the sessions were transcribed, every response for every child was written on a separate card that was color coded for age. Then the responses were grouped according to the procedure they represented, and the specific stimulus question for which it was a response. For all procedures, the ability or lack thereof to respond appropriately was first noted and recorded. All inappropriate responses and silences or topic changes were also recorded and included in the results for each procedure. These will be found in the

next chapter. We will now discuss the various parameters used to classify the responses for the particular tasks.

Those responses for Procedure 1 (What if?) were grouped according to the tense of the antecedent (the stimulus question) present, present progressive, past, or past perfect. The responses were then tallied according to the tense of the consequent response.

For Procedure 2, the Pretend task, the tense of the verb in both the antecedent and consequent was noted and recorded.

Procedure 3, Constructing the Lion's Face required tallying the form of the child's response, that is, whether he used a predictive conditional like the model or an imperative with a declarative, and the clausal order.

For Procedure 4, the Lion's Face Transformation, once the response was deemed appropriate, the factor to be considered was the auxiliary of the consequent response.

The Bears and Pigs task, Procedure 5 was tallied for two variables: 1) comprehension of the counterfactuality and 2) the form of the auxiliary verb in the consequent response.

The responses for the last task, Imitation, were first divided into two groups: exact replicas of the stimulus and those which differed from the model. Those which differed were then classified by the verb forms of both

clauses. In some cases, there was such a diversity that only a list of the various responses would do. In the next chapter all the results from these procedures are presented and discussed.

Chapter IV: Results

This section is devoted to a presentation of the quantitative results from the various tasks administered to the children. Since the tasks were organized to elicit certain types of conditionals, the Results not unnaturally also follow this format. Also, as there is a great deal of information for the reader to monitor and retain, this chapter may be regarded as a sort of reference section where all the quantitative data is presented together. The next chapter, however, is organized chronologically; any significant trend or finding appearing in the tables in this chapter is discussed and interpreted there and in Chapter VI.

With regard to task participation, it should be noted that for all types of conditionals, three of the five two-year-olds and one three-year-old refused or could not perform the imitation tasks.

1. Present Conditionals

To review, present conditionals are those reality conditionals which make assertions about events in the real world occurring at the time of the utterance.

The relevant tasks for eliciting present conditionals are the Imitation and What if? tasks. In the What if? task, those questions in which the antecedent is in the present progressive tense, e.g. "What if it's raining outside?", or in the simple present tense, e.g. "What if Kate eats dirt?" can elicit consequents with the present tense, as in, "Then the book I left outside is getting wet" or "Then she gets sick." These are considered to be present conditionals. However, for a situation to merit a present conditional, the speaker must be uncertain of the antecedent. Further since the present conditional antecedent refers to a situation actually occurring at the time of the utterance, it cannot be immediately verifiable. Therefore, it cannot directly involve the speaker. Hence, not all present tense antecedents elicit present conditional consequents. Those examples in the present and present progressive tenses referring to possible ongoing situations are the most likely to elicit this type of conditional structure.

In Table 1 we see that children seldom respond with present tense consequents. They invariably prefer the simple future or the simple conditional, e.g. "She will get sick" or "She would get sick." In fact if we total all the responses of all seven age groups, only 9% of the total answers are in the present tense. That is, 91% of the time, the children do not choose to produce a present tense,

Table 1: "What if + present progressive?"

Age	Tense of consequent: REALITY Present	UNREALITY Future	Conditional	Other
2)	0	100	0	
3)	0	50	0	no response
4)	33	16	33	don't know; couldn't
5)	0	11	89	
6)	0	50	50	
7)	0	16	84	
8)	35	14	28	wanna; might

(In all tables, the numbers reflect percentages.)

(Reality) conditional to a "What if?" question even when all appropriate conditions are met in the stimuli: 1) the antecedent is in the process of occurring/or could be in the processs of occurring at the time of utterance; 2) the antecedent is unverifiable; 3) the situation is possible, given the child's everyday experience.

Table 2: Imitation of Present Conditionals

Age	Exact Replicas
2)	0
3)	28
4)	62
5)	92
6)	100
7)	100
8)	100

With regard to the imitation of simple present conditionals, e.g. "If Julie is outside, she is getting wet," the twos did not do well at all: 0% correct. The three-year-olds were able to imitate 28% correctly and the fours were successful on 62%. The older groups (5-8) had over 90% success as can be seen in Table 2.

In those instances where imitation was unsuccessful, the twos refused to participate, deleted verb morphology and in some cases only produced the antecedent with ellipted verb morphology. The threes omitted some portion of the stimulus verb, for example, if the stimulus was, "If your mom is home, the dog is out," it became, <u>If your mom home, the dog out</u>.

2. <u>Generic Conditionals</u>

As with the present conditionals, the two relevant tasks for the production of generic conditionals are also "What if?" and Imitation. The results are shown in Tables 3 and 4. Generics are once again, habitual conditionals. They are timeless statements of dependencies in the real world. They require the present tense in both the antecedent and the consequent.

Table 3: What if + simple present?

Type of Consequent:	REALITY		UNREALITY		
Age	Present	Bare	Future	Conditional	Other
2)	15	15	30		10 denial; 10 agreements 10 can, might 10 because
3)	6	16	16	27	20 denial 6 agreement 9 nonverbal
4)	15	5	30	40	might; coulden
5)	7	0	43	50	
6)	12	0	15	55	don't know
7)	7	0	7	86	
8)	31	4	0	55	coulden; probably gonna

What if?

In the What if? task, for the two-year-olds, only 15% of the responses were in the present tense and the threes had only 6% in the present tense. For the twos and threes there were also subjectless bare verb responses: 15% for the twos and 16% for the threes. These responses were generally a paraphrase or an imitation of the question as in the response, Bite me, sting me! to the question, "What if a bee stings you?"

Although the subjectless bare verbs resemble present tense responses, and are usually semantically appropriate,

they are not sufficient indication that the child intended to give a present tense response. Since the subject is ellipted and there is no tense or number marked on the verb, the child may have also omitted a future marker; therefore, these responses are counted as ambiguous. Hence, only a small number of responses can be considered to be present or generic conditionals.

This trend toward unreality conditional answers to "What if+present?" continues for the older age groups until we reach the eight-year-olds where there is an increase to 31% for the present tense responses.

The favored choice for the twos is the simple future as in:

1. Adult: What if a bee stings you?
   Child (2): I'll cry.

This choice is certainly not ungrammatical, but simply reflects a bias on the part of the children. For the older groups, the simple conditional was the preferred response. This interesting pattern will be discussed in Chapter VI.

In addition to these differently tensed (or not tensed) responses, the two- and three-year-olds also gave denials and non-verbal responses. To the question, "What if you eat three ice cream cones?" one three-year-old responded: <u>I don't have three hands</u>; this was classified as a denial, as was another three's response to "What if a bee stings you?", which was, <u>It already stinged me at Grandad's house</u>.

The non-verbal responses were often an enactment of the antecedent. For example, to the question, "What if you eat 100 marshmallows?" the child giggled and very loudly pretended to eat something.

The response types from the four- to eight-year-olds are clear from the Tables 3 and 4. However, I would like to give some of the modal and "quasi-modal" examples because they further reflect the three- through seven-year-olds' tendency to respond to present tense antecedents in "What if?" questions as unreality conditionals rather than as potential generic (or simple present) conditionals. Rather than the present tense, the children choose predictives, and as they get older, hypotheticals. (This phenomenon and its possible explanation will be discusssed in Chapter VI.)

2. (Clifford is a very large red dog and anytime he moves or wags his tail, there is potential disaster.)
   Adult: What if Clifford wags his tail?
   Four: That wagon <u>might</u> move/
   Five: He'll ( ) the pies up there an' <u>might/an' it might</u> go/so the pies <u>might</u> go so high an'it <u>might</u> hit the people over there/

3. Adult: What if Clifford gets pies in his eyes?
   Eight: It <u>maybe</u> hurt him a whole lot or <u>he'd maybe</u> roar or somethin'/
   Eight: Uhm, it's <u>probably gonna</u> hurt him/.

<u>Imitation</u>

As can be seen from Table 4, no age group has much difficulty imitating the generic conditionals (If a snake

bites, it hurts). They are morphologically the simplest conditionals. The most prevalent deviation change in response was to change the stimulus to a predictive, e.g. "If a bee stings, it hurts" became "If a bee stings, it will hurt," once again showing a preference for Unreality Conditionals.

Table 4: Imitation of Generic Conditionals

Age	Exact Replicas
2)	84
3)	100
4)	67
5)	100
6)	85
7)	85
8)	100

3. Past conditionals

The past conditional, again, is used to make an assertion about the real world but one that occurred in the past. Past conditionals have the simple past or past progessive in the antecedent and a past verb in the consequent, e.g. "If the electricity went out last night, the ice cream in the freezer melted." It was very difficult to think of plausible stimuli for this particular group of conditionals, especially examples that were relevant to the children. From the results in Tables 5 and 6, it appears that this particular type of conditional is not one with which children feel comfortable.

Table 5: What if + past?

Age	Type of Consequent REALITY simple past	UNREALITY simple conditional*	Other
2)	0	19	38 future 30 irrelevant 12 denials
3)	0	28	33 bare 26 denial 6 nonverbal 6 present
4)	0	87	7 denial 6 ambiguous
5)	0	80	7 present 13 future
6)	0	95	5 bare
7)	0	100	
8)	0	91	9 future

(* includes would or could + verb)

What if?

For those What if? questions with a past verb, e.g. "What if Clifford wagged his tail in the tent?" not one child of any age group chose to use a past indicative consequent. In a sense, these results are a product of the task; the child knows what he did in the past, and, therefore, denials such as those given by the twos, and especially the threes, are not unusual responses. For example, to the question, "What if you ran away to the circus?" a three-year-old said, We drove to the circus.

In general, the children circumnavigated this problem by either producing a simple present consequent (the twos) or hypothetical consequents with the simple conditional, for example, I would go help the clowns.

However, even those What if? past antecedents which did not involve the children themselves were answered with the simple conditional, e.g. "What if it rained last night?" Response: I don't know or Everything would get wet.

Imitation

Table 6: Imitation of Past Conditionals

Age	Exact Replicas
2)	0
3)	22
4)	60
5)	71
6)	88
7)	85
8)	71

The awkwardness of these constructions ("If the car broke down, he took the bus") is further borne out by the results from the imitation data. Most of the deviant imitations changed the simple past conditional sentence into a hypothetical conditional, as in "If the car broke down, he would take the bus". Certainly by four the children are capable of controlling the simple past verb morphology; on

purely morphological grounds, then, we would expect them to be able to imitate these structures.

4. Predictives

The relevant tasks for the elicitation of predictive conditionals are the Lion's Face Construction, the "What if?" questions with a present tense antecedent, e.g. "What if you eat 100 marshmallows?" and the predictive Imitation stimuli. The numerical results are shown in Tables 7, 8, and 9, respectively.

Lion's Face Construction

In this game, the children constructed the lion's face, and, as you will remember, were instructed to say to their partner, "If you put on (some facial feature), I will give you a marshmallow." As the results show, from three on, all the children were able to play the game, clearly demonstrating some knowledge of the dependency relationship holding between the antecedent and the consequent. The two-year-olds all demonstrated sensori-motor comprehension of a dependency relationship, but not all were able to take turns and play the game. For example with one two-year-old, the following sequence occurred:

4. Adult: If you put on some eyes, I'll give you a marshmallow.
Two: (Puts on eyes, looks at me and I do nothing):
Get my marshmallow!/

Apparently it was the task rather than the conditional structure that posed a problem for the twos.

Table 7: Lion's Face Construction

Age	If+pres.,future	Future, If pres	Other
2)	75*	0	25 Imperative
3)	64	0	18 Imper, future declaratives
4)	100	0	
5)	85	0	15 Imper, future
6)	45	45	10 if fut, fut
7)	62	25	12 if fut, fut
8)	55	36	9 Imper, fut

(* One third of these are propositionally empty)

Table 7 shows the different clausal orders and the verb forms within the clauses. In column one are tallied those responses where the antecedent with a simple present tense precedes the consequent which has a simple future verb. In the middle column are tallied those instances where a child reversed the order of the clauses and preposed the consequent, I'll give you a marshmallow if you put on a eye.

It is the perhaps the deviations in the form of the child's instructions which are most interesting. One two-year-old gave these instructions:

5. Kate (2,8): If you have a turn an' (3X)/ I'll give you a jelly bean.

6. Kate (2,8): If/if you (get) a turn, I'll get a jelly bean.

Kate appears to be incapable of producing the conditional format with the necesssary propositional content, and opts for just the skeletal conditional structure.

One three-year-old had another type of difficulty with the instructions (declaratives on the Table); she said, Jeffrey, you can get [ə] do [ə] hat. Another change in the instructions occurs in the three, five and eight-year-old data where the model was paraphrased, Put on a X, and I'll give you a marshmallow.

The other variations are in clausal ordering and the insertion of modals, including will. Several answers (in the six- and seven-year-old group) had the future tense marked in both clauses: If you will put on an eye, I will give you a marshmallow. A six-year-old used this pattern: If you could find a nose, I'll give you a marshmallow. In this particular case, it seems like the rules of the game have been learned and/or presupposed, and what one does, once the nose is found, is quite clear. In these last

examples, the modals in the antecedents may well be markers of politeness, although childrens' speech to one another is not noted for this quality.

What if?

The What if? questions that might elicit predictive conditional consequents are those which have either a simple present or a present progressive verb form, that is, a combination of those which might have also elicited the present and generic conditionals, for example, "What if Jamie eats that seventh doughnut?" and "What if Sandy is out jogging in the snow?" The results can be seen in Table 8. They are self-explanatory and the exceptional responses have been discussed in the previous section on Present and Generic conditionals.

One point of interest is the shifting in preference from simple future consequents (and potentially simple future answers, e.g. the bare verbs) to a preference for the hypothetical consequents with would+verb. In the two-year-old data the future tense is clearly preferred; for the threes, the future and simple conditional are almost equally chosen; in the four-, five-, six-, seven- and eight-year-olds' data, there is a clear preference for the hypothetical. This bias is especially interesting in light of its questionable acceptance from adults: ?? "If I come

Table 8: What if + Present and Present Progressive?

Type of Consequent: Age	REALITY present	UNREALITY future	conditional	Other
2)	13	39	0	13 bare; can,might 9 denial; 9 agreement because
3)	4	21	23	14 bare; 8 nonverbal 19 denials; 4 agree
4)	5	32	55*	4 bare; 4 nonverbal
5)	5	31	64	might (in coordinate)
6)	9	25	50	4 bare; might don't know
7)	5	5	90*	
8)	28	5	55*	5 bare; might prob'ly gonna

(*Includes some responses with could + verb.)

home now, I would be late for dinner". This hypotheticality, or possible fiction, rather than clear prediction, is also reflected in some of the older childrens' use of might.

Imitation

As Table 9 shows, the children generally had little trouble with imitating the predictives ("If I don't finish this soon, I will be upset"). However, some of the twos who had been participating were silent, and the deviations in the threes' responses consisted of inserting will in the

antecedent: "If the sun will come out, the snow will melt." The six-year-olds' deviations transformed the predictives into hypotheticals by changing the verbs in both clauses for example, from the model, "If Santa comes down the chimney, the fire will burn him" to If Santa came down the chimney, the fire would burn him.

Table 9 Imitation of Predictive Conditionals

Age	Exact Replicas
2)	62*
3)	60
4)	72
5)	93
6)	91
7)	100
8)	89

(25% of the responses were silence.)

5. Hypotheticals

Hypothetical conditionals refer to fictional situations. They require a past tense verb in the antecedent and one of several modals, usually would + verb stem in the consequent, e.g. "If Jamie ate still another doughnut, he would certainly be sick." Other possible modals are could, may or might.

In English, the subjunctive is a dying mode, and it does not have its own form (except for the verb "to be"). Rather it is usually homophonous with the simple past.

Therefore, subjunctive counterfactual conditionals also share this form, as was mentioned in Chapter I. This being the case, we will review the results for both types of conditionals in this section: those tasks whose results are relevant are Pretend, What if? and Imitation.

Pretend

In the Pretend Game, the children are asked to pretend to be something and then tell about it or pretend to do something and tell about it, using a subjunctive counterfactual, as in "If I were an elephant, I would take dirt baths." The adult offers several examples.

As can be seen from the results above, all of the children were happy to pretend to be something.

The only linguistic point of note was the form of the verb in the antecedent and the auxiliary for the consequent verb, especially for the twos. For some reason, only five of the 28 children could or would invent hypothetical conditionals about actions or activities, as in this six-year-old's example: If I ate all the carrots in the world, I would turn into a rabbit. The remaining 23 children invented hypotheticals which involved being something as opposed to doing something. Furthermore, of this small group, those activity hypotheticals from the

Table 10: Pretend

Tense of:	ANTECEDENT		CONSEQUENT	
Age	Past	Subjunc.	Conditional	Other
2)	11	91	33*	44 future; 11 bare can
3)	86[b]	14	100*	
4)	54	46	100*	
5)	86	14	100	
6)	72[a]	28	100*	
7)	18	82	100	
8)	38[a]	62	100	

(* Include could, would, and should + verb. [a]Include some activity responses. [b] One three used beed.)

three and four-year-olds were locatives with was, e.g. If I was in that car, I would get dead. The form of these locative hypotheticals does not differ strongly from the other stative hypotheticals, e.g. If I was a turtle, I would have a shell and cannot be viewed as a real formal diversion.

What if?

Those questions in the What if task which might elicit hypothetical conditionals are those which have a past tense verb; this is the same group that we reviewed in the result section on past conditionals and the results are shown in

Table 5. The tallies show that by the time a child is four years old, there is no difficulty at all with this conditional form and it is, as we saw previously, preferred to the alternative choices. The young two- and three-year-olds' answers are more interesting, especially the denials. To the question, "What if you had a dog as big as Clifford?" one three-year-old responded, We don't have any dogs and cats. This retreat to reality is discussed in Chapter V and VI.

The three-year-olds' answers with bare verbs were semantically consistent with the proposed situation, but had no modal verb or tense indication as in the following example:

7. Adult: What if you stuck your head in the lion's mouth?
   Three: Bite/
   Adult: What?
   Three: Bite my head/

The responses to What if? past tense questions which, to an adult, express clearly impossible situations, e.g. "What if you were a lion?", can be seen below in Table 11.

This table does not adequately demonstrate the fluency with which the older two- and three-year-olds manipulate hypothetical conditionals because one of the older twos does not yet control the conditional morphology. However, if we look at the responses themselves, they are semantically appropriate and indicate some comprehension. Of additional

significance are the denials of some of the two- and three-year-olds, which will be referred to in the next chapters, and the the twos' use of the future. The only

Table 11: What if + BE subjunctive?

Age	Type of Consequent: UNREALITY Conditional*	Future	OTHER
2)	15	48	15 denials 15 agreements 7 irrelevant
3)	50		36 denials 14 irrelevant
4)	85		can; I don't know
5)	88		might
6)	100		
7)	100		
8)	100		

(* Includes could+ verb.)

deviations are in the three-year-old group where an idiosyncratic use of should occurs in the consequent:

8. Adult: What if you were a clown?
   Three: You should have a white mouth.

Imitation

The last task pertaining to hypothetical conditionals was the Imitation task. Table 12 shows the results from imitating imaginative hypotheticals and Table 13 shows the Imitation results of those hypotheticals considered to be

counterfactual by adults, i.e. the subjunctive counterfactuals.

Table 12: Imitation of Hypotheticals

Age	Exact Replicas
2)	0
3)	80
4)	71
5)	83
6)	86
7)	100
8)	100

Generally the children had few problems with the Imitation task for hypotheticals ("If he played in the mud, he would be muddy") after age three. The deviations of interest are primarily morphological: one three-year-old substituted would for might in "If (someone) fell from a tree, she might break her leg". A four-year-old omitted would in the consequent, and a five-year-old replaced a verb stem with the past participle: ...he might broke his leg. Otherwise the deviations from the model were straight lexical substitutions, except for the twos'. Those twos who would or could participate in the Imitation task produced interesting responses, e.g.

9. Model: If Judy fell fom the tree, she might break her leg.
   Two: A) If Judy up a tree, she can break a leg.
   Two: B) If Judy went off a tree, she might fall off and break her knee..
   Two: C) If Judy fell to a tree, he might broke he's leg.

10. Model: If I drank beer, I would get sick.

Two: A) You would drink beer and you would get sick.

Two: C) If I drink, I will get sick/

In all these examples the children were able to imitate the basic conditional morpheme <u>if</u> and the major content words. Their errors are primarily in the verb morphology although there are some lexical changes.

Table 13: Imitation of Subjunctive Counterfactuals

Age	Exact Replicas
2)	40
3)	25
4)	77
5)	67
6)	86
7)	100
8)	83

In the subjunctive counterfactuals, the results are somewhat different, as seen in Table 13. Deviations at all levels included the substitutuion of <u>was</u> for <u>were</u> in the antecedent. The twos' responses once again indicate that for these very young children the concept of imitation is a difficult one:

11. Model: If I were a raccoon, I would live in a tree.

Two: If you were a raccoon, you had a tail.

Two: If you were a raccoon, I will go in a tree.

It is possible that there is some carry-over in these responses from the Pretend task; however this would be true

of only one of these subjects as the first one would not or could not participate in the Pretend task at all.

6. True Counterfactuals

Of all the types of conditionals, counterfactuals are certainly the most complicated, both morphologically and conceptually; the results from the tasks bear this out. Morphologically, counterfactuals require the past perfect (had + past participle) in the antedcedent and the conditional perfect (modal/would + have + past participle) in the consequent. They are used to make a negative statement about the past, i.e. they refer to what did not, but potentially could have happened some time prior to the utterance.

There are four tasks which are designed to elicit counterfactuals and/or a demonstration of their comprehension. These are Imitation, What if + past perfect?, Bears and Pigs and the Lion's Face Transformation.

What if?

The What if? task results are shown in Table 14. It is clear that all the children, i.e. all age groups, prefer the simple conditional, to the perfect conditional, i.e. I would be smushed as opposed to I would have been smushed, for the consequent in this particular task

Table 14: What if + past perfect?

Age	Type of Consequent: Conditional	Cond. Perf.	Other
2)	36	0	36 future; silence 24 denials
3)	42	0	17 bare; silence I don't know
4)	80		10 bare: I don't know
5)	88	0	12 present
6)	66	0	24 present; woulda
7)	100		
8)	62	25	12 present

("What if +past perfect?"). Other than a scattering of simple past or simple present/bare verb responses, the significant deviations from the simple conditional answers, were: 1) I don't know and the denials and refusals of the two older twos, and some of the three-year-olds at one end of the spectrum to 2) the woulda gone, as in I woulda gone to the circus and' helped, from the six-year-olds; and 3) the use of the conditional perfect in the eight-year-old responses, e.g. I would have gone. These are detailed and analyzed in Chapters VI and VII.

Lion's Face Transformation

The results from the questions about a transformation of the lion's face appear in Table 15. Once again, the simple

conditional is the preferred tense for the consequent, e.g. Instead of that big a nose, it would be a horn. Further, the two younger twos and one three-year-old refused to answer. (Their responses are not included in the table.) As in the "What if?" task, woulda + past participle appears in the six-year-olds' and, here, also in the seven-year-olds' data. There is no occurrence of the conditional perfect in these responses (we will discuss this in Chapter VI).

Table 15: Lion's Face Transformation

Type of Consequent: Age	Cond.	woulda*	Cond. Perf.	Other
2)	40	0	0	40 future: 20 present
3)	86[a]	0	0	refusals
4)	84	0	0	8 past; 8 nonverbal
5)	67	0	0	5 future; might 15 nonverbal
6)	86	14	0	
7)	76	18	0	6 bare
8)	85	0	0	15 bare

(* Responses include woulda/would've+ past participle.
[a]One child consistently used should + verb, and these responses are included here.)

Imitation

The counterfactuals are by far the most difficult stimulus for imitation. This is well demonstrated by the results in Table 16 below.

Table 16: Imitation of True Counterfactuals

Age	Exact Replicas
2)	0
3)	14
4)	0
5)	14
6)	0
7)	25
8)	17

Certainly it is the deviations from the models which are of most interest, therefore Table 17 is an attempt to classify the form of the children's replicas of the counterfactual model sentences. The difficulties for the children, as might be predicted, lie in the auxiliary verbs of both the antecedent and the consequent. The diversity and uniqueness of some of the responses almost defy categorization. Table 17 is divided into two parts: auxiliaries used in the antecedent and those found in the consequent. A list follows with examples of each category; the letter corresponds to that particular column in the Table.

Verb Forms Found in the Counterfactual Imitation Results

Clause 1 Verb Forms

A	Simple present	If I get sick
B	Simple Past	If I was sick
C	Present Perfect	If I have been sick
D	Past progressive	If I was fishing
E	Past perfect (BE)	If I was been sick
F	Subjunctive	If I were sick
G	Past Subjunctive	If I were been sick
H	been+Ving or Adj.	If I been sick/fishing
I	would+past part.	If I would been sick
J	woulda+past part.	If I woulda been sick
K	would've+past part.	If I would've been sick
L	Conditional Perf.	If I would have been sick

Clause 2 Verb Forms

M	Bare Verb	Mommy have to go
N	Simple Future	I will have a biggest fish
O	Simple Past	I caught
P	Present Perfect	I have gone
Q	Present Perf. Prog.	I've been catching
R	Simple Conditional	I would go
S	would+past part.	I would gone
T	woulda+past part.	I woulda caught
U	would've+past part.	I would've caught
V	Conditional Perf.	I would have gone
W	Idiosyncratic	I [wʌs] caught (the biggest fish)
		I [ə̝də̝] gone
		I [wʌl] gone

Table 17: Counterfactual Imitation Deviations

Tense of ANTECEDENT:

Age	A	B	C	D	E	F	G	H	I	J	K	L	Other
2)	28							28					34 no*
3)		16		32	16					16			wul been
4)			25		12	12	12	25	12				
5)		14	28		14				14	14			woulded
6)		14						14		28			
7)		16				16				16			
8)		25							25	50			

(In those age groups where the totals are less than 100, the remaining antecedents had the correct past perfect.)

Tense of CONSEQUENT:

Age	M	N	O	P	Q	R	S	T	U	V	Other
2)		14	14								wul gone;34 NO 14 present
3)				16		33		16	16		topic change
4)					12	36		36	12		[ədə] gone
5)			12			24	36	13	12		
6)								100			
7)						20		20	60		

Although the variety of answers makes it difficult to see any strong tendencies, the six-, seven- and eight-year-olds appear to favor woulda and would've in the consequent, e.g.

Model: If I had been fishing, I would have caught the biggest fish.
Eight: If I woulda been fishing, I would've caught the biggest fish/

This is in fact an acceptable adult contracted form. The threes and fours usually could supply at least would in the consequent:

Three: If I was fishing, I would/ I would/ um caught the fish/

and sometimes could produce a more complex form:

Model: If I had been sick, I would have gone to the doctor
Three: If I [wʌl] been sick/ I would/ would've gone to the nurse/

The five-year-old responses are altogether anomalous; they appear to be some sort of transition:

Five: If I [wʌ] been fishing, I [wʌz] caught the biggest fish an' I [wʌz] be a whale/

. The twos' responses vary from No! to transformations to present and predictive conditionals:

Two: If Mommy gets sick, Mommy have to go to the doctor.

and stabs at counterfactuals:

Two: If I been sick, I [wʌl] gone to the doctor.

In the antecedent responses, it is even more difficult to discover any generalizations. The forms are not only varied, but often far outside the adult model, as in, If I

was been fishing. The broadest statement that can be made is that all the children, except the twos, supplied some form of the past tense, even though some are quite irregular. In the eight's example and as we have seen in other parts of the imitation task, the conditional marker, would, has once again shown up in the antecedent. This may just be anticipatory or it may be a functional way to emphasize the uncertainty of the antecedent. This construction is also used in adult speech.

I find the was been form particularly interesting because it is quite close to the model had been; it is the past perfect with the verb to be. Although it is not correct English, it is a type of past perfect.

Bears and Pigs

In the Bears and Pigs task, the chidren were confronted with a situation and then asked what would have occurred if the original situation had been different. For example, after the relevant portions of the The Three Little Pigs had been read, the child was asked about certain pictures in the book. An example is, "What if this brick house had been made of sticks?" The answers to questions such as this demonstrate the child's comprehension of counterfactuals as well as supplying the child's verbal auxiliary form for the consequent of a counterfactual.

Table 18: Bears and Pigs Comprehension

Age	%Correct	%Incorrect	Other
2)	92	8	
3)	36	21	7 ambiguous: 18 denials 18 no response
4)	95	5	
5)	78	11	11 ambiguous
6)	84	8	8 ambiguous
7)	83	17	
8)	94	6	

The results in Table 18 demonstrate the comprehension of the counterfactuals, as judged by the content rather than the form of the child's response. Three of the five two-year-olds would not participate and their results are not included in the Table. As is seen above, the two older twos were successful 92% of the time. For the three-year-olds, while 36% of their responses demonstrate positive comprehension of the counterfactuals, 21% of their responses showed that they did not comprehend the transformed situation. In fact they answered as if I were asking about the picture just as it appeared in the book. Their lack of understanding was further substantiated by the silence that greeted many of the questions: (18%) and also by the denials of the questions:

12. Adult: What if the Daddy Bear's porridge had been the Mommy Bear's?
Molly (3,3): Silence
Adult: (repeats question)
Molly: It's not/
Adult: Well, what if the Baby Bear's porridge had been the Mama's porridge?
Molly (laughs): It is the Baby Bear's/

Sometime before the age of four, the children all seem to have grasped the meaning of counterfactuals. Comprehension scores continue at about 85% or above (except at five) throughout all the age groups, after four. This peculiar pattern exhibited by the twos' threes' and fours' responses is discussed in detail in Chapter VI.

Table 19: Bears and Pigs (What if + past perfect?)

Age	Type of Consequent: Simple* Cond.	Contracted Cond. Perf.	Conditional Perfect	Other
2)	64			36 future
3)	82			6 past; 16 bare
4)	94			6 future
5)	94	6		
6)	29	56	11	<u>woulded</u>
7)	48	43	9	
8)	38	29	29	4 past

(* Responses include <u>would</u> and <u>could</u> + verb)

Regarding the form of the verb in the consequent, we can see from the results in Table 19, that the simple

conditional (would (and sometimes could)+ Verb) is clearly preferred at the early stages, that is, in the three-, four- and five-year-old groups. For the twos, only Kate and Matthew would participate. At this time, Kate does not have would in her lexicon, therefore the two-year-old verbal forms (half of which are Kate's) are somewhat idiosyncratic. In the six-year-old responses, there is a noticeable and rather sudden shift in preference to the contracted conditional perfect, a bisyllabic conditional modal + the past participle. The newly appearing conditional modal takes two forms: woulda is the most popular and would've shows a close second. The seven-year-old responses support and continue the woulda/would've trend. The eight-year-old responses continue to favor not only the contracted conditional perfect, but also a clear third of the responses are the fully expanded conditional perfect would+have+past participle. This set of transitions from would+Verb to woulda/would've to would+have+past participle, is the same pattern that appeared in the imitation data at an earlier age. In Chapter VII this is discussed in detail.

Chapter V: Developmental Profile

The purpose of this section is to present a descriptive developmental profile of the acquisition of conditionals. The naturalistic and experimental data will be integrated to give a chronological continuum of the development of the different types of conditional structures. The naturalistic data serve as a source not only for conditional sentences themselves, but also to trace the appearance and development of their components and syntactic precursors.

Structures continue to be present in the child's grammar, and older children are presumed to build on the earlier acquired skills unless otherwise indicated.

The preponderance of early data comes from the diary and longitudinal samples of Kate. We will present and discuss those features which appear relevant to conditional development.

The first related element to appear was the morpheme [maw:] (more) at 15 months. Once, when Kate and an adult were playing a game, and the adult stopped, Kate repeated this morpheme six times until the adult began the game again. By using this morpheme, she was implicitly comparing two states, one where the activity is present and one where

it is not. There is also an implied dependency between the stopping of the game and Kate's utterance; more is only appropriate once the game has ceased. A child's later use of the negative morpheme to express non-existence (Bloom, 1970) as in no rain (it's not raining) exhibits similar properties. This comparison of states is one of the basic elements of conditionals: since if implies uncertainty and therefore alternative possibilities, one must be able to compare these different states.

At 21 months, big and little entered Kate's lexicon. At 24 months, when she was more verbally adept, she was interested in explicit size comparison. She would put two similar objects together and say, This one big; this little. Or if the two objects appeared together, she might comment:

1. Kate is untying a big and then a small bow on a bathrobe: [bi?] bow/
[lidə] bow/
I retie them and the little bow is hidden inside:
Mother: What's this? (holding larger bow)
Kate: [biygə] bow/ (bigger bow)

In the above example, Kate was comparing two visible and tangibly available items. Three weeks later, she made an explicit comparison to a non-present entity using like:

2. Kate is sitting at the table after seating her doll. She hears a pan sizzling on the stove:
Kate: hamburger?/
Mother: No, that's bacon/
Kate: like hamburger?/
Mother: Yes, it's meat, like hamburger/

Once again, the juxtaposition of two states is a basic feature of a conditional situation.

At 22 months another relevant development occurs when the bare verb is used to express future intent:

3. Kate (1,10) is playing with her older brother, Jamie, on the floor; she is leaning over his face:

[bayt tuw]/ (bite you)
[bayt yuw]/
[bayt yuw]/
Mother: No, Kate/
Kiss Jamie/

It is several months later (2,3) that we see Kate responding to conditionals, and the mother making use of them. Unfortunately, for us, they are usually used in such a manner that it is difficult to extricate them from the context and be certain that the child understands the dependency relationship. For example, "If you turn around, I'll button your dress," would normally occur in the process of getting dressed and buttoning or zipping is one of the expected parts of putting on a dress. Kate responds appropriately to these. As Zukow et al (in press) have shown, knowing the non-verbal routine provides a means to help interpret the linguistic structure. Extending their findings, the child then may use his knowledge of familiar routines such as getting dressed, in this case, to disambiguate the conditional morphology.

To explore the extent of Kate's comprehension, I did the following informal experiment with Kate and another child to discover how they responded behaviorally. Both were slightly beyond the two-word stage, using three and four word utterances. The only complex sentences in their grammars were I wanna + verb and similar complement structures..

While playing with one child at a time, I asked them to bring me something and then promised a totally unrelated object in return. For example, "If you bring me a block, I'll read you a story." I tried examples where the situations were related and predictable, and some that were arbitrary. Because the children were so young, their attention span so short, and because of the necessity for situational and contextual relevance, the conditional tasks were tailored to the individual situation. Some examples follow with the child's response.

3. Adult: If you get a cup from the cupboard, I'll pour you some juice/
   Kate (2,3 opens cupboard, removes cup and holds it up)
   Adult (does nothing)
   Kate (holding cup up to adult): Put juice cup/

Charley (2,4 right before his nap):

4. Adult: If you bring me a car, I'll give you a surprise.
Charley (walks over to shelf, gets a car, brings it to me, sits in my lap and talks about the car's lights)

5. Adult: If you bring me a block, I'll give you a candy.
Charley (walks to shelf, gets block and brings it to me; sits in my lap, picks up car and plays)

6. Adult: If you bring me a book, I'll put it on my head.
Charley: No put on head/
Read! (goes and gets book; sits in my lap)

Charley (early the next morning):

7. Adult: If you bring me the football, you can pick up the turtle.
Charley (goes into bathroom to get football, brings it to me, goes into adjacent room and takes turtle from cage)

8. Adult: If you put the turtle away, we will go get goldfish crackers.
Charley (picks up turtle, puts him in cage, goes to pick up top): Put on top/
(comes back to where I am sitting): Goldfish/
(slides downstairs, walks into kitchen, points at refrigerator): Goldfish in dere?/

In all of these cases, it is possible that the clauses are interpreted as sequential acts, or as a sequence of an imperative followed by a permissive declarative, e.g. "Bring me the football and you can play with the turtle." In fact, conditionals are often used in a situation where either interpretation is acceptable. Interestingly, right before

his nap, when Charley was tired, he did not understand or he ignored the consequent entirely. However, the next morning when he was fresher, he was able to perform all the tasks.

At this stage, then, the children behaviorally demonstrated comprehension of some dependency relationship obtaining between the two clauses. It appears that they have more success when the antecedent and the consequent are related in a non-arbitrary way, however, Charley was able to follow through even in the non-related tasks when he was feeling awake and cooperative.

When Kate was 2,4, several conditional components appeared within days of one another: the use of maybe to show uncertainty; some verbal evidence of understanding cause and purpose; and the first unmarked conditionals.

In the antecedent of any conditional structure, the salient feature is the morpheme if. It marks the speaker's uncertainty as to the truth of the antecedent clause, or denotes entertainment by the speaker of the possibility of the antecedent's occurrence. Basically, it presents the possibility of alternatives. Kate's first productive verbal evidence that she understood the concept of uncertainty was the use of maybe:

9. Kate (2,4) had been to Karin's room previously and found some candy
   Kate: Candy/
   I want candy/
   Karin: I don't have any candy/
   Kate: Maybe your room/

And then at 2,5 Kate starts to use suggestions, how 'bout X and OK? for confirmation:

10. Kate (2,5 is standing at the table with paper and markers, pointing to one particular piece of paper):
How 'bout this paper, OK?/
All over, OK?"/

and several minutes later:

I wanna sit on your lap/
I'll sit on your lap, OK?/

Asking for confirmation implies that the child is aware of some uncertainty in the outcome of the situation and a suggestion implies alternatives by implicitly offerring more than one possibility. Also note the use of the future tense in the first person. It is also present at this time in the third person: The cookie monster will eat you up!

Another element of the conditional structure which appeared at 2,4 was appropriate and reasonable answers to Why questions. Since the relationship between the antecedent and the consequent in a conditional is sometimes a causal one, comprehension of cause and purpose are relevant. Until this time, Kate had answered all Why questions with because, because Lolo or because my Lolo hurts. (Lolo was the name of all Kate's dolls at that time.)

11. Kate (2,4 is unrolling the toilet paper)
Mother: What are you doing?
Kate: Pulling [daet]/
Mother: Why?
Kate: Because/
Because I want a clean/

(Kate is very fond of cleaning with a cloth and a squirt bottle; she was presumably going to use the toilet paper as a rag.)

Another index, signalling the advent of conditionals was the production of unmarked conditionals:

12. Kate (2,4 is starting to climb into her crib):
Climb in/
Be fun/ (she topples in and laughs)

At this particular point in time, she often says <u>x be fun</u> and then she does "x". Kate produced an even clearer, unmarked conditional that same week. She was outside on the junglegym which had a sheet stretched over the top:

13. Kate (2,4): Sit here/ (pointing to sheet)
Fall down/

Happily, Kate did not act out this prediction.

Although complex sentences first appeared at about 2,3, these were predominantly complement clauses with verbs like <u>want</u> as in, <u>I want finish cleaning!</u> or <u>Lookit</u> as in, <u>Lookit Jamie doing</u>. There are also coordinate sentences with <u>and</u>. However, it is not until two-and-a-half that complex sentences with adverbial clauses appear:

<u>Unmarked Purposive</u>

14. Kate(2,6; pulling off shoes):
I wan' my shoes off jump on a bed/

Time Adverbial

15. Kate (2,6): Can I have some gum?/
Mother: No, we don't have gum/
Kate: I have gum when I'm older?/

Comparative Adverbial

16. Jamie: You're a little girl/
Kate (2,6): I'm a big, big girl/
See I'm big/
See how I'm big/ (putting her hand on her head)

Another phenomenon related to conditionals is Kate's response or more explicitly, her lack of response to "What if" questions. To any such question, at this age (2,6), Kate replies, Because. This universal response continues until Kate is 2,8.

At two years, seven months, additional evidence for comprehension of the juxtaposition of states and an awareness of alternative possibilities appears with the expression, I thought was (X):

17. Kate and Jamie are looking at a bird book.
Kate (2,7,10): Tell me what is this/
Jamie: An egret/
Kate: I thought was a ostrich/
(The age increments here are Years, months, days.)

18. Kate and I are at the market and I have a quart bottle of beer.
Kate (2,7): What's that?/
Mother: Beer/
Kate: I thought was wine/

This same month, marked purpose clauses appeared as well as some slightly confused causal statements:

19. Kate (2,7,16); walking into a dark room):
Come and turn on the light so I can see/

20. Kate (2,7,18): My daddy has a haircut because/
because his hair is short/

Also appearing at 2,7 and directly related to predictive conditionals are conjoined structures, combining an imperative and a simple future clause, as in the following:

21. Kate (2,7,18; holding up a circle of wire):
Sit up and I'll put this on your head/

At 2,8, Kate gave her first coherent answer to "What if" questions, although only when the verb was in the present tense. However, "What if" questions with a past tense or past perfect tensed verb were ignored. Her responses to present tense "What if?" questions were terse and lacking in verb morphology:

22. (At the train station)
Mother: What if a train rolls over you?
Kate (2,8): Mashed/
A big owie/
A terrible owie/

23. Mother: What if you fall in the water?
Kate: Splash!/

The next step in Kate's pre-conditonal production development is the appearance of a stock response frame for "What if" questions of any tense: <u>It will (X)</u>

24. Mother: What if you drink really hot soup?
Kate(2,8,15): It will burn me/

25. Mother: What if Daddy drank really hot soup,
last night?
Kate: It will burn my Daddy/

26. Mother: What if you were a cow?
Kate: It will have no feathers, a bell/

27. Mother: What if you were Wild Thing?
Kate: I [wʌl] roar/ (raising her hands like claws)
Mother: Oh, are you a Wild Thing?
Kate: No, I'm a girl/

Kate seems to comprehend the "What if" question. Upon further questioning, she shows her answer is appropriate semantically, but tailored to fit her frozen format.

At this juncture, it might be a good idea to quickly review all of the components of a conditional structure reflected in the child's comprehension and present in his production at this point in his development, that is, prior to his spontaneous production of any fully marked conditional sentences with <u>if</u>.

The following list summarizes the pre-conditional developments. They are in chronological order and those items which are starred(*) are primarily linguistic rather than cognitive in nature. However it is not possible to completely separate the two.

Pre-Conditional Developments

Comparison of states: more, no (15 & 18 months)

Unmarked future: 22 months

Comparison using like (2,0)

Sensori-motor comprehension of conditionals (2,3)

Verb complements (2,3)

Uncertainty: maybe (2,4)

Unmarked conditionals (2,4)

Appropriate answers to why? questions (2,4)

Uncertainty: OK?, How 'bout?(2,5)

*Simple future: will (2,5)

*Adverbial clauses: time,purpose, comparative (2,6)

Juxtaposition of propositions and situations

Universal response to "what if?" Because (2,6)

Awareness of alternatives: I thought was a (xx)(2,7)

*Marked purpose clauses: so (2,7)

*Imperative and simple future complex structures (2,7)

Responds to "What if+present?" (2,8)

*Frozen response format to "What if+pres, past, or subjunctive?" It will (X) (2,8,15)

We have now reached the point at which the very first spontaneous conditionals are produced, and I must add that even after the child is capable of using them, he does so very rarely. Due to their infrequent appearance, the most

likely candidate to hear them is the child's major care giver. With this in mind, I asked several other journal keeping parents to listen for this particular structure. When the child had produced his or her first conditionals (this occurred at 2,7; 2,9; and 2,10) I spent time with the child and attempted to conduct the various tasks described previously, as well as collect some naturalistic data.

The children's first conditionals vary with the individual child. Different children show definite preferences for a particular type of structure. For example, Matthew's first conditionals were all hypotheticals, and were often of the form, <u>If I were...</u>:

28. Matthew (2,9):
    If I were a zebra, then I have stripes/
    If I were a ant, I will scare you/
    If Amber died, then Auntie would come/

These examples use the adult subjunctive counterfactual morphology. I have called them hypotheticals because he is using them to pretend and it is not clear that he perceives them to be impossible. Furthermore this subjunctive form seems frozen and unanalyzed; it does not appear to be a productive subjunctive for Matthew in that this specific context is the only place in his grammar that it occurs. Other data which supports the claim that this is a stock frame for Matthew is that the subjunctive <u>were</u> after <u>if X</u>

does not generally appear in the task responses until age seven.

Although the verb morphology in the consequent varies, there was a definite period when Matthew was producing many of these hypothetical conditionals. As we mentioned above, he seemed to have one particular conditional format into which he inserted varied propositional content. In the following months, he stopped producing conditionals altogether and substituted <u>when</u> clauses which more closely resemble generic or predictive conditionals, e.g.

29. Matthew (2,10): When Katie comes over, I will share my candy canes/

The other children however, produced only predictive and present conditionals as in the following examples:

30. Kate (2,10; hit me with a bag)
Mother: Don't hit me/
Kate: I'll do it again, if you laugh/

31. Wynn (2,7; talking about a birthday party):
Elizabeth got a king hat/
If you are a king, you get a birthday hat/

32. Cate (2,8; playing with blocks)
If we put one in here, then it can go in here/

33. Kate (2,10): If I touch my cut, it hurts/

In Chapter VI, we will discuss the possible explanation for the occurrence of these particular types of conditionals and I will argue that although many of them look like generics, independent linguistic evidence will show they are not. For

example, Matthew's use of the when construction as a predictive rather than as a generic supports the notion that the twos' present tense conditionals are intended to reflect a present or predictive rather than generic meaning. The results of French and Nelson (1982) who did not find generic conditionals in their script data until age four, further substantiate this claim.

The results from the tasks in which four of the five twos would participate (Imitation, What if? and Lion's face Construction) confirm our naturalistic findings for twos.

They easily imitate generic and simple present conditionals and some predictive conditionals. Two haltingly imitate the subjunctive counterfactuals; none can imitate past, hypothetical, or counterfactual conditionals. Interestingly, Matthew could spontaneously produce hypotheticals, but had great difficulty imitating them. Imitation as a task was difficult for three of the four cooperative two-year-olds. When given a hypothetical, Cate (2,8) replied, I can't; it's too long.

Every two-year-old was able to perform the sensori-motor task as we would expect. However, their immaturity was reflected in their lack of ability to play it with another two-year-old. Each needed an adult, or in some cases, an older child. Linguistically, their answers varied from propositionally empty pro-forms:

34. Wynn (2,8): You do this/

to the full model:

35. Kate (2,10): If you put on a eye, I'll give you a jelly bean/

Those four two-year-olds participating in the tasks were all able to answer simple present,and present progressive "What if" questions appropriately. (I will no longer include the one two-year-old who would not or could not participate in the tasks. As it turns out, her first conditional in my records appeared at 3,2, thus showing the wide variability of individual developmental timetables.)

Beyond a common base of fluency with present and predictive conditionals, (except for Matthew who did not spontaneously produce any of these conditional types but did respond appropriately to the tasks) we find a great deal of variablity, both linguistic and cognitive, among these two-year-olds. These discrepancies are neatly reflected in their answers to the "What if?" questions. At the early end of the continuum, a child will answer present tense and some past "What if?" questions and deny subjunctive and true counterfactuals. Cate's responses reflect this level:

36. Adult: What if you were a rabbit?
Cate (2,8): Yeah/
I a rabbit/

37. Adult: What if a snake had eaten your daddy?
Cate (2,8): No!/
Can't eat my daddy/

38. Adult: What if you were a baby?
Cate (2,8): I not a baby/

39. Adult: What if you push this?
Cate (2,8): Then it goes/

Another two-year-old can answer "What if?" questions with a variety of verb tenses in the antecedent and shows some comprehension of the differences, but does not have conditional verb morphology available:

40. Adult: What if you drink really hot soup?
Kate (2,8): It will burn me.

41. Adult: What if you were a Wild Thing?
Kate (2,8): I [wʌl] roar!/
Adult: Are you a Wild Thing?
Kate: No, I'm a girl/

42. adult: What if this turtle had been a rabbit?
Kate (2,10): It [wʌl] hop/

43. Adult: What if Daddy drank really hot soup?
Kate (2,8): It [wʌl] burn my Dadddy/

A third two-year-old has greater control of the verb morphology, in that she uses <u>would</u> and <u>will</u> in her responses, but cognitively is still at the stage of denying subjunctive counterfactuals:

44. Adult: What if Ben chased you?
Wynn (2,8): I would run away/

45. Adult: What if you were a bird?
Wynn (2,8): I'm not a bird/
Just a people/

Evidence that denials to subjunctive counterfactuals reflect a limited grasp of the structure is suggested by two other pieces of data: 1) the twos who do not deny subjunctive counterfactuals are those who can respond

correctly to true counterfactuals while those twos who deny the subjunctive counterfactuals respond inappropriately, incorrectly, or not at all to the true counterfactual tasks; and 2) at three, occurring simultaneously with the denials of both kinds of counterfactuals is the lack of comprehension of true counterfactuals in the Bears and Pigs task. At four, when the children's comprehension of counterfactuals shows a marked increase (from 36% correct at three to 95% correct at four) denials of both subjunctive and true counterfactuals decrease to zero. Therefore counterfactual denials suggest a lack of counterfactual comprehension.

The fourth two-year-old is at the far end of the continuum. His very first conditionals were hypotheticals, as we mentioned previously, and his auxiliary system contains both <u>will</u> and <u>would</u>. When the conditionals first appeared, he made no distinction between the two morphemes, using either for hypotheticals (see example 28). One month later, at 2,10, he was making more consistent distinctions in his responses to "What if?" questions, although there was still some variation:

46. Adult: What if a snake bites you?
    Matthew (2,10): I get away/

47. Adult: What if you drank hot soup?
    Matthew (2,10): I would drink it all up/

48. Adult: What if you were a flag?
Matthew (2,10): I would go like this/ (shakes his head around)

50. Adult: What if you were a rabbit?
Matthew (2,10): I will bite the snake/

The variability that these two-year-olds show is not unusual nor astonishing; they are learning a new structure and they are all going about it in different ways. Interestingly, there seems to be a reasonably wide variety of strategies for achieving the same goal. Even more striking is the fact that the morphological and cognitive development do not keep apace with one another. We will discuss this point more thoroughly in Chapter VI.

In spite of the individual differences, the results do suggest that for most of the twos, the hypothetical conditional is next to appear, with or without its attendant morphology.

There is an increase in fantasy play and a developing easiness about pretend; the children are beginning to separate themselves from the present reality. This is evidenced by the two older two-year-olds' willingness to participate in the Pretend task. (The two younger twos (2,8) after repeated invitations refused with, I can't.) Kate (2,11) after one model sentence and a request that she do the same, needed little prompting to create the following:

51. Kate: If I were a raccoon, I wul live in a tree/
If I were a elephant, it wul have a trunk/
If I were a turtle, I can have a shell/
If I were a bird, I would fly/

In these examples, like many of Kate's, the verb morphology is unique. She has modeled her antecedents on the stimulus, but the forms occcurring in the consequent are her own. In spite of the formulaic appearance of these sentences, they are semantically cohesive.

With the counterfactual tasks (Lion's Face Transformation and Bears and Pigs) the two younger two-year-olds were not cooperative; they stared unresponsively to my repeated attempts and invitations to participate. However, they could and did answer other "What if + past perfect?" questions after responding to "What if?" questions with verbs in other tenses. I would suggest that these two children did not even notice the change of tense, but simply extracted the propositional content. The following examples demonstrate this phenomenon.

53. Adult: What if a snake bites you?
Wynn (2,7,15): That'll be bad/

54. Adult: What if the snake bit your Mom?
Wynn (2,7,15): She'll have to go to the doctor/

55. Adult: What if the snake had bitten your Dad?/
Wynn (2,7,15): That will be terrible/

The younger two-year-olds' difficulty with the counterfactual can possibly be attributed to the cognitive complexity of counterfactuals. He must mentally negate a

present and visible situation and draw a conclusion based on the transformed situation. For example, in The Three Little Pigs when the child is asked a question like, "What if the straw house had been made of bricks?" he must mentally replace the straw house and what happend to it with the brick house and its fate. Or it may be that these children simply do not hear or process the past perfect. We will take this topic up again in Chapter VI.

The two older two-year-olds were able to perform the Lion Transformation task, or an equivalent, as Kate's examples demonstrate.

56. Adult: Do you see this chicken here?
Kate (2,11): Yeah/
Adult: What does she do?
Kate: Have eggs/
Adult: Well, What if she had been a fish?
Kate: It will swim/
Adult: What if the chicken had been an elephant?
Kate: It will have a long trunk/
Adult: What if she had been a tree?
Kate: It will stand still/

Even though Kate's answers to "What if?" questions morphologically reflect no distinction among the different types of conditionals (also see examples 24-27) it is clear from her responses that she does comprehend the semantics of the different questions. Also, Kate has no other conditional verb morphology at her disposal. Further, she did not respond to all types of "What if?" questions from the very start, but rather responded appropriately first

only to simple present and present progressive tensed "What if?" (2,8,0), then present and past tense "What if?" (2,8,15), and then finally at (2,10) present, past and past perfect tensed "What if?". This development demonstrates a change and growth in her comprehension, despite her limited verb morphology.

Both Kate and Matthew at (2,11) and (2,10), the oldest two-year-olds, were willing to participate in the Pigs task, but not the Bears. Surprisingly, they did quite well, appearing to understand the questions and the transformed situations in the counterfactual task. For all the questions answered, 92% of the responses were correct. The two younger two-year-olds (2,7 and 2,8) did not appear to comprehend the counterfactual tasks at all. They stared at me, changed the topic, or asked me to continue reading the story.

In summary then, the two-year-olds show a great deal of diversity in their conditional abilities, both cognitively and morphologically, as would be expected in the beginning stages of acquiring any new skill or structure. The first types of conditionals which appear spontaneously are present conditionals and predictives for most of the group. One child began with hypotheticals. At the end of the third year hypotheticals are just on a child's productive horizon and she can respond to questions necessitating

hypothetical-like answers even though her morphology might be inadequate. Some twos can also answer counterfactual questions, but it is not at all clear that they really understand what the counterfactual morphology reflects conceptually. Rather, it appears that the twos extract the propositional content from the question and insert the semantically appropriate response into a frame. Further discussion of this phenomenon appears in Chapter VII.

It should also be mentioned that neither past nor true generic conditionals appear in the conversations of these children, nor in their task responses, although generics can be imitated. In fact, of the reality conditionals, only the present conditionals are in the repertoire of the two-year-olds.

Three-year-olds

Though building on the two-year-olds' abilities with simple present and predictive conditionals, the threes differ markedly from the twos in a variety of ways. They seem significantly more mature and this first impression is reflected in their new task sophistication. All but one three-year-old, the youngest tested (3,2) were willing and able to participate in every task. There was little need to individualize the tasks for each participant as was necessary for the twos. Secondly, the auxiliary system of

the threes (except for the youngest) has grown to include would, could and for one child, should. The third development of significance to us is the greater control of the hypotheticals, although there still was a substantial proportion of denials to all types of imaginative conditionals: hypotheticals, subjunctive counterfactuals, and true counterfactuals. The threes had a great deal of trouble with Bear and Pigs, but did quite well with the Lion's Face Transformation.

In discussing the three-year-olds" results for the hypothetical tasks, the subjunctive counterfactual results are included because both structures appeal to the concept of pretend. The children's penchant and willingness to pretend is, in fact, the basis of the Pretend task. Moreover, it is not at all clear that young children differentiate between pretend and possibility (as in hypotheticals) and impossibility (as in subjunctive counterfactuals).

The threes did quite well in imitating both types of hypotheticals although the subjunctive counterfactual Imitation results do not make it appear so. So, once again, we must look at individual responses and not just the numbers to get a clear idea of the children's abilities.

The responses of the children are all If X was rather than the model, If X were. And if we compare these

Imitation results with the verb forms in the threes' Pretend task, we see that about 70% of their Pretend responses take this same form, If X was. One child also said, If I beed

It should be noted here that in the Pretend task there were model sentences "If I were a duck,I would have feathers" and "If X were an elephant, he would have a trunk" on which the child based his responses. The fact that all but one of the three-year-olds chose to use a simple past tense (was or beed) rather than the model "were" showed they were not just imitating without processing, or just using a formula into which they might insert new propositional material, as did the twos. Rather, the threes were in fact processing the subjunctive counterfactuals and filtering them through their grammars. This apparent regression from were for the twos to was for the threes is in fact progress.

The other relevant task is "What if?" where there are still denials and a retreat back into reality:

57. Adult: What if you had a dog as big as Clifford?
Three: we don't have any dogs and cats/

58. Adult: What if you were a snake?
Three: I'm not a snake/
I'm Janine/

59. Adult: What if you were a little girl?
Three: Now, I'm a big one/

60. Adult: What if you ate three boxes of strawberries?
Three: I did/
I ate'em already/

However, every three-year-old could answer appropriately to some of the hypotheticals. Even those responses with ellipted subjects or bare verbs were usually semantically apppropriate, as were those of the twos.

Two developments in the threes' behavior are responsible for their responses being significantly more advanced than the twos'. The first is the development of the hypothetical consequent morphology would, could and should, and the second is their ability to participate in standardized tasks. However, since a significant portion of the threes continue to deny the subjunctive counterfactuals (36%) and hypotheticals (26%) which both require this morphology, we can infer that the threes have not all made as great a cognitive leap as their morphological proficiency implies.

With regard to the other kinds of conditionals, all the three-year-olds' imitation responses are closer to the models than the twos' even though the absolute numbers are not impressive. For example, one two-year-old responded to the counterfactuals with, I can't. On the other hand, all the threes, but the youngest (who refused to participate in any imitation at all) made some attempt. Further, the results resembled the model sentences whereas the two's were often just fragments. Following are some three-year-olds' responses:

61. Model: If I had been sick, I would have gone to the doctor.

Threes: a) If I was sick, then I would go into the doctor/

b) If I wul been sick, I would/would've gone to the nurse/

c) If I was been sick, [wʌ]/ I have gone to the doctor/

Once again, there appears to be some attempt on the part of the three-year-olds to make sense of the tasks and the sentences, as in 61 a). The regularizing of model sentences as in a) above, has also been found by Menyuk (1963) who views it as evidence that the child is processing the sentence through his grammar--specifically that the imitation is not solely a perceptual-motor skill.

As we saw in the results section, the three-year-olds did not perform well on the comprehension portion of the Bears and Pigs task: 36% correct responses; 21% incorrect responses; 7% ambiguous responses; 18% no response; and 18% denials. The surprising success of the older two-year-olds in light of the three-year-olds' problems is discussed in Chapter VI.

In their spontaneous production, the threes, like the twos, prefer the unreality conditionals. Most of the spontaneous conditionals are hypotheticals. Because of the wide variety of tenses in the responses to the What if? questions at this age (see What if+present? and What if+past? Tables in Chapter IV: Results), it is impossible to distinguish any strong preference.

To review, the three-year-olds are more task sophisticated than the twos and their morphological repertoire has grown to include simple conditional morphology. They are continuing the two-year-old trend in perfecting the hypotheticals and also in preferring the unreality conditionals both spontaneously and in response to "What if" questions. Their performance in the counterfactual Bears and Pigs task is very poor and appears to be a setback from the twos' success in this particular area.

Four-year-olds

Listening to the four-year-olds, one feels that their interactions are much more sophisticated and their language is more adult than the threes'; with respect to conditionals, the major development for this age group is a cognitive one: the fours no longer deny the possibility of a proposed situation nor do they need to retreat to reality when a hypothetical situation is proposed. This is reflected in the lack of denials in the hypothetical and counterfactual tasks, and more impressively in the four-year-olds' remarkable success in their responses to the Bears and Pigs task, where their answers are 95% correct. This success is especially interesting when compared to their imitation results for counterfactuals where they have 0% correct. Once again, however, we must look at the actual

responses rather than just the numbers. In most cases, it is the auxiliary morphology that stymied the children, as the following examples indicate:

62. Model: If I had been sick, I would have gone to the doctor.
    Fours: A) If I was been sick, I would go to the doctor/
    B) If I were a sick, I woulda gone to the doctor/
    C) If I have been sick, I would go/ I [wʌ]/ I have been (.) to the doctor/

The fours use the simple conditional <u>would</u> in their answers to potential hypotheticals, subjunctive and true counterfactual What if? questions, as in:

63. Adult: What if you were there when the roof fell in?
    Four: I would get dead/

64. Adult: What if you ate 100 marshmallows?
    Four: You would have a tummyache/

65. Adult: What if you had been one of those clowns?
    Four: They (the pies) would fall on you/

Nowhere in the four-year-old spontaneous speech does the past perfect or conditional perfect appear.

As we have seen with the twos and threes, the four-year-olds do not seem to adhere to the same morphological constraints as adults do. The co-occurrence of tenses in the antecedent and consequent appear to have few restrictions. For example, in the twos' and threes' responses, both the simple future <u>will</u> and the simple conditional <u>would</u> appear in the consequent responses to

"What if + present?" questions. This same variation occurs in the threes' answers to "What if + past?"

The four-year-olds have progressed in these tasks, and their results show more conformity to the adult rules, in that the hypothetical responses were 87% in the conditional mode. However, with potential generics (What if + present?) the fours are torn between the future and the conditional as the following examples show:

66. Adult: What if a bee stings you?
    Four: I would scream/

67. Adult: What if Clifford gets a pie in his eye?
    Four: I'll just brush it off/

Further, with the predictive What if? questions (combining What if + present and +present progressive?) the simple conditional is the form most often chosen for the consequent. This shows not only that the children are lacking in the adult constraints, but also that for this age group, this particular context (What if + present?) establishes an irrealis mode.

Further evidence of the variable rules for the interaction of tenses in the antecedent and consequent comes from the spontaneous conditionals of the four-year-olds:

68. Four: If they put a goldfish in there and they ate it, they would die/

69. Four: If you ate them all gone, then you will get sick/

As we have seen, the four-year-olds, like the younger groups, respond to "What if" questions with the unreality conditionals. For 87% of the "What if + past?" they responded with a hypothetical consequent. Once again, there is not one simple past answer. For the "What if + simple present?" (potential generics) only 15% of the responses are in the simple present, whereas 80% (including <u>might</u> and <u>coulden</u>) are morphologically unreality conditionals. Interestingly, the fours are one of the two age groups to respond to some "What if + present progressive?" with present tense consequents.

In conclusion, the fours' major breakthrough is in their cognitive ability to mentally separate themselves from reality and the immediate context.

<u>Five-year-olds</u>

Five is not a crucial turning point in conditional development but rather presents a smooth progression on the developmental continuum. The changes generally are of degree rather than in kind. For example, the Imitation results, except for the counterfactuals, are all higher for the fives than the fours. For the "What if?" questions, regardless of the tense of the antecedent, the simple conditional is the tense of the consequent. This is not to say that other tenses are not used, but rather the simple

conditional is preferred. As we mentioned in chapter IV, in the results for "What if+ present?" the responses are still equally divided between the simple future and the simple conditional.

The fives' responses to the counterfactual questions generally still have the simple conditional morphology; however, there is one response with would've:

70. Adult: What if the Papa Bear's porridge had been the Baby's?
Five: It wouldn't be too hot and she would've ate it up/

This answer presages the trend which flowers with the six-year-olds; a marked morphological differentiation for counterfactual conditional consequents.

Some inkling of future morphological abilities also appears in the Imitation data. Regressing a moment to the three and four-year-old imitation of the counterfactuals, (see examples 61 and 62) we find that although they are imperfect, they are aproximations of the model. The five-year-olds seem to have even more trouble with imitating the counterfactuals; their verb morphology is in some cases quite unique. In fact, many of their answers appear to be a step backwards, although there is evidence of differentiating the counterfactuals from the hypotheticals:

71. Model: If I had run I would have been on time.
Five: If I woulded run, I would be on time/

72. Model: If I had been fishing, I would have caught the biggest fish/
Five: A) If I [wʌ] been fishing, I was caught the biggest fish/
B) If I was been fishing, I would been caught/ I caught the biggest fish/

73. Model: If I had been sick, I would have gone to the doctor.
Five: A) If I [wʌn] sick, I would go to the doctor/
B) If I woulda 'n sick, I (would've) gone to the doctor/

The double conditional marking, i.e. would in the antecedent, and then again in the consequent, is not at all an unusual deviation in the imitation data. (It also occurs in the spontaneously produced conditionals, and in adult speech.)

If the five-year-olds were processing these sentences as hypotheticals, we would expect would plus a verb stem in the consequent. However, in many of the fives' counterfactual imitations, as well as those of the younger children, the consequents do have some unique auxiliary morphology, plus the past participle. Thus, it appears that the children are not processing the counterfactuals "just like" hypotheticals, but are in fact differentiating them. Further support for this notion is the imitation results for the five-year-olds for simple hypotheticals: 83% are exact imitations.

We also need to remember that the fives, like the fours are quite successful on the counterfactual tasks, showing a conceptual understanding of this form.

Six-year-olds

This brings us to the six-year-olds where the morphological differentiation between hypotheticals and true counterfactuals has more fully developed with new transitional auxiliary forms: woulda and would've. Both these forms appeared in the imitation data at earlier stages (see examples 61B, 62B and 73B) and they are also in the adult model.

The six-year-olds produce the long or uncontracted form of would have in only 11% of the true counterfactual task (Bears and Pigs) responses whereas 56% are of the contracted form. I suggest that woulda and would've are unanalyzed for most of the sixes and serve as transitional forms in the acquisition of the full conditional perfect. This is more thoroughly discussed in Chapter VI.

Whereas this striking new morphological development can be found in the Bears and Pigs responses for the six-year-olds, it does not occur in either one of the other two counterfactual tasks: Lion Face Transformation or "What if + past perfect?" In these two tasks, the majority of responses much more closely resembles those of the younger

children where potentially counterfactual questions are answered in the simple conditional mood:

74. Adult: What if the lion had been a goat?
Six: It would have horns and um/ a little thing down here/you know/ a beard/
Musta been old/

However, the musta been old above, looks a great deal like the other woulda been responses in Bears and Pigs: a contracted bisyllabic perfect auxiliary. And even though 86% of the six-year-old responses to the lion task were in the simple conditional, 14% were of the contracted form as the following examples show:

75. Adult: What if the lion had been a pig?
Six: It wouldena had all this hair/

76. Adult: What if the lion had been an elephant?
Six: It woulda had a longer nose/
It would have a tail/

These two examples show the positive and negative form of woulda. It could be argued that since the negative morpheme en can be be inserted, that woulda is not a frozen unanalyzed form. It could also be said that the child learns separate positive and negative forms at the same time and that one is not more basic than the other.

A point raised briefly before is the qualitative difference in responses for the two different counterfactual tasks; the Lion's Face responses are primarily in the simple conditional whereas the majority of responses for Bears and Pigs contain some counterfactual morphology. Two possible

explanations come to mind, one where the processing load for the two tasks differs and a second possibility where the task interpretation differs.

In the first case, the children and experimenter discuss the relevant stories so that the answers to the Bears and Pigs questions are already known. The answers to the Lion's Face Transformation task need to be created. This would allow the child to devote more attention to form, in this case the verb morphology, for the Bears and Pigs task than it would for the Lion task where the child's attention is also drawn by the need to think of an appropriate answer.

With regard to interpretation, since the Bears and Pigs questions have a specific and already known answer, the questions are clearly counterfactual. In the Lion task, the children actually constructed the lion's face, and the lion's identity and characteristics are potentially open-ended. Therefore, in spite of the verb morphology in the questions, this task could easily be interpreted as a hypothetical situation, thus explaining the lower number of counterfactual responses. An interesting point that example 76 raises, and one that is extremely common throughout the data, is the lack of tense/mode consistency in the responses. Also, it is not unidirectional, from simpler to more complex, but occurs in all kinds of patterns. This

variability, plus the lack of constraints on the antecedent and consequent tense co-occurrence also helps explain why, if a child interprets the Lion Face Transformation task as a hypothetical situation, he does not hesitate to use the simple conditional in the consequent, even though the past perfect occurs in the antecedent.

The other areas in which we see growth for the sixes is in imitation. The scores are up slightly with a minimum of 85% in all tasks except once again the counterfactuals, where they do however surpass the fives:

77. Adult: If I had been fishing, I would have caught the biggest fish.
    Six: If I would've been fishing, I woulda caught the biggest fish/

78. Adult: If I had been sick, I would have gone to the doctor.
    Six: If I woulda been sick, I woulda gone to the doctor/

Once again, note the conditional marker in both clauses.

Whereas the fives' results tended to cluster them with the younger children, there are several phenomena, besides the new counterfactual morphology, in the six-year-olds' responses, which separate them from those younger groups and compel us to see six as a turning point.

One of these items is the results from the generic "What if?" questions, i.e., those "What if?" questions with a simple present tense verb.

We saw in Chapter IV that through age five, the tense of the response varied; the simple future and conditional were in close competition. At six, and continuing throughout the seven- and eight-year-old responses, the simple conditional had become the favored response.

Another interesting development that occurs with the sixes appears in the Lion's Face Construction task. In that particular task, there is a model sentence, "If you put on the (some facial feature), I will give you a marshmallow." All of the age groups from three on can play this game and they model their instructions exactly except for one deviation. This occurs in the form of an imperative + the future simple clause: Put on the eyes and I'll give you a marshmallow. In these few cases, the order of the clauses in the model is maintained. The six-year-olds, however, are the first group to give instructions where the clausal order does not follow that of the model, but is reversed, as in the following:

78. Six: I'll give you a marshmallow if you put on the other eye/

79. Six: I'll give you a marshmallow if you can find a cheek/

To contradict and extrapolate from the model implies a fluency with the structure, and an ease which allows them to manipulate and rearrange the it at will. It is at this stage that it seems appropriate to discuss reversibility

with regard to language. The ability to spontaneously re-arrange the clauses which are used to express a given situation, demonstrates the child's comprehension of the situation as a constant and identifiable whole composed of manipulable components.

Six is definitely an important time in the growth of the conditional, and we have seen several very significant changes in the child's abilities. To quickly summarize these: a new morphological form appears, differentiating hypotheticals from counterfactuals; there is a trend toward more use of the conditional over the simple future in potential generics; and third, a clausal rearrangement in the lion sensori-motor task.

Seven-year-olds

The seven-year-olds continue to make gains on those trends which appeared in the six-year-old data. First, the simple conditional mode is the preferred response for the entire range of "What if?" questions.

Secondly, in the Bears and Pigs task, the numbers have remained stable for the morphological differentiations; woulda and would've responses are as common as would and could. There is some evidence of the full uncontracted form (would have + past participle) but it occurs in only 10% of the seven-year-old responses.

Thirdly, imitation scores climbed slightly, especially in the counterfactual task where 25% of the responses were exact replicas of the model sentences. More importantly, the deviations in the consequent all contained <u>woulda + past participle</u> as in the following:

80. Model: If I had been fishing, I would have caught the biggest fish.
Seven: A) If I had been fishing, I woulda caught the biggest fish/
B) If I were fishing, I woulda caught the biggest fish/
C) If I woulda been fishing, I woulda caught the biggest fish/

The seven-year-olds' deviations to the counterfactual model sentences, like those of the six-year-olds, are very close to the model. Most deviate in a way that is acceptable in the adult model, though considered colloquial. Again, note <u>would</u> in the antecedent in example 80C.

There is one task about which we have said little, because the children mastered it so quickly and that is the Pretend task. The seven-year-old answers, however, are unique in that they are the first group to show a preference for the subjunctive over the simple past in the antecedent. Responses like, <u>If I were an elephant,...</u> are more popular than <u>If I was an elephant...</u> as are <u>If the teacher were..</u> as opposed to <u>If the teacher was...</u>: 82% used the subjunctive in the antecedent and 18% used the simple past.

In review, the sevens are developing the changes initiated in the six-year-old group. However, their

individual contribution is in the use of the subjunctive form.

Eight-yars-olds

The eight-year-olds are the oldest group tested and their behavior compared to the younger groups is very adult. The major distinction in their responses is a new morphological awareness. This is evidenced in the data in two different areas: responses to counterfactuals and responses to potential reality conditional questions, both generic and present conditionals.

In the eight-year-olds' results to the Bears and Pigs task, the consequent verb choices are almost equally divided among simple conditionals: 38%; contracted perfect conditionals: 29%; and uncontracted perfect conditionals: 29%, for the consequents. Further, in the eight's responsees to the What if + past perfect? 25% are in the uncontracted perfect conditional form. This is the first group to use this form in this task; other age groups have shown a strong preference for the simple conditional. The second area in which the eight-year-olds' new morphological refinements appear is in the responses to the "What if + present tense?" In the very young groups, these are answered with a wide variety of tenses, then in the fours and fives, the future and conditional vie for favor.

With the sixes comes a marked preference for the simple conditional. This trend continues with the sevens and eights. However, in the eight-year-old data there is the germ of a developing awareness that "What if" questions can be answered with reality conditional consequents. There are more present tense responses in this group than in any other.

The question raised by this implicit acknowledgement of reality conditionals is, of course, why does it occur? Does it reflect a new interpretation of "What if?", a new cognitive awareness of time and the possibility of uncertainty in the present? Or, is it a developing cognizance of morphological constraints: which tenses co-occur in conditionals? We will discuss and attempt to explain this phenomenon in the next chapter.

Summary

However, before we proceed to the next chapter where we will discuss some of the isssues and questions raised by the data, it might be helpful to have a brief summary of the conditional development we have just seen.

In general, present conditionals and predictives are first to appear and these occur spontaneously sometime in the second half of the third year, or soon thereafter (2,6 -

3,2 in this data). Morphologically, at this time, all children use the simple present tense and the simple future in the consequent. Some also have access to would. However, it is not clear at this point that the two-year-olds have any auxiliary co-occurrence restrictions for conditional structures. That is, will or would occur in the consequent with both present and past tense antecedents. The choice of consequent auxiliary seems to be directed by chance. Also at this initial stage, there is a great deal of individual variability both linguistic and cognitive.

At three the majority of children are developing fluency with hypothetical conditionals and would and could is in everyone's lexicon. They are often used both for hypothetical and counterfactual responses, even though the threes have a great deal of trouble with counterfactual tasks and deny some hypotheticals and many counterfactuals.

By four, although there are no great morphological strides, cognitively, counterfactuals no longer present an insurmountable obstacle. The fours and all successive age groups do extremely well with the Bears and Pigs task.

At five there are no great changes; would is still used for both hypotheticals and counterfactuals as it is for the four-year-olds. Like the fours, and all successive age

groups, there is a strong tendency to respond to "What if" questions with unreality conditional consequents; would and will enjoy equal favor in the responses.

For the six-year-olds, the formal progress is in the appearance of the transitional unanalyzed morphemes: woulda and would've for counterfactuals, thus distinguishing them morphologically from hypotheticals. The sixes are also the first group to frequently re-order the clauses in the Lion's Face task. Another development in this data is the clear preference for would in the reponses to all "What if + present and past?" questions. The only major distinction in the seven-year-old data is the use of the subjunctive in the antecedent of the subjunctive counterfactuals in the Pretend task. Otherwise these children continue the six-year-old developments.

The eight-year-olds' growth is both morphological and semantic. Now present is an uncontracted perfect conditional consequent: would have+past participle and semantically, reality conditional consequents are chosen for the first time in response to the "What if" questions. However, for the most part, like the other age groups, there is still a propensity to reply with unreality consequents.

In the next chapter, we will discuss a number of knotty problems raised by the data, in hopes of finding some

explanations which will in turn shed light on the basic language acquisition process.

Chapter VI: A Rationale for the Developmental Sequence

The data in the previous chapter raise many questions, but perhaps none so tantalizing and controversial as why children learn the particular type of conditionals when they do and in the sequence they do. Then, what are the factors directing the sequence of development and how do they interact?. These questions then lead us to an examination of the relationship between language and cognition.

In this section, these issues will be discussed in relationship to the data we just reviewed in Chapter V. My hypothesis is that language and cognition are two separate, and interactive systems which, in combination with several other factors, direct the sequence of acquisition. Hence, acquisition of a particular linguistic structure will sometimes precede and other times, follow the development of the complementary cognitive schema or structure.

At this point, it might be helpful to review the two major contributors, the nature of the linguistic structure itself and the child's cognitive development. We will also discuss the possible interactive variables subsumed by them. Regarding the linguistic structure, there are two important factors to consider: the actual syntactic structure and the

semantics of that structure. With conditionals, we can go further in our description of the formal structure to discuss both the syntax and semantics of the broad <u>if, then</u> construction as a whole as well as the morphology and semantics of the the individual types of conditionals.

Cognitively the child's concept of time and reality as well as his relationship to his world, are potentially relevant to the development of conditionals.

In summary, we have the following potential variables influencing the developmental path of a structure:

1. Linguistic form: syntactic and morphological
2. Semantics of the various linguistic forms
3. Cognitive development of the child: his having reached a stage where he can manipulate the semantic notions involved in the structures
   - -concept of time
   - -concept of reality
   - -child's relationship to his world

In this section, although much will be review, we will examine these variables and then show that no single factor could be independently responsible for the path of development which the acquisition of conditionals follows. Nor do both language and the child's cognitive abilities reflect a single underlying symbolic system. Rather we will see that they are separate and interactive with each playing a crucial role in the acquisition process.

1. Linguistic Form

1a. Syntax: the basic syntactic form for conditionals, as we have noted previously is a complex sentence composed of a subordinate adverbial clause beginning with if and a main clause which may, but does not necessarily begin with then. These clauses may occur in either order (if the then is omitted) i.e. "If Jamie eats another pie tonight, he will weigh three more pounds tomorrow" or " Jamie will weigh three more pounds tomorrow if he eats another pie tonight."

1b. Morphology: the different conditional types that we have looked at vary in form primarily by the differing auxiliary verbs in both the antecedent and the consequent. The following chart reviews the different types of conditionals.

Reality Conditionals

Present: If that's our dog barking, the rabbit is petrified.

If Jamie's at home, he's eating or reading.

Past: If Oswald didn't kill Kennedy, someone else did.

Generic: If the tortoise has a runny nose, he sleeps in the house.

Unreality Conditionals

Predictive: If Kate sees that hat, she will want to wear it.

Imaginatives:

Hypothetical: If he ate all those doughnuts, he would be ill.

Counterfactual: If you had seen Jim, he would have told you. (True counterfactual)

If I were you, I would be asleep. (Subjunctive counterfactual)

2. Semantics

According to the framework in which I have been working, proposed by Schachter (1971), conditionals are divided into two main groups: Reality conditionals and Unreality conditionals. Reality conditionals refer to events occurring or having occurred in the real world. This includes present, past and generic conditionals. Present conditionals refer to events taking place at the time of the utterance; past conditionals refer to events which may have taken place; and generics are statements of timeless dependencies. Unreality conditionals are divided still again into two groups: Predictives and Imaginatives. In Unreality conditionals there is some divergence from the real world. Predictives refer to events which are predicted to occur, but have not yet occurred in the real world. Imaginatives, on the other hand, include hypotheticals, which could occur; subjunctive counterfactuals, which could not occur; and true counterfactuals which did not occur. It should be noted here that this implied negation in the counterfactuals has no explicit surface morphological marking in English.

In the adult grammar, as discussed in Chapter I, the relationship holding between the two clauses "If X, then Y," is a dependency relationship where the truth or occurrence of the consequent is contingent or dependent on the truth or

occurrence of the antecedent. This relationship has variously been identified as logical implication or entailment, defined by Keenan as, "S implies S' just in case S' is true in every world in which S is true,"(Keenan, 1978).

In a conditional sentence, "if" is the crucial morpheme. It signifies that the speaker is uncertain of the occurrence or fulfillment of the antecedent. According to Quirk et al (1972), "The open condition leaves unresolved the question of the fulfilment of the condition, and hence also the truth of the proposition expressed by the main clause" (p. 747).

In Imaginative conditionals, the <u>if</u> still implies uncertainty for hypotheticals. In addition, the antecedent verb morphology implies that the proposition of the antecedent is not true at the time of the speech act. For hypotheticals, the event in the antecedent may occur (example 4) and for past subjunctive counterfactuals the event cannot occur (example 5). For true counterfactuals, the antecedent morphology conveys the notion that the condition did not occur. As Schachter notes, the proposition of the antecedent in these conditionals is strongly negated. This can be formalized as "if X, then Y [and not X]".

4. Five: If they put a goldfish in there and they ate it, they would die.
5. If I were a rabbit, I would live in a warren [and I am not a rabbit].

Since the morphology for imaginative hypotheticals and past subjunctive counterfactuals often overlaps, there is some ambiguity with regard to the speaker's intended meaning of the antecedent, i.e. whether the speaker believes the antecedent to be a possibility or a falsity. This is further confounded in the case of younger children whose sense of what is possible differs from that of adults. One can pretend to be or do anything, as in example 4 above.

Cognitive Requirements

3a. Contingency: in order to use a conditional structure, the child must be able to understand contingency. It is clear that comprehension of logical entailment is not a necessary requirement; few adults actually envision "all possible worlds".

It may be the case, as has been proposed by Jakubowicz (1981), that the younger children actually conceive of the conditional relationship as one of consecutive events, rather than one of dependent events. Tavakolian has also proposed that threes and fours interpret compound sentences as conjoined. "Reading" conditionals as a sequence of conjoined propositions would allow the child to use and understand many conditionals, but he would be unsuccessful with those where the relationship between the clauses was

one of true dependency, i.e. where the occurrence of the consequent was clearly dependent on the fulfillment of the antecedent. Therefore, in order to comprehend and/or use the full conditional system, the child must control some concept of one action or event's occurrence being dependent on the occurrence of another.

As we discussed in Chapter II, Piaget (1948) does not attribute comprehension of true causality to children before the concrete operational stage. This is in part due to his having investigated physical, not psychological causality. Hood (1977) found children appropriately using expressions of causality very much earlier, at ages 2,0 to 3,6.

3b. Time: to be able to produce the reality and predictive conditionals, a child must be able to refer to and have some notion of present, past and future time, even if these are only the very recent past and the very imminent future. For the generic conditionals there is the additional concept of timelessness implied. For these, it is necessary to know not only about present time, but also to have some stable notion of time and its passage. Another way to look at the concept implied by generics is that generics are removed from real time. Hence, to use them and understand them, one must be able to mentally remove or detach onself from the present reality. In his

naturalistic data, Cromer (1968) found certain types of utterances occurring at four and a half which he claims reflect decentration on the part of the child. He experimentally confirmed that children begin to decenter, i.e. lose their egocentric perspective at about four and a half. This is consonant with Piaget's claim that decentration with respect to time, occurs between four and six-and-a-half, at a stage called <u>articulation of intuition</u> (Piaget, 1969). This occurs just prior to the onset of the Concrete Operational Stage.

For the imaginative hypotheticals, the time references are also detached from real time, and they additionally imply that their potential occurrence would be in the future (Kuczaj, 1979).

The true counterfactuals refer to past time, but are, also a negation of something which occurred in the past. So that the child must not only know what did in fact occur, but he must mentally negate the actual past events.

3c. Reality: reality conditionals refer to events in the real world, present and past; predictives refer to some event that is predicted to occur in the real world at some future time. To comfortably use these two types of conditionals, there is cognitively no call to go beyond what a child knows about and talks about in the "here and now"

and what will occur in its imminent future and recent past. Piaget attributes these abilities to the novice language learner. He observes that "Thanks to language, the child has become capable of evoking absent situations and liberating himself from the frontiers of immedidate space and time" (Piaget, 1967, p.89).

Imaginatives however necessitate a move away from the real world into a possible world. On the part of the child this requires some awareness of the borders of reality. As we have mentioned, counterfactuals reflect a transition into a possible world by the negation of past reality; the consequent is then contingent on this negation.

At this point I would like to outline very briefly what the developmental sequence for conditionals might be if we were to view only linguistic or only cognitive factors as being influential.

Lingusitically Motivated Sequence

If it were the case that formal linguistic complexity were the driving force in language development, once the child had acquired the basic complex conditional sentence

structure, the developmental sequence would be wholly dependent on the progressive difficulty of the verb tenses and auxiliaries minimally required by the various types of conditionals. Accordingly, we would expect the developmental sequence to be as follows:

1. present and generic conditionals: these require the present tense in both the antecedent and the consequent. The present tense is the same as the unmarked verb stem (except for the third person singular, where -s is added), and is therefore the simplest possible verb form. Also since both clauses can take the same tense this is formally the simplest conditional type. The present progressive can also occur in present conditionals. The present participle is completely regular, formed by adding -ing to the verb stem. It is acquired very early (Brown, 1973). However, the irregularity of the present forms of the verb to be make the full form of the present progressive tense more difficult. With regard to the acquisition of conditionals, we would expect to see the progressive with the copula omitted, occurring in this first type of conditional.

2. predictive conditionals: these take the present tense in the antecedent and the simple future or a modal, e.g. can in the consequent. The simple future tense is completely regular; it is formed by combining will with the basic verb stem.

3. past conditionals: this type requires the simple past tense in both the antecedent and the consequent. The simple past tense is considered to be a marked form (Clark and Clark, 1977); and it is irregular in a variety of different ways. Hence, it is formally more difficult than the simple future or the simple present.

4. hypothetical conditionals: these take a past tense antecedent and a modal i.e. would, could, may or might in the consequent. Therefore, to use these conditionals, the child needs to have mastered the simple past, and acquired at least one of the necessary modals. Then he must be able to sequence them appropriately in a structure. In form, the subjunctive counterfactuals also fit here.

5. true counterfactuals: this last type of conditional requires the past perfect, had+past participle, in the antecedent and the conditional perfect in the consequent, would+have+past participle. Both these are complex tenses requiring not only the acquisition of the present perfect have+past participle but also combining this complex tense with the modal would or might to form the conditional perfect, and using it in the past tense to create the past perfect.

As we have seen in the data, this order is not the actual acquisition order. Instead of appearing concurrently

with present conditionals, generics do not appear in the task responses until eight years old, two years after counterfactuals are morphologically differentiated. The very late appearance of generics in our data may well be task related as French and Nelson (1982) have found generic conditionals at age four. However, this is still not the sequence linguistic complexity would predict; even though predictives and hypotheticals require a modal and hypotheticals use the past tense, their appearance preceded that of the morphologically simpler generics. And predictives do not follow present conditionals, but appear simultaneously with them. Further, although they are morphologically relatively simple, past conditionals do not occur in our data at all. Therefore, linguistic complexity, which does correctly predict some sequences, cannot be the only factor in the acquisition of conditionals.

Cognitively motivated sequence

If the child's cognitive abilities were taken to be the major influence in language acquisition, we would predict a sequence where those conditionals reflecting real world events and grounded in real time, i.e. present, past and predictive, would occur before those necessitating decentering, i.e. hypotheticals, counterfactuals and generics. Further, we would expect the hypotheticals and

generics to appear before the counterfactuals, as counterfactuals require the operation of negation as well as that of decentering.

Sequence predicted from cognitive complexity

1. present conditionals
2. past and predictive conditionals
3. hypothetical and generic conditionals
4. counterfactual conditionals

According to Cromer's (1968) analysis, at age four- to four-and-a-half, there is a marked increase in the production of "unactuals". These include utterances which reflect the ability to pretend, and the notion of possibility, as well as true hypotheticals, "in which a later future is predicated on the basis of a now unactual event" (p.161). At this same age, Cromer also found "true timeless" utterances, i.e. generic statements detached from their usual contexts or situations. He attributes these specific developments to the child's decentering. If this is the case, we would then expect to find the types of conditionals requiring these particular cognitive abilities to appear at four or slightly later.

In some ways, our data is compatible with Cromer's: imaginative conditionals which require decentering are learned after present and predictive conditionals which are based in real time. However, a good portion of our data are not in accord with Cromer's findings.

Specifically, past conditionals, which are based in real time do not occur at all in our data. Generic conditionals, which require decentering, do not appear in our data until eight-years-old, but as we mentioned, do occur in French and Nelson's data at age four as would be anticipated by Cromer. This is a year after hypotheticals appear and as both structures require decentration, one from reality and the other from time, we would expect them to develop simultaneously. Further, the twos express possibility by using predictive conditionals and Cromer did not find statements of possibility until age four. Our findings here are at variance with Cromer's.

Cromer's hypothesis also fails to predict our older twos' and three-year-olds' use of the hypothetical conditionals. These certainly require a detachment from reality, and they occur for many of our children significantly earlier than in Cromer's data and earlier than would be indicated by Piaget's predictions.

Piaget's general approach to language is that it is one of several surface manifestations of the child's more general symbolic system and consequently, there is a strong correlation between the development of cognitive and linguistic structures. From this perspective, we would predict that the development of a particular linguistic structure would soon follow the ability to correctly perform

a task reflecting the concept underlying that linguistic structure.

In the past section, we have mentioned several points in the data where the child's linguistic and cognitive abilities do not mesh. To demonstrate that cognitive development does not insure linguistic development, I would like to briefly summarize these points and add others. Then in the following section, using an interactive approach, and appealing to a variety of factors, we will try to account for the developmental sequence as it does in fact evolve.

Cognitive and Linguisitic Incongruities

As may be recalled, at the very first appearance of conditionals in the two-year-olds' naturalistic data, there is a wide variety of abilities, both morphological and cognitive. At one end of the spectrum is Emily (2,9). She does not produce any conditionals and is unwilling or unable to participate in any tasks. The second two-year-old is Cate (2,8). She has will in her lexicon and uses present conditionals. In those tasks in which she does participate, she controls present and predictive conditionals but is

unsuccessful with hypotheticals and counterfactuals; she also has trouble with imitation as a task.

Next on the continuum is Wynn (2,7) whose task performance indicates that she is at a similar cognitive stage; she denies subjunctive counterfactuals, e.g.:

Adult: What if you were a bird?
Wynn (2,7): I'm not a bird/
Just a people/

Further, she cannot do the counterfactual tasks, but does have the morpheme <u>would</u> in her lexicon. It is apparently in free variation with <u>will</u> in conditional consequents.

The fourth two-year-old is Kate who at 2,10 participates in all the tasks, and at 2,11 is successful on the counterfactual tasks. However, she does not acquire <u>would</u> until 3,0, four months after she demonstrates comprehension of hypotheticals.

In the case of our fifth two-year-old, Matthew, his first conditionals are full-fledged hypotheticals and subjunctive counterfactuals. At 2,10, he can participate in all the tasks but imitation. At first blush, his morphology appears to be that of an adult. On closer inspection, however, <u>will</u> and <u>would</u> are initially in free variation, but after one month, <u>would</u> is usually used for hypotheticals, and <u>will</u> for predictives.

In this group of two-year-olds, Wynn seems to have no cognitive correlate for <u>would</u>. Kate demonstrates the

opposite relationship: she has the cognitive structures, but has no linguistic form at her disposal to formally differentiate them.

The next discrepancy that appears is one we have previously discussed: the four-year-olds' ability to perform the counterfactual tasks and their lack of morphology to signal this ability. In addition to this is the two year lag for the transitional morphological forms to appear and another two years for the full-fledged adult forms to make their appearance. Four years is a long time to wait to be able to fully express an idea.

At age seven, when the subjunctive of the verb to be i.e. were, is first preferred for subjunctive counterfactuals, we have another cognitive/morphological mismatch. The ability to perform the Pretend task was clearly apparent in all the three-year-olds, even Kate at 2,10 was quick to respond. Why then does it take four years for this cognitive structure to be marked morphologically--especially when a homophonous form is already at the child's disposal as the simple past of the verb to be for second person singular and all persons plural.

Karmiloff-Smith (1979) has found that initially children show a preference for a given form to be unifunctional and only after some time does plurifunctionality emerge. However, if this were the case

for the subjunctive, four or five years is an extraordinarily long time to learn that were has two functions.

Finally, at age eight, the full counterfactual consequent morphology has appeared. In this age group we also see a new response type for conditional questions. "What if+present?" elicits present tense consequents, (reality conditionals) specifically generics and present conditionals for the first time. The child however, possessed the requisite morphology for generic conditionals from the inception of the conditional structure at 2,8.

In conclusion, we have seen that neither a uniquely formal linguistic, nor a uniquely cognitive perspective supplies an adequate explanation for the developmental sequence that conditionals follow. Nor do the two systems, linguistic and cognitive, develop concurrently. We therefore must look elsewhere, or view these systems in another manner. Once again, I propose that language and cognition are interactive systems, benefitting and exploiting one another as the need arises.

An Interactive Perspective

In this next section I will attempt to formulate an explanation for the development of the conditional system as

we have seen it evolve in Chapter V. Specifically, I will demonstrate that semantic complexity, coupled with the child's cognitive abilities to deal with those particular semantic concepts, generally predict the sequence of acquisition of the particular conditional types. However, the timing of a particular structure's arrival in the productive grammar of the child is primarily influenced by its morphological or formal complexity. Intersecting these major pathways is the function of the conditional "What if" questions, and more importantly, the child's perception of that function. Other contributing factors are sociolinguistic and pragmatic in nature.

If we return to the cognitively motivated explanation, offered on page 148, the primary incompatibilities between this explanation and the developmental profile in Chapter V were: 1) the lack of past conditionals when the other reality conditionals appeared; 2) the late arrival of the generics as compared to hypotheticals; 3) the extended time lag for the appearance of the counterfactual morphology; and 4) the late acquisition of the subjunctive counterfactuals, at age seven. These incongruities will be explained when we view the acquisition process from an interactive perspective which appeals to semantic and syntactic complexity, cognitive development and sociolinguistic factors.

1. The first problem is the lack of past conditionals. As we mentioned very early on, these are awkward, even for adults and it was very difficult to create task stimuli that might be plausible for the children.

Their awkwardness stems from two elements: their reference to uncertainty in the past and their having a slightly different semantic structure than other conditional types; they do not fit the general semantic paradigm of conditionals[2].

The concept of uncertainty in the past is strange because we are usually aware of what occurred in the past. Children, with their egocentric perspective, are in fact not aware of any other possible past. It would be very strange for them to use a structure implying uncertainty of the antecedent, when in fact if something occurred in the past the child knew that it did. His past time references may be general and confused, hence he may be uncertain about when in the past something occurred, but he is not at all uncertain of its occurrence. For children, there is no uncertain past.

The second factor contributing to the awkwardness of past conditionals is their non-conformity to the basic semantic structure of conditionals. Since we are aware of what did occur in the past, the truth of the consequent in past conditionals is independently verifiable and not

contingent on the antecedent in the same manner as other conditional types. For example:

6. If John passed his exams, he didn't tell us.

7. If it rained last night, my car got wet.

In example 6, we know already that we have been told nothing about John's success or failure on his exams. Hence the truth of the consequent is independent of the antecedent. There are other Simple conditionals where this can also be the case, e.g. "If we go to Iowa, it will be cold," where it will be cold whether we go or not. However, in past conditionals, this independent verifiability of the consequent is the rule. In example 7, the car's being wet in the morning can be known without certain knowledge that it rained during the night, even when the relationship between the antecedent and the consequent is clearly causal. Hence the verifiability of the consequent in past conditionals is not dependent on knowing that the antecedent is true or has been fulfilled. It is in this manner that past conditionals differ from the conditional paradigm, and explains their awkwardness and non-occurrence in the acquisition data.

2. The next problem we must deal with is the unexpected tardiness in the appearance of generics. I will demonstrate that at first, this is due to a cognitive

deficit and that later, at about age four when we would expect the generics to appear, the child's view of the function of the conditional "what if" question further retards the appearance of the generic conditional responses.

In the two- and three-year-olds' data, a substantial portion of the "What if + present tense?" questions. e.g. "What if a snake bites you?" have bare verb or simple present responses: 30% for the twos and 22% for the threes. Thus it appears that the two- and three-year-olds produce generics, but between four and eight, they somehow lose this ability. In fact, the twos and threes are not using the conditionals in a generic sense, but rather to refer to the present context. For example, one morning, as Kate was sitting at the kitchen table wearing only a bathrobe, the following occurred:

8. Kate (2,10) is pulling up her bathrobe as she is climbing onto the chair. Now she is seated:

Mother: Leave your bathrobe down.
Kate: It itches/
If I go like this, it itches, so I have to put my bathrobe up/
Mother: When does it itch?
Kate: If I put my bathrobe down, it itches on the chair, so I have to put my bathrobe up

The first point to notice about this sequence is that Kate is referring to an ongoing event; she has some difficulty pulling up her bathrobe, and it requires her full attention until the mother's question "When does it itch?" Secondly, her bathrobe doesn't always itch, only when she has nothing

on underneath. And thirdly, in Kate's second sentence, she is confused, because she is in the process of pulling up her bathrobe, which is, in fact, when it does not itch. The relevant point for our immediate purposes is that this example is referring to a present and ongoing situation rather than reflecting a timeless dependency.

French and Nelson (1982) found in their script data that three-year-olds were able to talk about trips to the market in a way that reflected some notion of timelessness. When the threes referred to marketing trips in general, they used the present tense. When they described certain episodes, they used the past tense; that is, the threes alternated between present and past tense when they referred to habitual versus episodic events. However, generic conditionals occurred in their data at age four and not earlier. Therefore, we can assume the twos and threes in my study use present tense conditionals as present rather than generic conditionals.

Another source which confirms the claim that the twos and threes have a present rather than generic meaning for their present tense conditionals is the "What if+present?" responses themselves. There are very few present tense responses; two examples are:

14. Adult: What if a bee stings you?
    Three: It stings/

15. Adult: What if you eat three chocolate cakes?
Three: I throw up

In the first instance (14), the response is probably imitative, and in the second (15), this particular child is just acquiring the simple future tense. Hence, she doesn't have many options in the area of verb morphology, and we would hardly be justified in calling this a generic.

In the two-year-olds' responses to this same task, there were several individualized examples, and the only stimulus questions that received present tense answers (with one exception) were those which directly concerned the immediately present context, as in the following examples:

16. Adult: What if you stick the magnet underneath here? (as she proceeds to place the magnet)
Two: He goes/ (the car on top)

17. Adult: What if you push this? (Pointing to block tower)
Two: Then it goes/

Otherwise, the twos' responses for this task consist of bare verb stems with ellipted subjects, the simple future (or <u>can</u>) and a variety of responses indicating lack of comprehension (<u>because</u>, denials and agreements). We can then conclude that twos and threes intend their present tense consequents as present, rather than generic conditionals.

In the last paragraphs I have tried to show that the young children (two and three) use present rather than

generic conditionals. This is compatible with Cromer's data and Piaget's predictions (although the timing for the acquisition of any type of conditional is somewhat different than Piaget's theory would anticipate).

Given the semantic overlap between simple conditionals and when constructions, e.g. "When I put the magnet here, the car goes/will go," a short excursis reviewing these constructions might be advantageous although relevant acquisition data is quite sparse.

Clancy et al (1975) in a cross-linguistic study found that in English when adverbials are used first for sequence and then for simultaneity. In their longitudinal English data (the data from one of Cromer's two children) the sequentially intended when precedes the acquisition of conditionality, presumably if, and is used with a conditional meaning. While follows the acquisition of if. Since when adverbials function similarly in English to both generic and predictive conditionals, the fact that when constructions were used for conditionals is not sufficiently specific for our needs. However, in their Italian data, Clancy et al did find one example of what appears to be a habitual statement with quando (when) at age 3,0. However, as there is little supportive data and it is not clear how general a phenomenon it is.

In my data, Matthew stopped using conditionals at age 2,11 and appeared to replace them with a when adverbial construction with a simple future tense in the main clause:

15. Matthew (2,11): When Katie comes over, I will share my candy/

Matthew initially used the when adverbial construction for a predictive function only, suggesting that the concept underlying generics was not yet available to him.

Kate's first use of when as a conjunction was also a type of prediction as we saw in example 9 and 10. Later she perceives that if and when constructions have parallel functions:

16. Kate (3,3) has just poured water on the cement and is starting to do it again:
When you put water on it, it sparkles/
Mother: What did you say?
Kate: If you put water on, it sparkles/
See?/

Once again, Kate is talking about the very immediate and on-going context and so it is most probably a present conditional. This conclusion is supported by the fact that Kate had never been to that place before and that particular situation had never before occurred. It cannot have been a habitual reference. A similar form, whenever, which would clearly indicate a generic intent is not in Kate's lexicon. However, the above example does demonstrate that for Kate, if and when can have congruent functions.

To return to the issue at hand, we still have the problem concerning the very late appearance of the generics, in this data. According to Cromer, and indirectly, Piaget, generics should be expected to appear at about four, in the same time frame as hypotheticals. Both require a decentering: generics, from present time; and hypotheticals, from present reality. In this next section, I would like to argue that the tardy appearance of generics in my data at eight years old, is due to the child's concept of the function or role that a conditional "What if" question plays in the language.

As we mentioned throughout the developmental profile, responses to "What if" questions from all age groups reflect a very strong preference for Unreality conditional answers, specifically predictive and hypothetical consequents. As may be recalled from the task results, from the age of four onwards, whenever the opportunity arose for a choice of consequent to be made, the children invariably chose a simple hypothetical conditional, e.g. would+verb; or a simple predictive consequent, e.g. will+verb as opposed to a past or present consequent.

The strength of this trend was especially noticeable in the "What if + present?" and "What if + present Progressive?" tasks, e.g."What if a bee stings you?" and "What if your brother is outside eating the flowers?" In

these particular cases, adults feel constrained to respond with present or future tense consequents, forming present or generic conditionals with a present tense consequent, and predictives, with the simple future consequent. In the adult model, a present tense antecedent and a simple conditional consequent is awkward: ?"If the dog is chasing Julie, she would be afraid."

The children, however, felt no such constraint; they virtually ignored the present tense as a possible consequent response. As we saw in Tables 1 and 3, in Chapter IV, the children strongly prefer the simple future and conditional tense, regardless of the tense of the antecedent. In the younger children, the twos, threes and fours, the simple future is a strong candidate for the choice answer for "What if + simple present?" However, even at three, the simple conditional begins to show its strength. With the five-, six- and seven-year-olds, the simple conditional tense is responsible for fifty or more percent of the responses to "What if + simple present?" questions.

In the responses to the What if + present progressive? there were no responses using the present progressive; and only the four- and eight-year-olds gave any responses with the simple present tense. As in the case of the What if + simple present? the large majority of responses used the simple future or simple conditional in the consequent.

The preference for Unreality conditionals also occurs in the What if + past? e.g. "What if it rained last night?" While it is true, as we mentioned, that past conditionals are indeed awkward, no child ever gave even one simple past response to these questions, but rather invariably chose the simple conditional (would+ verb) to form a hypothetical conditional. In all three of these tasks, there is a variety of answers which are acceptable in the adult model. The children's tendency to respond with the simple future and conditional tenses reflect their interpretation that conditional "What if" questions imply uncertainty and the response therefore must express unrealized contingencies.

In other words, this trend in the responses demonstrates the children's conception of the role of the conditional question. According to the children aged four through eight, the conditional question, "What if X occurs/occurred?" triggers an irrealis mood and an Unreality conditional consequent response. Because the distinguishing morphology appears so late, it is difficult to assess whether the children include counterfactual conditionals in their notion of unreality conditionals; I suspect that they do for the following reasons. The woulda/would've transitional forms appear for the counterfactual responses at age six. We can tentatively conclude that these counterfactuals are included in the

child's concept of unreality because at this age the task results still show a very strong bias toward unreality conditionals. This bias is confirmed by the type of conditionals spontaneously produced by the sixes (see next section). Also the children have responded correctly to counterfactual tasks since age four and their responses to this task use the simple conditional tense (would + verb). Since the responses for these children are limited to unreality consequents and since they continue to respond to counterfactuals when they can morphologically differentiate them, we can infer that counterfactuals are included as indicators of irrealis.

The bias toward using unreality conditionals is further substantiated by the type of conditional found in the spontaneous conditional utterances that occurred in the transcripts. They also show the two- and three-year-old's use of present reality conditionals. Although they are not overwhelming in number, they are consistent in type with the task responses, as seen in the following table. Unfortunately, the sevens and eights had a more serious and less playful view of the task situation. They neither chatted nor expanded the tasks. Consequently, they produced no spontaneous conditionals. However, two from my own eight-year-old, Jamie, at home are included.

Table 20: Spontaneous Conditionals

Age	Reality	Unreality Conditionals		
	Present	Predictive	Hypothetical	Counterfactual
2	4	2	6	0
3	2	2	5	0
4	0	1	3	0
5	0	0	2	0
6	0	0	6	0
7	0	0	0	0
8	0	0	1	1

As we saw in the task responses, the twos' and threes' use of the present tense in conditionals reflects present rather than generic meaning. In the spontaneous conditionals this is also true. Additionally there are bare verbs which clearly have predictive intent and some notion of irrealis, as in the following:

17. Kate and I were in the car driving to the park talking about the swings.
Mother: You need to hold on tight.
Kate (2,10,00): If I let go, scrape my shoes/

In spite of the ellipted elements, the context demonstrates that Kate is making a prediction about an as yet unrealized event, again demonstrating the importance of knowing the

context of an utterance. In classifying the spontaneous conditionals in Table 20, I made use of contextual information, and example 17 is classified as a predictive conditional.

Since many two- and three-year-olds have difficulty with the tasks requiring hypotheticals and counterfactuals, and since the present tense conditionals that they do produce refer to the immediate present rather than generically, we can conclude that these young children use conditionals to express their immediate needs and interests. Children's everyday speech reflecting the "here and now" is a well documented behavior. It is only in very specialized contexts like those supplied by French and Nelson that elicit speech that does not relfect the young child's personal perspective.

With the four-year-olds, there is a qualitative change as Cromer has documented and our data, especially the hypothetical and counterfactual tasks, confirm. The fours no longer deny any potential hypothetical situation, nor do they feel the need to retreat into reality when a question like "What if you were a porcupine?" is posed.

Four is also the age where French and Nelson found the first use of the generic conditionals. Eight percent of their subjects in the 2,11 to 3,11 group used _if_; 39% in the 4,0 to 4,11 group used _if_. (Since the morphology is

not specified and some of the examples are predictives, they probably have additional predictives in their data.)

French and Nelson note that the familiarity with the event that the children are relating may also aid in their use of connectives which might otherwise be beyond their ability. Specifically, the children's familiarity with going to the market or getting dressed, allows them to use generics whereas in new situations this same form may be beyond their capabilities.

I propose that the four-year-old's capacity to suspend reality is crucial to, and marks the beginning of, his narrowing perspective of the function of conditional questions. The child's marked preference for unreality conditionals in both the spontaneous utterances and in the task results indicates that the primary function of the conditional structure, for a child in normal everyday conversation is to mark unrealized contingencies. If, as I propose, the child sees the "prototypic" conditional as an unreality conditional, this explains why generics are so late in appearing in our data and only appear in the somewhat specialized context[3] of relating well known events.

The occurrence of generic responses in our data at eight is probably due to two factors: first, a broadening of the concept of the types of responses that are

appropriate to conditional "What if" questions, and a new awareness of morphological co-ocurrence restrictions. This second point is supported by Karmiloff-Smith's (1979) findings that at age eight, her subjects responded to uniquely syntactic and morphological cues. They were no longer dependent on pragmatic or semantic information, but could respond to purely morphological signals.

One of the most striking features of the task data was the ability of the children as young as four to successfully perform the counterfactual comprehension tasks. In contrast to these results is the comparatively late acquisition of the complementary morphology used to distinguish counterfactuals from other types of conditionals. A similar time lag exists between the time a child can perform the pretend task and comfortably answers "What if + subjunctive?", e.g. "What if you were a magical beast?" and the acquisition of the adult subjunctive antecedent morphology.

We take up the subjunctive problem first and argue in this section that sociolinguistic factors are primarily reponsible for the late appearance of the subjunctive. For the second major incongruity, i.e. the time lag between the comprehension of the counterfactual task and the final appearance of the counterfactual morphology, we will argue

that formal complexity interacting with sociolinguistic and pragmatic factors is responsible.

3. Subjunctive Acquisition: the problem is the late acquisition of the subjunctive, specifically, the late acquisition of the form, If X were. As may be recalled, from Table 10, which gives the results of the Pretend task, the children generally use a simple past, often, If I was or if he was in the antecedent and the simple conditional in the consequent, for example,

1. Three: If I beed the elephant, I could walk/
   Three: If Katie was a motorcycle, she would drive all over/
   Four: If I was a microphone, I would/uh/ someone would talk on me/
   Four: If I was this guy in this tractor, I would do a pop-a-wheely and it would fall down and I would get dead/
   Six: If Charley was a saber tooth tiger, he would bite me/

It should be remembered that in this task, the children were supplied model sentences in which the subjunctive was used.

At the age of seven there was a significant change in the form of the antecedent auxiliary, from the previously preferred was to were. Since the children have had access to this particular form (were) as the simple past for the verb to be (II person singular, I, II and III person plural) since about 2,6, it is not really a new form, but rather a new use for an old form. Further, the three-

year-old children and the older twos were quite able to participate in this task. The problem that confronts us, then, is why this four year gap exists, between the time the child can perform the task and the time that the adult morphology appears? My hypothesis is that the were subjunctive for the first and third person singular is a formal equivalent of the informal was. The late acquisition of the subjunctive then is explained because it is supplementary; with was, the child already has access to one acceptable form.

To confirm this hypothesis, it might be helpful initally to review briefly the role of the subjunctive of BE in the adult model. When we look over the adult form for the subjunctive of BE, the most striking feature is its very narrow scope. BE is the only verb in the entire language to preserve a separate first and third person singular subjunctive form (were) which is not homophonous with its simple past form (was). It is unlikely that children would early acquire a form of such narrow application.

In writing, the subjunctive form were is preferred to the simple past was following the construction, If + I/he/she, except when an author is depicting dialect or in the comic strips. This would suggest that were is the more formal form and that was is the more informal form.

For more evidence, I informally surveyed twelve adults, many of whom are parents of the children I tested, and asked them to participate in the Pretend task. After they had answered verbally, I asked them to write their answers.

The results are interesting. Out of twelve adults, (five with a high school education and seven with college degrees) three used the simple past _was_ after _If I_, and nine used the the subjunctive form. When the question was about a third party, one additional subject used the simple past form. In every case where the simple past occurred in the verbal response the subject wrote the subjunctive form in his or her written answer. For those who used the subjunctive form verbally, their written response was the same.

Four of these adults asked whether I was asking about if they "should" use _was_ or _were_. This awareness of the problem demonstrates that these adults consciously attend to this particular form. Their concern raises a question: if one is so conscious of this specific form, maybe it is one that has been drilled in school. Upon further questioning, this turns out to be the case. One adult said that she remembered her English teacher saying, "Always use _were_ after 'If I...'" Hence it appears that this is a construction that is prescriptively taught in

school, and one where people know what is "correct". After discussing the task, another parent responded, "Oh that's one of those things we always correct when the children say was". All this conscious attention suggests that the subjunctive is either a dying form or is not commonly used, but is being kept alive by a zealous group of prescriptivists.

The next logical question then is, what do people say when they are not planning or thinking about their language production? For additional data, I reviewed Carterette and Jones (1974) where informal conversations of adult triads were recorded and transcribed. There are 36 pages of single-spaced transcription (more than 15,000 words). In this record there are three examples of conditionals with If+ I or III singular+ BE:

2. Well, that's great, but if I was, if I was a girl and I saw the movie, 'Come Fly With Me', did you see that movie? I would become a stewardess. (p. 382).

3. I would like to travel if I was something like that, I would probably do that, (p.384).

4. Oh, well if I were sure that I could never see again, like if I actually lost my eyes. (p.416).

From the first two examples we can see that was can and does occur in conversation. One other example that is particularly telling and substantiates the claim that were subjunctive is often a product of planned speaking comes from one of the adults I questioned:

5. J.R.: I want you to pretend that Joe is a whale and tell me about it. Start with "If Joe..."
Adult: And it has to have something <u>if he was</u> a whale?
J.R.: Yeah.
Adult: If Joe were a blue whale,...

When this particular adult planned and/or thought about her utterance, she used the subjunctive; however, in her informal remark, she used the simple past form.

It therefore appears that <u>If I was</u> does indeed occur, but it is used in less formal contexts [4]. And that "If X were.." is a dying form, one that needs to be explicitly taught to the children.

Another example comes from the television. Big Bird, a large puppet on Sesame Street was trying to shelter his very large friend, Snuffelopogus:

6. Big Bird: If my umbrella was bigger, I could keep you dry.

It is my conclusion therefore, that the present subjunctive of the last English verb to have such a form, does not signal a new meaning, but in some formal contexts is the only form of the verb acceptable in the first or third person singular, after <u>if</u>. Hence, when the children shift their preference from <u>If X was</u> to <u>If X were</u> at age seven, they are not in fact marking a newly acquired cognitive awareness of counterfactuality at all, but rather an informal form is being supplemented by a more

formal one.

In her account of the acquisition of counterfactuals in Italian, Bates(1976) found a similar phenomenon. Before the children had mastered the necessary adult forms for counterfactuals, they responded to the counterfactual tasks using a variety of tenses. Often the responses were in the imperfect, the tense used for counterfactuals in nonstandard dialects.

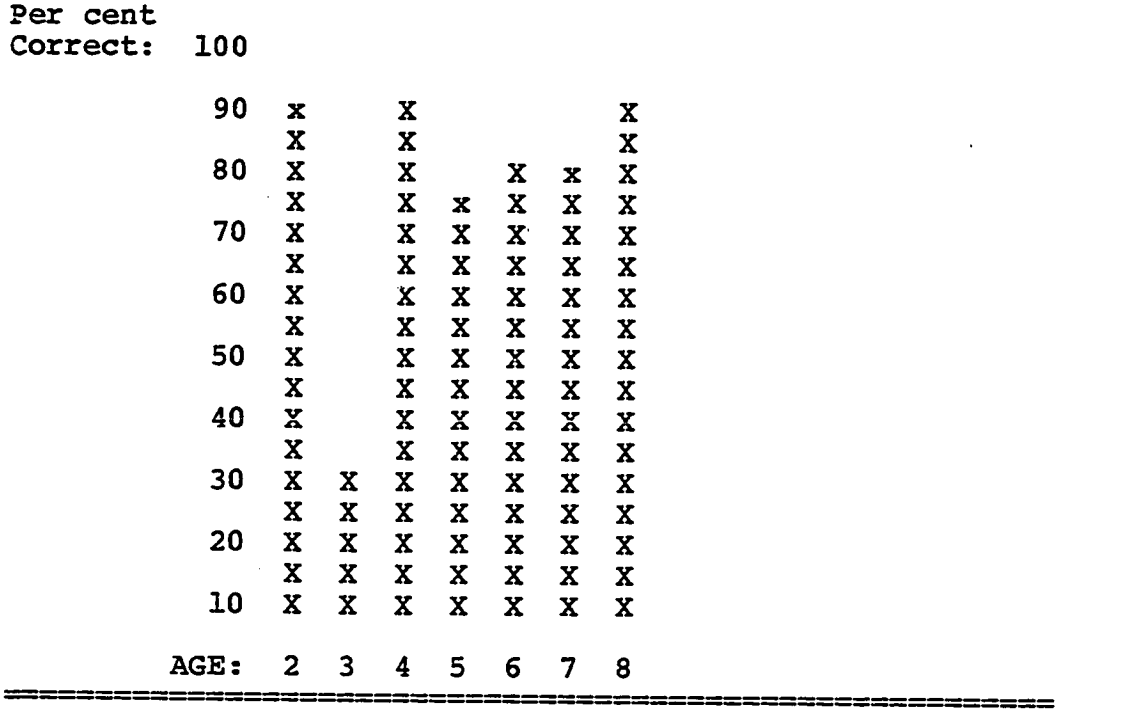
In summary, when we look at the children's late acquisition of the subjunctive, several factors are responsible. First, the uses for the subjunctive are very limited, and there is only one verb in the entire language for which an independent subjunctive form still exists. Secondly, a form that is already a part of the children's grammar, i.e. was, is an acceptable substitute for adults in some contexts. Therefore, the child in fact has mastered one adult form when he is first able to perform the task; he just has not mastered all the possible adult forms. The subjunctive is dying and appears to exist only by virtue of explicit teaching. With these thoughts in mind, it is not surprising that the subjunctive is not one of the child's early acquisitions.

4. True Counterfactuals: before we discuss the extended time lag between the comprehension of counterfactuals and the acquisition of the adult counterfactual morphology, I will propose an explanation for the results of the counterfactual task, Bears and Pigs. This will give us the opportunity to review the comprehension profile and the development of the counterfactual morphology.

4a. The problem with the two-year-olds: as we saw in Table 18 in the Results section, the Bears and Pigs task is a source of great difficulty for the threes. (In this task the children are asked "What if" counterfactual questions from The Three Little Pigs and the Three Bears, e.g. "What if the straw house had been made of bricks?") By age four, however, these questions pose little problem. We also have two two-year-olds who are quite successful with the counterfactual tasks which presents a peculiar curve (see bar graph below) and a problem in the data analysis.

Before discussing the reasons for the late development of the counterfactual morphology, I would like to briefly review the acquisition sequence for counterfactuals and then suggest two possible explanations regarding this somewhat anomalous two-year-old behavior.

Figure 1: Comprehension of Bears and Pigs



In the two-year-old responses to the comprehension portion of the Bears and Pigs task, the two older twos who would participate were successful 92% of the time, as indicated in the graph above. The two younger twos (2,7 and 2,8) both denied subjunctive counterfactuals and would not participate in the Bears and Pigs task, even after repeated invitations and attempts to individualize the task. The three-year-olds were generally willing to participate, but as the graph indicates they were not very successful. By age four and thereafter, the children were quite successful.

The twos' sudden shift in abilities, from not responding to the counterfactual tasks at all and denying "What if?" counterfactuals, to being so successful, without any hesitations in the responses is quite peculiar. It is even more puzzling when we look at the three-year-old responses to the counterfactual tasks. The three-year-olds often reject or deny the counterfactuality of the proposed situation, by asserting reality, as in the following:

13. Adult: What if the Baby Bear's porridge had been the Mama Bear's porridge?
    Molly (3,3): It is the Baby Bear's porridge/

14. Adult: What if the Daddy Bear's porridge had been the Mother's porridge?
    Molly: (silence)
    Adult: (question repeated)
    Molly: It's not/

The overall results of the three-year-olds on the Bears and Pigs task were 36% correct; 21% incorrect; 7% ambiguous; 18% no response; and 18% rejection or denial. This is not a very successful profile. It demonstrates that as an age group, the threes do not control counterfactuals.

For the four-year-olds, as we have mentioned, and all successive age groups, correct answers are the rule rather than the exception.

One possible explanation for the unexpected success of the two older two-year-olds is that these two individual children are significantly more advanced cognitively than this particular group of three-year-olds. This possibility

is supported by the data of Molly's next tape at age 3,6, where her responses to the Bear's and Pigs task were all correct. (That would make the older twos' behavior just six months in advance of one of the threes.) In Molly's next tape, at 4,1, her responses to the Bears and Pigs task were 84% correct. In summary, then, Molly whose behavior at 3,3 reflected her total lack of understanding of counterfactuals, reversed her behavior to complete success and three months later, she continued to demonstrate comprehension of counterfactuals.

Matthew and Kate, the two older twos who do very well on the counterfactual tasks, are only seven months younger than the point at which Molly controlled the counterfactuals. Therefore, it is not inconceiveable that they do truly understand what is required of them and their responses could reflect a real understanding of counterfactuals. This interpretation is further supported by Kate's subsequent behavior. At 3,3, she continues to respond correctly to a variety of counterfactual questions.

On the other hand, both the older twos are able to answer the counterfactual questions very quickly, whereas the older children often hesitate and make repairs as the following examples indicate:

15. Adult: What if the straw house had been made of bricks?
Four: Then he would/ he won't then/(blow it down)

16. Adult: What if the Daddy's porridge had been the Baby Bear's porridge?
Five: It would be too hot for the little girl/ I mean, just right/

In example 15 the child's regression to simpler morphology may well be an indication of the burden that counterfactuals place on the child's processing capacity.

The speediness of the twos' response time as compared to the older children and J. Schachter's comment that, "Those questions are tricky," suggest that Kate and Matthew may be interpreting the counterfactual questions differently from the older children. Perhaps they are "reading" the <u>had been</u> counterfactual morphology as "pretend that X is Y" or "What if X were/was Y?" This would be another instance of fitting the propositional content into an already known and familiar slot; it would also explain the rapidity with which they respond and their otherwise anomalous success with these counterfactual tasks.

At three, we find the first instances of the present perfect tense, this might explain the threes' increased attention to the past perfect morphology, and their lack of comprehension thereof. At four, not only are they aware of the auxiliary morphology, they also understand the implied negation.

U-shaped curves or reanalyses occur in language learning and cognitive development. The acquisition of the English plural and past tense follow a similar path. We can assume that learning an entire structure is similar to specific forms. It is reasonable to assume an organism would approach parallel problems with the same set of problem solving techniques and strategies, if for no other reason than one of economy.

4b. The developmental sequence of counterfactual consequent morphology: now that we have dealt with the problem of the two-year-old counterfactual data, we can return to the discrepancy between comprehension of counterfactuals and the appearance of counterfactual morphology. In the previous section, we have confirmed that children as young as four, and possibly younger, comprehend counterfactual questions. Their responses indicate that they apprehend the situation transformation implied and the contingency predicated thereon. In our task results, as will be recalled, all of the children until age six (except for one two-year-old) responded to counterfactual questions with a simple conditional auxiliary (<u>would</u> or <u>could</u> +verb) in the consequent, as in examples 15 and 16 as well as the following:

17. Adult: What if the straw house had been made of bricks?
Three: He (the wolf) couldn't blow it down/
Four: He wount be able to blow it down/
Five: uhm, because/ because if it was made of bricks, then/ then/ he could/ could/ he could blow it down/
(In spite of all the repairs, this last one is incorrect.)

At six, we found that two transitional forms appeared: woulda and would've. Although these are acceptable for adults in informal situations (see page 194) in our data they appear to be transitional in acquiring the full conditional perfect. Our reasons for considering these as transitional are multiple. The first is that not until eight years old, does the full uncontracted conditional form would have+past participle appear in any significant quantity. In fact, at six only 11% of the responses, and at seven only 10% of the responses are in the uncontracted form. However, by eight almost one third of the responses to the Bears and Pigs task use the full uncontracted conditional perfect. I assume this trend would continue as the children grow older. Unfortunately, my sample ends with eight-year-olds.

A second factor suggesting that woulda/would've are transitional is that the contracted forms are phonologically simpler than the full conditional perfect. One of the very basic assumptions in language acquisition is that a child normally progresses from a simpler to a more complex form.

Our last reason for claiming that woulda and would've are transitional is that the acquisition sequence of other auxiliary forms have exhibited a similar contracted-to-full pattern. Specifically, in the acquisition of the simple future tense, both Kate and Emily first used the contracted form: I'll as in the following examples:

18. Adult: This is little Red Riding Hood.
    Emily(2,9): I'll show you (.) all the people/

19. Adult: Let's put all the teddy bears right here.
    Emily(2,9): I'll find a new tedd/ we can't find any/

In this taping session, there are no instances of the full morpheme will; only the contracted form occurs. Three months later at age 3,2, Emily is still using I'll, and will is non-occurring. However, she does have another form for the immediate future which co-exists with I'll, and that is [ʌna]. It is her idiosyncratic form of gonna. So in this tape, recorded at 3,2, we have the following kinds of future utterances:

20. Emily (3,2): I'll bite it/
    I think/ I'll eat this/

21. Emily (3,2): I'm [ʌna] eat 'em up/

22. Emily (3,2): He's [ʌna] eat me up/
    I don' wan' him to/

It is not until three months later that the first instance of the uncontracted simple future appears:

23. Emily (3,5, picking up a book): Will you read me this?

Since it is impossible to contract the simple future in a question, this is not exactly a parallel example; it could also be just a politeness modal. However, example 23 demonstrates that Emily does indeed have access to the full form, and that this full uncontracted form does not appear until sometime after the contracted form at 3,5.

Kate's acquisition of the simple future followed a similar and perhaps more straightforward path, although she was younger. At 2,3 the first productive contracted future appeared, as in example 24. Until this time, Kate used several apparently unanalyzed forms like, I'll get it when either the phone or doorbell rang.

24. Mother (bringing out Kate's scooter)
Kate (2,3 holding out her hand): I'll carry it/

At 2,4, the negative contracted form appears:

25. Kate and Jamie are looking at a bug on the window:
Don't touch it Jamie/
I won' touch it/
Just watch it/

At 2,6, we still have the negative contracted form, and the uncontracted positive form has appeared:

26. Kate (2,6 covering a picture of an animal):
You won' see the tail!/
Where's a tail?/
(lifting her hand)
There's a tail!

27. Kate (2,6 extending her arms in the air with bent fingers):

The cookie monster will eat you!/

Woulda/would've then, can confidentially assumed to be transitional forms in the acquisition of the full conditional perfect.

To summarize the acquisition of the counterfactual morphology, we have a sequence where the youngest child uses [wʌl]/will and would to respond to counterfactuals, then from ages theree through five the auxiliary verb form in the responses to counterfactuals is the simple conditional, would. At six and seven the responses are reasonably evenly divided between the simple conditional and the transitional woulda/would've, with a sprinkling of conditional perfects; and finally at eight, there is a split with about one third simple conditional, one third woulda/would've and the remainder using full perfect conditional responses.

As we noted earlier, the transitional forms are acceptable adult forms, but they are colloquial and occur in informal conversation, not in written work or other formal contexts, at least in educated circles. These contracted forms may also be the only counterfactual morphology in some dialects (see page 194). There is a striking parallel

between this data and the acquisition data of the subjunctive, as well as to the acquisition of Italian counterfactuals, where again, the children first use an informal adult form before the more esoteric and literate form is acquired.

Now that we have seen how the counterfactual comprehension and morphology progress, we may speculate as to why it develops in the sequence that it does and on such a slow time schedule. Once again, to elucidate and explain the problem we need to review the semantic structure and how it relates to the formal linguistic structure; also influential are certain sociolinguistic and pragmatic phenomena.

Although this is review, it might be helpful to once again present the semantics of the counterfactual structure. As in all of the conditional sentence types we have examined, the basic relationship of implication or entailment holds between the antecedent and the consequent. True counterfactuals are considered in Schachter's frame work to be Imaginative Unreality conditionals, that is, they refer to a situation or an event not having occurred in the real world. Additionally, in counterfactuals, the proposition of the antecedent is strongly negated, i.e. the antecedent morphology implies the negation of its proposition. The structure of a counterfactual may be

represented as "If X, then Y [and not X]". Summarizing these features, we can say that a counterfactual conditional refers to a hypothetical situation that is not true at the time of the speech act. In addition, true counterfactuals which are the present topic refer to a situation in the past that did not occur.

The verbal morphology of the counterfactual is demanding and complex. The past perfect, <u>had+past participle,</u> occurs in the antecedent, and the consequent requires the conditional perfect, <u>would+have+past participle</u>. Not only is this structure formally demanding as both clauses require complex tenses, but there is no overt negative marker in the antecedent to reflect the implied strong negation of its proposition.

At this point, I would like to digress somewhat and present a brief profile of the development of the auxiliary verb. This treatment does not purport to be exhaustive, but is rather intended to demonstrate how the development of auxiliary structures potentially influences the acquisition of the full conditional system. We will focus on modals, and past and complex tense development. This data will also begin to explain the extended length of time required for the acquistion of the complex tenses occurring in the counterfactuals.

Throughout the Results section and the Developmental Profile in Chapter V the auxiliary verb and its progress is often mentioned. In Appendix II are compiled the auxiliary verbs from the transcripts of all 28 children involved in the tasks and also the transcripts from the longitudinal data. For each successive age group, I have added only new forms, i.e. I have not repeated forms that occurred at an earlier age, unless the first appearance was a unique instance (and this is noted). The sequence of development in our data is generally compatible with other work in this area (Brown, 1973; Menyuk, 1969; Kujacz, in press; Major, 1974; and Clark and Clark, 1977).

From the appendix lists, we can make the following general statements about the growth of the auxiliary.

In the two-year-old responses, we find the simple future and some "quasi-modals": hafta, gonna, wanna and the true modals can/can't with some rare instances of would and could. The past tense is often denoted with past time adverbials as in, One day, I feed the pigeons, (Kate 2,6). Although there are also some simple past verb forms, both with the regular suffix, e.g. sleeped and rided, and with irregular past forms, as in I stood in my crib, the past tense is certainly not stable at this age and many verbs are bare, e.g. she woke up and eat...

At three, the simple conditional is mastered. The forms would ,could, should, woulden/wouldn't and coulden/couldn't all appear and are used frequently as we saw in the Results section. Supposed to also occurs, but infrequently. From the frequent overgeneralizations in past tense marking, it appears that the threes are striving to control the simple past tense system. As Appendix II shows, the threes' overwhelming need for consistency leads to some interesting simple past tense forms, e.g. beed, makeded, useded and haseded.

In the three-year-old data, the first instances of complex tenses occur. One is the present perfect which appears in a question: Have you ever been...? and a passive construction from Kate at 3,1:

25. Kate,("reading"Peter Rabbit to herself):
An' Peter got aten/
Mother: What happened to him?
Kate: He got atened/
Mother: By who?
Kate: Mr. McGregor/

These are the only two instances of complex tenses in the entire three-year-old data sample.

By the fifth year, i.e. the fours, the past tense has settled and some perfect utterances do occur. Often these are in contexts where they have been learned, as in Who has been sitting in my chair? from the Three Bears. Or a response might be partially modeled on a question with a present perfect verb, e.g.

26. Adult: Have you ever read this book about Clifford, the big red dog?
Four: I haven't seen that one before.

That there are any responses with the present perfect shows progress in the acquisition of complex tenses. One totally spontaneous present perfect utterance does occur in the fours' data:

27. Four: I've heard this story before, haven't I Mom?/

In the five-year-old data, we have several instances of present perfect utterances, although they are still not numerous. Also the contracted conditional perfect makes its first and only appearance for this age group:

28. Adult: What if the Daddy Bear's porridge had been the Baby Bear's porridge?
Five: It wouldn't be too hot and she would've ate it up/

At six, the contracted perfect conditional appears in profusion, even though the form of the past participle is sometimes an obstacle; in both examples 28 and 29, it is the simple past form rather than the participle that is used in the conditional perfect tense:

29. Karin (6,7): You shoulda went to the pig fair with me/
Did I tell you I got a fish there?/
He's grey and his name is Herbie/
You shoulda saw him/

Although should is not a common conditional modal in American English, this construction is sufficiently similar in form and meaning to demonstrate the contracted use of

"modal+have+past participle". Also at six, the full uncontracted form makes its first entrance: would have blowed and woulden have blown. There are no additional instances of complex tenses in this age group.

The sevens, as we have mentioned are the first group to prefer the subjunctive for subjunctive counterfactuals. Also there is one occurrence of the modal shall and it occurs in a question: Shall I...? There are two spontaneous utterances with the present perfect tense in the sevens' data sample.

At eight, there are no new morphological developments, but the uncontracted conditional perfect is considerably stronger than when it first appeared in the six-year-old data. Past participles in complex tenses are still troublesome, but are not just the simple past form:

30. Eight: Well, she mighta gaven it to you.

Another interesting development is the use of adverbs to convey hypotheticality:

31. Eight: It's prob'ly gonna...

32. Eight: It maybe hurt him...

Two relevant points come to mind after reviewing this auxiliary profile: first, even when the children are linguis tically capable of using the present perfect, it is a very infrequently used structure, and secondly, the past

perfect, had+past participle (necessary for counterfactual antecedents) never occurs in the data.

Now that we have seen the progression of the auxiliary, we can try to integrate its development with the morphological requirements of the counterfactuals. The simple conditional would+verb is mastered by the threes; the counterfactual tasks are successfully comprehended by the fours, and the present perfect also appears at this stage. We would then expect to see the ability to form some kind of combination of the present perfect and the simple conditional, soon thereafter. And in fact, we do. The contracted form of the perfect conditional makes its first appearance at five and then becomes quite frequent at six.

With regard to the antecedent morphology, i.e. the past perfect had+past participle, from a purely morphological perspective, we would also expect to find it somewhere in the five-year-old data; the child controls both the simple past and the present perfect by four. However, as we recently noted, there is not a single occurrence of the past perfect in our data.

The questions still to be answered are: 1) Why are four more years necessary (till eight) to master the adult full uncontracted conditional perfect? And 2) why is the past perfect so elusive? In the next sections I will present several sociolinguistic considerations that appear

to be responsible for the additional and at first glance, inexplicable time lag for the acquisition of the conditional perfect, and semantic/pragmatic factors for the non-occurrence of the past perfect.

To investigate adult usage of the conditional perfect and the input language these children hear in everyday conversations, I conducted an informal experiment, where I asked 15 college educated adults some counterfactual "What if" questions. Three different tenses appeared in the responses: 7% were in the simple conditional; 14% used the full uncontracted conditional perfect and 79% responded with the contracted form woulda/would've+past participle. Hence by far the majority answered with woulda/would've +past pasticiple. When I then asked these same people to write down their answers, the same answers they had just verbally given me, they all, without exception, wrote the full uncontracted conditional perfect tense for their response (would have+past participle).

With the request to write their responses they had given verbally, came various comments, for example: "Oh would have, now I see what you're doing!" There appears to be a very clearcut distinction with respect to the appropriate contexts for the two forms. In fact, there are very few situations where woulda or would've occur written. One is in linguistics papers such as this, and the

other is in comic strips. When it does appear in the cartoons or comic strips, it connotes informality and/or lack of education on the part of the speaker. Neither woulda nor would've are in the dictionary; they are not "acceptable" written forms.

We see then that the predominant adult conversational form is the contracted woulda/would've+past participle; also that there is a sharp distinction in the minds of the adult sample between the appropriate forms for prose as opposed to talk. It may be that not until they read, do some children even confront the full conditional perfect.

Bearing these thoughts in mind, I suggest that the reasons for the extended time lag for the acquisition of the conditional perfect are quite similar to those responsible for the late acquisition of the subjunctive for the subjunctive counterfactuals. Once again, the child does have an adult form when, based on linguistic complexity, we would expect it to appear, then he must go out and learn its more formal or literate counterpart. This is again, similar to Italian children's acquisition pattern for counterfactual conditionals (Bates, 1976).

The most common context for the full uncontracted conditional perfect is more formal verbal situations or conversations where some formality is called for and in reasonably complex prose; we do not find true

counterfactuals in reading primers. Therefore, exposure to counterfactuals in texts presupposes a moderate to advanced reading ability, unusual in five and six-year-olds. In conclusion, then, the combined factors of morphological complexity and sociolinguistic factors motivate the very late acquisition of the conditional perfect.

Our final problem in the acquisition of the counterfactual morphology is the lack of instances of the past perfect in our data. For an explanation, it will be helpful to examine the contexts in which this tense occurs. According to Quirk et al (1972), the past perfect <u>had+past participle</u>, as in "He had already left when I arrived with his plane ticket," refers to the "past in the past". That is, when one is already relating a past event, the past perfect refers to events occurring previous to the time of the first event. Quirk et al, continue, "In some contexts, the simple past and the past perfect are interchangeable, e.g.:

33. I ate my lunch after my wife <u>came/had come</u> home from her shopping.

"Here the conjunction <u>after</u> is sufficient specification to indicate that the arrival from the shopping expedition had taken place before the eating so that the extra time indication by means of the past perfect becomes redundant" (p.92).

As been noted by Fletcher (1979), children often use time adverbials to refer to past time, before they master the simple past tense. This is not to say that this practice ends with the appearance of the tense marking, but rather that adverbial time marking can precede consistent past tense marking.

Quirk's observation plus the children's earlier developmental pattern suggest that the children may be in the process of learning the past perfect. Further, as the child already has access to another acceptable adult means of expressing the identical semantic relationship, i.e. time adverbials, he is not in any way expressively deprived. Therefore, he can take his time in learning this supplementary form, as he does with the subjunctive and the conditional perfect.

Another context where the past perfect occurs is of course in the antecedent of the counterfactuals. In truth, counterfactual conditionals are very seldom used in conversation.

In Carterette and Jones (1974) informal conversations of children and adults were recorded and transcribed. The subjects were grouped into conversational triads with 24 adults participating. It is not clear how long each group spoke, but over 15,000 words were collected from the adults. This amounts to 36 single-spaced pages of transcribed text.

In these pages, there are 31 instances of conditional utterances. Of these thirty-one tokens, there is only one counterfactual: "No but wou'ju have if you 'ed been about 10th grade at the time/ wou'ju have transferred?" (p. 369). Note that in this counterfactual, the auxiliary is again, contracted. Since the consequent is a question, contraction takes place at another point in the auxiliary. I have used the phonemic transcription provided by Carterette and Jones to extrapolate the form above. In the prose or "letter" transcription, Carterette and Jones gave the following: "No but would you have if you had been about tenth grade at the time would you have transferred to (sic)[5]" (p. 368). Once again, this example demonstrates that the written form of English does not reflect the contracted spoken form, even when that is ostensibly its purpose.

The other conditional types represented in the adult data were: seven present conditionals; nine predictive conditionals; thirteen hypotheticals, and one generic.

The rare occurrence of the counterfactual in adult conversation suggests that contexts which elicit counterfactual conditionals are not common in informal conversation. Since the majority of the child's language experience and use is in informal situations, it logically follows that children would not use counterfactuals with any

frequency, hence we would not expect to find many examples of the past perfect in this particular context.

Summary

In this chapter we have explored the factors directing the developmental sequence of conditionals presented in Chapter V. Our goal was to elucidate the nature of the contributing forces and their interaction. We have shown that no one contributor can be uniquely responsible, but that different factors are influential at different stages in the development of the various conditional types. Our general conclusions are the following:

--The semantic complexity of a structure, and the child's cognitive abilities to understand and manipulate those particular semantic notions and relationships, are responsible for the basic sequence of development.

--The complexity of the formal morphological structure generally motivates the time schedule for the appearance of specific structures in the child's grammar.

--Intersecting these two major pathways is the child's perception of the meaning of a conditional question.

--Sociolinguistic and pragmatic considerations are additional contributing factors, responsible for the late acquisition of more formal, supplementary forms.

Chapter VII: Some general issues in language learning

The topic of this dissertation is a very narrow one; however, its narrowness provides us with the opportunity to examine general topics within the confines of a limited and well defined area, conditionals. The conclusions we draw may then be generalized to the language acquisition process as a whole. Some of the candidate issues are: 1) the relationship between form and function; 2) the interaction of comprehension and production and tangentially, imitation; and 3) strategies used to learn a new structure. This chapter is devoted to a discussion of these issues from which I hope to make some general claims about the nature of the acquisition process.

1. Form and Function

The relationship between any given form and its meaning or function has been discussed in several contexts (Werner and Kaplan, 1963; Slobin, 1973; and Kuczaj, in press) and in the last chapter we examined the changes in function which the conditional question "What if?" undergoes. Initially it elicited present and predictive conditional responses, then its scope narrowed to include only irrealis responses and finally, at eight it broadened to elicit present and generic

Reality conditionals as well as all types of Unreality conditionals.

In this section, I would like to explore the functional shifts which the modal auxiliaries undergo. I will proceed by examining the form of the responses to the "What if" predictive, hypothetical, and counterfactual tasks and the Bears and Pigs task. To review, this includes "What if" questions with present, past and past perfect verbs. Bears and Pigs is one of the tasks designed to elicit counterfactuals; it makes use of the stories The Three Little Pigs (Galdone 1970) and The Three Bears (Galdone 1972). A sample question is, "What if the Daddy Bear's porridge had been the Mama Bear's porridge?" (The relevant tables are 8, 11, 15 and 19 ; they can be found in Chapter IV.)

Among the two-year-olds, as we have noted, there is a great deal of variability, in terms of both comprehension and production abilities. However, we can make some generalizations. Those twos who have access to both will and would initially use them in free variation. That is, both will and would appear in hypothetical and counterfactual consequents, as in the following examples:

1. Matthew (2,9): If I were a ant, I will scare you/
   Matthew (2,9): If I were a tiger, I would eat you all up/

2. Adult: What if you had eaten seven cookies?
   Wynn (2,8): I would be sick and go to the doctor/

3. Adult: What if that lizard had eaten your Mom all up?
Wynn (2,8): (silence)
Adult: What if that lizard had eaten your Mom all up?
Wynn: That will be terrible/

Two-year-olds such as Kate, who can respond to different types of conditional questions, but who only has access to <u>will</u>, use this one modal for a variety of conditional consequent responses, e.g.

4. Adult: What if you stick a pin in a balloon?
Kate (2,8): Because it will pop/

5. Adult: What if you were a kitty?
Kate (2,9): It [wʌl] have fur/
It [wʌl] go miaow/

6. Adult: What if this turtle had been an owl?
Kate (2,10): It will say "who, who"/

In summary, for the twos, then, we can say that initally, either <u>will</u> and <u>would</u> are used in free variation, or, where the child's lexicon is more limited, <u>will</u> is used for predictive, hypothetical and counterfactual conditionals, thus functioning over a wide semantic field. This looks like a classic case of overgeneralization, and it could be interpreted as such. However, it seems to me that since she has no other appropriate modal forms at her disposal, a better description would be that she is "making do" rather than overgeneralizing.

One of the major morphological developments in our data is the general acquisition of would and could by the three-year-olds. This naturally influences the form of their responses (see examples 7, 8, and 9 below) and we find the simple conditional responses, (would+verb stem) increase at three for each type of conditional. For predictives, there is an increase in the use of the simple conditional of 23%, for hypotheticals, the increase is 9%; for the "What if?" counterfactuals, it is 6%, and for the Bears and Pigs counterfactuals, it is 18%. These figures as well as the complementary decrease in the simple future, (will+verb stem) for these same tasks, are available from Tables 8, 11, and 15, and 19B in Chapter IV.

7. Adult: What if you paint nail polish on your arms?
   Three: It wouldn't ever come off/

8. Adult: What if you stuck your head in the lion's mouth?
   Three: He would bite/

9. Adult: What if the straw house had been made of bricks?
   Three: The pig would come in it and the wolf would come/

(In tallying comprehension of counterfactuals, this last response was counted as ambiguous.)

Hence, at three, and continuing throughout the data, the simple conditional (would+verb stem) is the preferred choice for all types of consequent responses, even the predictive What if? questions (What if+present?). As Table

8 demonstrates, the simple future, (will+verb stem) continues to appear in the predictive responses but it is always overshadowed by the simple conditional (would+verb stem). The gap between the simple future and the simple conditional responses at three is minimal, but it becomes quite marked in the four- and in the five-year-old responses, where 64% are in the simple conditional and only 31% are in the simple future. This trend continues, apexing at seven where 90% of the responses to predictive What if? questions are in the simple conditional and only 5% are in the simple future.

This does not mean that the children use the simple conditional for all predictives. They very clearly use the simple future in the responses for the Lion Construction task. To refresh your memory, this task demanded that two children working together construct a face on a blank lion shaped face. They were to do so using the following phrase, "If you put on (some facial feature), I will give you a marshmallow." Even the six-year-olds who seem to delight in reordering the clauses in their responses, thereby not feeling constrained to follow the model too explicitly, only twice used a modal other than will in the consequent; one child used could and another, can. Otherwise, beyond three, there is no use of any modal other than will in the consequent in the Lion Construction task.

In conclusion, children are perfectly capable of using and do use, the simple future in predictives, but when a question is phrased either, "What if +present" or "What if+ past tense?" there is a strong tendency in the five- to seven-year-olds to interpret it as a possibility rather than a probability, that is, as a hypothetical situation.

With the advent of the contracted conditional perfect forms woulda/would've at six, a new morphological distinction becomes available and the form/function balance is redistributed. The simple conditional is still the favored form for hypotheticals, and it is still used for counterfactual responses (see Tables 15 and 19), but the contracted conditional perfect (woulda/would've+ past participle) is certainly making inroads into the counterfactual territory (example 10). At six, 56% of the Bears and Pigs responses are of the contracted conditional perfect form and only 29% are in the simple conditional.

10. Adult: What if the straw house had been made of bricks?
    Six: It woulden've fell apart; that one's too too thick/

In the eight-year-old data, we see a new development with the use of the full conditional perfect, as in example 11 below where the experimenter is testing a pair of eight-year-olds. (Its first appearance is actually in the six-year-old data, but it is not until eight that it appears in any quantity.) This again is a new form for the

counterfactual consequent, and once more redistributes the form/function ratio.

11. Adult: What if the brick house had been made of straw?
Eight(1): It would have got blown in/
Eight(2): It would have gotten blown in/
Eight(1): By the wolf

The following Table is a summary of the discussion of presented in this section. It is a schematic representation of the changing and developing relationship between the various modal auxiliaries and their occurrence with the different conditional types. Table 21 reflects the usage of various forms found in the spontaneous conditionals of the twos, the results from the "What if + present, simple past and past perfect?" tasks as well as those from Bears and Pigs and the Lion construction task.

Table 21: The Relationship Between Form and Function

Stage	Age	Modal	Function -consequent type with which it appears
I	two	will	all conditional types
		will/would	free variation all types
II	three, four, five	will	predictives
		would	hypotheticals, counterfactuals (What if? predictives)
III	six, seven	will	predictives
		would	hypotheticals, counterfactuals (What if? predictives)
		woulda/ would've	true counterfactuals
IV	eight	will	predictives
		would	hypotheticals, counterfactuals (What if? predictives)
		woulda/ would've would have	true counterfactuals

Several cognitive psychologists have investigated the relationship between the acquisition of certain forms and the acquisition of the meanings those forms represent in early language asquisition, Bloom (1970), Brown (1973) and Greenfield and Smith (1976). Cromer (1968 and 1974) and Kuczaj (in press) have also discussed this relationship, Cromer in the context of the development of temporal reference in English, and Kuczaj in the context of modal auxiliary acquisition. All of these studies, along with Slobin (1973) reaffirm the Werner and Kaplan observation that, "New forms first express old functions, and new

functions are first expressed by old forms" (Slobin, 1973, p. 184). Additionally, the data presented by Kuczaj also introduced some interesting variation.

Kuczaj collected data from 16 children aged 2,6-5,6. He examined the children's auxiliary forms, specifically the modals, and the contexts in which they were used and should have been used. The changes in the meanings represented by the different modal forms were then noted. Although Kuczaj's results do, in part support the Werner and Kaplan /Slobin hypothesis he also found that in some cases when a new form appeared it expressed a brand new meaning. Further, in many cases an old function switched to a different old form.

Kuczaj's conclusion is that, "initially a limited number of forms is used to express a limited number of functions, this being followed by an increase in the number of functions and the number of forms used to express the function. Next, children come to narrow their referential use of forms, so that forms come to be restricted to appropriate functions" (p. 5).

Another way to describe this is that at first there is a one-to-one correspondance between form and function. This is replaced with several forms being used for an individual function and finally a narrowing of the semantic field to the adult form-function relationship.

In our data (see Table 21) we find examples of both phenomena. Certainly there are old forms to which new functions are delegated. For example, with Kate, the simple future will is productive at 2,5. However, from 2,8 until 3,0, its functions expand; we find its new contexts include predictive, hypothetical and perhaps counterfactual conditional consequents. (The uncertainty about the two-year-old comprehension of counterfactuals was discussed in Chapter VI.) Once Kate acquires would at (3,0), would appears in the hypothetical and counterfactual consequents, and the function of will contracts to include only simple future predictives. Hence, we initially see a one-to-one correspondence which expands to include two new functions, and then, with the acquisition of a new form, the functional field of the original form again narrows to more closely correspond with the adult relationship.

By the same token, new forms such as would, woulda/would've and would have all take over functions or meanings which have already appeared in the data. When would makes its first appearance in Kate's lexicon to assume the hypothetical and possibly counterfactual functions, she has already shown that she can use and understand hypotheticality. When woulda/would've appear in the six-year-old Bears and Pigs results, these forms partially assume the counterfactual function hitherto borne

by would. Their more formal counterpart, would have, follows a similar path. In both cases, a new one-to-one relationship between the form and its function is established. That is, each of these new forms woulda/would've and would have has only one function, but both forms have the same function, with different sociolinguistic connotations.

In assuming these old functions, these new forms have begun to narrow the semantic field to which would refers. Once again, then, in the semantic development of would, there is an expansion and subsequent narrowing of the functions this particular form expresses. Hence, we have a delicate balance achieved by a process of growth and expansion followed by contraction and narrowing which co-occurs with the acquisition of new forms to assist in bearing the semantic burden.

This balancing of form and function bears a striking parallel to the Piagetian notion of the child's striving for equilibrium by the complementary processes of assimilation and accommodation. Assimilation and accommodation for Piaget are complementary processes used in adaptation. Assimilation involves the individual's dealing with an object or concept by fitting it into his present framework. Accommodation, on the other hand involves a change in one's structures in response to an external model or event.

An example of the interaction of these processes occurs in the auxiliary data we just discussed. When the fours could respond appropriately to the counterfactuals, but had no specific morphological marking to differentiate counterfactuals, they used the hypothetical conditional morphology would+verb, a structure already at their disposal, to meet this new need. The hypothetical morphology assimilated to counterfactuals. The child then accommodated to the external model by developing a new morphological structure for counterfactuals, the conditional perfect.

The formal linguistic system itself appears to be unique and independent from cognition, developing on its own time schedule, as we saw in chapter VI. However, as we observed with assimilation and accommodation, it may well be that individuals use similar approaches and strategies for language learning to those Piaget has found in other spheres of learning.

2. Comprehension and Production

Parents and child language investigators have long been under the impression that children's language comprehension abilities far outstrip their production capacities. Lois Bloom (1974) has made the distinction between the child's world knowledge and experience and his independent

linguistic abilities or the capacities of his language processing device. Bloom has observed that the child's ability to process sentences in context exceeds his ability to process those same sentences where contextual cues are minimal.

This is surely not surprising; child-adult conversations are often based in the "here and now", making use of gestures and objects in the physical environment. Further, this incongruity between comprehension and production reflects the child's dependence on what he knows about the world; who or what might be a likely agent or instrument; and the usual function or behavior of particular items or beings. As Clark and Clark (1977) have observed, young children have "two assumptions about the function and content of language: 1) Language is for communication; and 2) Language makes sense in context," (p. 488). The second assumption is relevant to our discussion; it is the complement of the Gricean conversational principle "Be relevant." As do adults, children expect their conversational partners to be relevant, even though, as many parents have noted, it takes a long time for children to master the active counterpart of this notion, i.e. to be relevant themselves.

With this basic assumption of relevance plus the child's knowledge of how objects and creatures interact in

the world, and the immediate physical context, the child has a great deal of information to help interpret utterances addressed to him. Adults also heavily rely on their background/world knowledge to interpret and disambiguate utterances.

Hence, one of the reasons a child's comprehension seems to so disproportionately exceed his production capacity is that like an adult, the child brings information not uniquely linguis tic in nature to aid in the interpretation and comprehension process.

However, even in situations independent of context, comprehension still appears often to precede production. We saw this in the conditional data on several occasions. One is where children just beyond the two-word-stage were able to act out tasks indicating comprehension of a conditional structure (see Chapter V). Even if those children interpreted the conditional sequence as a series of consecutive, and not necessarily dependent actions, neither child had as yet produced consecutive coordinate sentences. Under either interpretation, comprehension preceded production.

In our data another example of comprehension preceding production is the counterfactual data from the Bears and Pigs task. Here we saw children as young as four successfully responding to the counterfactual questions.

However, counterfactual morphology first appeared productively in the data at six. The children's ability to produce true counterfactuals was retarded by their lack of appropriate morphology.

Another example from our data is Kate's ability to respond to present and past tense "What if?" questions some time before she produced any spontaneous conditionals at all. Certainly, children often understand structures before they are capable of producing them. As we have seen, this is also true with conditionals. However, once the child begins to produce conditionals, she does not understand the full function or semantic range of the conditional structure, as we discussed in Chapter VI. Nor is it clear that a child's ability to produce conditionals, necessarily insures his comprehension of the contingency relationship obtaining between the two clauses.

Jakubowicz (1981) has studied comprehension of conditionals in French speaking children aged four through eleven years old. In the initial stages, she found that the four-year-olds interpreted both predictive and subjunctive counterfactual conditionals as a sequence of juxtaposed or coordinated propositions. The children appeared to ignore the conditional morpheme si (if) as well as the verb endings which distinguish the two types of conditionals.

In the next stage (at about five) the children attended to the verb endings and correctly interpreted the counterfactuals, specifically the non-assertion of the antecedent. However, they still interpreted the predictives as affirmative assertions, i.e. they did not indicate uncertainty of the fulfillment of the antecedent. It is only in the final phase that the children were able to interpret both types of conditional sentences satisfactorily.

Jakubowicz' data suggest, as we have earlier, that children initially learn a portion of a structure's function, thus allowing them to use a structure without entirely comprehending its meaning. As time passes, the meaning of the structure, i.e. its function grows to more closely resemble that of the adult model.

In this same vein, we find that children are quite able users of conditionals by three and four years old, but according to the developmental studies on conditional and hypothetico-deductive reasoning and evaluation of abstract conditional arguments (Taplin, Staudemayer, and Taddonio, 1974; Kodroff and Roberge, 1975; Staudemayer and Bourne, 1977) this cognitive ability is a much later acquisition. Taplin et al found that "performance was found to improve from around six years to college level, with a dramatic change taking place between 11 and 15 years" (p.363). These

tasks certainly require additional inferencing skills and logical abilities that far exceed knowledge of the basic contingency relationship obtaining between the clauses in a conditional. However, these studies do test conditional comprehension on another level, one of formal logic.

A last and anecdotal bit of data which exemplifies the vacillating and overlapping nature of the comprehension and production relationship is from Kate at her third birthday. In the Token Test for Children (DiSimoni 1978), there is an example to test comprehension of conditionals. In this task the relationship between the antecedent and consequent is entirely arbitrary. One example from the test is, "If there is a black circle, pick up the red square."

When this and similar examples were administered to Kate, she failed every time the object mentioned in the antecedent was not tangibly present (eight out of eight times). That is, whether or not the object referred to in the antecedent e.g. a black circle for the example above, was in view, she still touched or picked up or gave me the object mentioned in the consequent, e.g. a red square. It seemed that in spite of her using predictive and present conditionals and her apparent comprehension of counterfactuals, she really did not understand contingency.

However, several times during the tasks, she said as she handed me the item commanded in the consequent, "but I

don't see a black one," when there was no black one present and it had been the necessary item mentioned in the antecedent. This comment on Kate's part as well as her successful performance on all the other conditional tasks, conflicted with her failure on the Token test. Further, they suggested that the force of the imperative in my instructions may have taken precedence over her ability to focus on or respond to the necessary condition for the fulfillment of the consequent, but I was at a loss to demonstrate this.

Two days later Kate walked into the room holding an ice cream scooper in her hand. In the cup portion of the scooper sat a lemon,

12. Kate (3,0): If you push the button, I'll give you a surprise/
Mother: Okay, give me a surprise.
Kate: You forget [ə] press the button/
Mother: Okay, I'll press the button.(doing so)
Kate: Here's your surprise/ (she hands me a pretend something)

It was extremely fortunate that this occurs so closely after Token testing because this example suggests very strongly that Kate does in fact have some notion of the consequent depending upon the fulfillment of the antecedent. In Kate's case, it may well be that she only has a sense of contingency when the situation is self-initiated or it may be that the imperative in the token has such strong illocutionary force that it overrules any other

consideration, although this does not occur in example 12 above. A third possibility is that the combination of the arbitrariness of the token test in addition to its being other-initiated surpasses Kate's comprehension abilities.

As a final caveat, we must also suggest the possiblity that we don't always know exactly what we are testing and that we are not aware of all the interacting forces which function to elicit a response. We need to be very cautious in drawing conclusions from both naturalistic and experimental data.

In summary, we have seen situations where comprehension precedes production and the reverse, i.e. production of a structure precedes its full comprehension. We have also reviewed Kate's situation where self-initiated situations belied an understanding not evident in apparently identical other-initiated contexts. Our conclusion is that the relationship between comprehension and production is not static and predictable, but rather fluctuating and bi-directional.

Before we close this section it might be interesting to examine briefly the interaction between the production and imitation results. The twos as a group had a great deal of trouble with imitation as a task, however, those who would participate were able to imitate both generic and predictive

conditionals. Morphologically, this is what we would expect, as this is the form of their spontaneously produced conditionals, and the morphology of present conditionals and generics overlaps. One interesting incongruity was the ability of one two-year-old to produce subjunctive counterfactuals and hypotheticals without being able to imitate them.

The threes had no difficulty imitating generics (100% correct) and did very well with the imaginative hypotheticals and predictives; like the twos, they did poorly with the present conditionals using the present progressive tense (28%); they often deleted the copula.

The threes were only moderately successful with the productive hypothetical tasks, but morphologically, they generally had <u>would</u> in their lexicons. Their imitations of the subjunctive counterfactuals generally deviated by substituting the simple past <u>was</u> for the subjunctive <u>were</u>. Productively, the threes participated in the pretend task, which involved semi-self-initiated subjunctive counterfactuals, but they denied subjunctive counterfactual questions:

13. Adult: What if you were a snake?
    Three: I'm not a snake/
    I'm Janine/

It appears then that they were able to imitate generics, hypotheticals and subjunctive counterfactuals from a morphological base rather than a conceptual one. On the other hand, their practice with the past conditionals was to change them to hypotheticals, reflecting some awareness or attraction to hypotheticals.

The fours' performance with the progressive in the present conditionals surpassed the threes'; this appears to be a morphological gain. Productively, the fours no longer deny hypotheticals or counterfactuals and do extremely well in comprehension of counterfactuals. However, this achievement is not entirely reflected in the imitation responses. Although they did reasonably well imitating the hypotheticals and subjunctive counterfactuals, they made a dismal showing with the true counterfactuals, none correct.

The older groups, five-, six-, seven- and eight-year-olds did well on all the imitation tasks except for counterfactuals. This is true even for the eights, some of whom had mastered the full conditional perfect. The past perfect in the antecedent still proved to be an obstacle.

Children, then, are generally able to imitate those structures which they produce; however, the ability to imitate an utterance is crucially influenced by the morphology of the structure rather than just the child's comprehension of that structure.

3. Some learning strategies

In this section, I would like to present and examine two ways in which a child might progress in learning a structure. These techniques or strategies appear to be functional in the acquisition of the conditional system.

3a. Frames and Formulaic utterances: In the sixties the goal of investigators in child language acquisition was to write formal grammars which accounted for the child's language at any particular stage. One early solution to children's first syntactic productions was the Pivot grammar (Braine, 1963). Although it ultimately proved unfruitful, the fact that it was conceived at all demonstrates that children have been observed to create stable syntactic frames into which a variety of lexical items/semantic material might be inserted.

In second language acquisition, Lilly Wong Fillmore (1979) has found that Spanish speaking children who are learning English, very quickly acquire a repertoire of socially useful expressions and appropriate contexts for using them. At first, these expressions are usually unanalyzed. Subsequently such unanalyzed formulae become

partially analyzed. They are then formulaic frames with empty slots which can then be filled with new semantic material. Finally the child analyzes the entire structure and can produce the structure with completely novel semantic content.

Bloom, Lightbown and Hood (1975) have investigated early individual differences in styles of first language acquisition. They have found that some children initially use a "pivotal approach" whereas others used a "categorical approach". Those children preferring the pivotal approach use the frame/slot construction. In this case, structures are dependent on specific words and the abstract frame is filled by a variety of lexical items. Those individuals who use the categorical approach form rules for sentence production independent of specific words.

This language learning technique, then, having a formula or a word and an empty slot into which new semantic material is inserted, occurs in the initial stages of first language acquisition and in second language acquisition. I would like to show that this same strategy continues to function at later stages of first language acquisition.

It will be recalled that in the early stages of Kate's conditional development she was able to respond to "What if" questions before she produced any spontaneous conditional utterances. Further, her response to the great majority of

these "What if" questions began with the phrase It will/ [wʌl], regardless of the subject or the tense of the verb in the question as in the following examples (some of these are repeated from Chapter V):

14. Adult: What if you drink really hot soup?
    Kate (2,8,10): It will burn me/

15. Adult: What if you fell down the stairs?
    Kate (2,8,10): It wul hurt/

16. Adult: What if you were a cow?
    Kate (2,8,21): It will have no feathers, a bell/

17. Adult: What if you were an elephant, Katie?
    Kate (2,9): It wul go/
    Adult: Are you an elephant?
    Kate: No/

18. (A plastic cup fell in the sink)
    Adult: What if that cup had been glass?
    Kate (3,0,8): It will break/
    Adult: Did it break?
    Kate: No/
    Adult: Why not?
    Kate: Because it's plastic/

It is clear from Kate's responses that she understands the questions; her answers are always semantically appropriate. Her responses to the follow-up questions (example 17 and 18) are further indication of her comprehension. Also, her gradual, rather than sudden and complete ability to answer differently tensed "What if?" questions, suggests that she does make some distinction between the differently tensed verbs in the "What if"

questions, hence between the different types of conditionals (see Chapter V, page 101).

However, her responses also demonstrate that Kate has learned that the way to answer any "What if" questions is with a formula: It will/wul followed by an empty slot into which a semantically appropriate proposition is inserted. It is not until Kate is 3,1,20 that the form of her response to "What if?" questions changes and at that point her production finally reflects morphologically the semantic distinctions which she previously comprehended.

19. (Kate and I are sitting on the bed with some books)Mother: What if I read to you?
Kate (3,1,20): I'd like that/

20. Mother: Hey Kate, what if you were Pippi Longstocking?
Kate (3,1,22): I would have black shoes an' a stripe dress an'long stockings/

21. Adult: Did you have a hamburger Kate?
Kate (3,1,22): A cheesehamburger/
Adult: Well, what if you eat three hamburgers?
Kate: I get sick/

I would like to suggest that Kate's initial formulaic responses to "What if?" questions reflect her entrance into the conditional system. Very young children certainly learn appropriate contexts for particualar types of speech acts. They also learn appropriate semantic responses to a variety of Wh-questions very early as the following example demonstrates:

22. Adult: Where did you go with Daddy?
Kate (1,11): [su]/
[su]/ (zoo)
Adult: And what did you see?
Kate: [aeməz] (animals)
Adult: What kind of animals?
Kate: [dowtz] (goats)
Adult: Anything else?
Kate: [aegeydəz] (alligators)

Not only is Kate aware that a question demands an answer, she is able to distinguish individual question types and her responses demonstrate comprehension of the appropriate semantic field referred to by each one.

I would like to suggest that in the initial stages of acquiring conditionals, Kate learned that the phrase What if+ proposition A elicits a certain type of response, specifically It will + proposition B where A and B have some identifiable semantic relationship, be it contingency, cause/effect, or even juxtaposition of consecutive events.

Hence in learning an appropriate, if limited, response to "What if?" Kate first learned the appropriate pragmatic context and could then concentrate on content, rather than form. This routine or formulaic sequence allowed Kate to participate in a new conversational area. It allowed her to begin to analyze and experiment with different types of conditionals and the semantics of conditionals, by inserting new semantic material into the empty frame. This formulaic approach can be likened to getting one's foot in the door.

Although the longitudinal data on Matthew is not complete, he seems to have a similar approach. As we mentioned earlier, his first conditionals were hypotheticals; they are repeated here for convenience:

23. Matthew (2,9):
If I were a zebra, then I have stripes/
If I were a ant, I will scare you/
If Amber died, then Auntie would come/
If I were a tiger, I would eat you all up/

Matthew's first conditionals, like Kate's responses to "What if" questions appear to be formulaic in nature. The subjunctive, as we have seen, is not a common form for the younger children, and Matthew's mother reports that <u>would</u> has not occured in any other utterances (Tanouye, personal communication). As we discussed in Chapter V, the next step in Matthew's conditional development was the disappearance of all conditionals simultaneous with the appearance of <u>when</u> adverbials which are semantically closer to predictive or present conditionals, as in the following:

24. Matthew (2,10): When Katie comes over, we will play with my records/

This development plus the fact that Matthew was unable to imitate hypotheticals at this stage is further evidence that Matthew's first hypothetical conditional structures represented a non-assimilated formulaic construction for him.

3b. Building conditionals across turns: In the initial stages of language acquisition, investigators, Scollon (1977) and Bloom (1973) have found that children build propositions over a sequence of turns, as in the following:

25. Kate (1,10): [mač]/
[mač]/
Mother: More?
Kate: [mač]/
Mother: March, who marched?
Kate: [peyd]/ (gloss: parade)
[piypu]/ (gloss: people)
Mother: Yes, people marched in the parade/

In a similar manner, children use the utterances of other interlocuters to build whole propositions, (Keenan, Schieffelin and Platt, 1976; Scollon, 1977; and Greenfield and Smith, 1976). Most of this work has been done at the one-and two-word stage, although Keenan et al also have examples from some older children (33-36 months).

This process of using a sequence of utterances to construct a complete proposition can be viewed from at least two perspectives. First, it is a very effective pragmatic means for continuing a conversation. In fact, the sustaining and commenting on a topic is an essential element for successful discourse. Secondly, building on someone else's turn provides a young child a much larger grammatical repertoire than he might ordinarily have access to. It affords him the opportunity to experiment with new

structures. I have shown (1981) that repairs can function in this same manner, and that children use these processes for a variety of structures at different stages of lingusitic development. In both processes, repairs and propositions across utterances, the child is expanding upon an already existent structure.

The above discussion suggests that building whole constructions across utterances is not limited to single propositions, nor to children just beginning to learn language. In acquiring conditionals, Kate makes use of this same strategy; she can and does respond to adult initiated "What if" questions several months before producing her first spontaneous conditionals.

As we saw in the Developmental Profile (Chapter V) Kate first used a universal response for all "What if" questions, as in the following examples:

26. Mother: Katie, what if I tickle your tummy?
    Kate (2,7): Because/
27. Mother: Katie, what if you ate all the cookies?
    Kate (2,7): Because/

At 2,8, for the first time Kate answered a "What if" question coherently:

28. Mother: What if a train rolls over you?
    Kate (2,8): Mashed/
    A big, big owie/
    A terrible owie/

29. Mother: What if you go in the water?
    Kate (2,8): Splash!/

Several weeks later, Kate developed her formulaic response to "What if" questions that we discussed in the previous section. During this time her ability to respond to different types of "What if" questions, i.e with differing verb tenses increased. Initially Kate only responded to present tense What if? questions, e.g. "What if you pull Julie's tail?" Two weeks later, she also responded to past tense "What if?" questions, as in "What if you fell down the stairs?" This apparent increase in her comprehension and response abilities suggests that Kate was using this shared construction (where the adult supplies the antecedent in a "What if x?" question and the child furnishes the consequent in his response) as a starting point to learn about the meanings of and experiment with different types of conditional sentences.

As you may recall, Kate did not produce her first spontaneous full conditional sentence until she was 2,10, six weeks after she was responding appropriately to both present and past tense "What if?" questions. Again, Kate's first conditionals were present and predictive conditionals. Conceivably Kate could still use the shared construction as an opportunity to practice hypotheticals and counter-factuals. At 3,2, she had not yet spontaneously produced either of these two conditional types, but could and

did respond appropriately to "What if + past?" and "What if + past perfect?"

In conclusion, this data from Kate suggests that not only one-and two-worders, but more linguistically advanced children also use sequences of utterances and the utterances of other speakers to construct more complex structures. This process provides an opportunity to co-produce structures that are normally beyond the child's production ability. The shared construction then allows the child to experiment with new and otherwise unavailable syntactic and semantic structures. We can view this phenomenon as a stepping stone on the path to the acquisition of a structure.

Summary

In this chapter we have discussed some of the factors involved in learning a structure. In general, as in all complex phenomena, there are few simple answers. Rather than a straight and easily predictable path, we have found a growing, constantly changing set of interactive processes. In the examination of the relationship between production and comprehension, we found that children understand a structure before they can produce it. However, the ability to produce a structure does not in any way insure its full comprehension.

In our discussion of form and function, here too we find an ever vacillating relationship, a constant redistribution in the balance between a form and its semantic load.

In the latter portion of this chapter we looked at two strategies the children used in the process of acquiring the conditional system. One employed formulas with empty slots into which new semantic material was inserted and the second involved using an adult utterance as part of one's own construction. Both of these approaches provide arenas for experimenting with new and not yet mastered structures. One of the interesting features of these two strategies is their similarity to approaches that cognitive psychologists have observed in children learning other phenomena.

Chapter VIII Conclusions

The conditional system in English is both morphologically and semantically complex and mastering this system demands a high degree of cognitive and formal linguistic sophistication. Interestingly, children first produce conditionals in English at about two-and-a-half or three years old. However, it takes about seven years before they fully control the entire conditional system. The richness and complexity of this one basic structure --conditionals-- provide an excellent opportunity to examine not only how a structure is acquired but also the factors which interact to direct its developmental path.

In this dissertation, I have traced the acquisition and development of the various types of conditionals, using the semantic model proposed by Schachter (1971). After describing its progress, the variables which interact to produce this sequence of acquisition were considered. Finally, specific processes occurring in the acquisition of conditional structures and which can be generalized to the broader context of language learning were examined and discussed.

The following conclusions were reached. The sequence of acquisition is generally determined by the child's cognitive

development and his ability to manipulate the semantic notions underlying different types of conditionals. However, it is the formal linguistic complexity of a structure that is responsible for the timing of its appearance in the child's productive grammar. Further, pragmatic and sociolinguistic factors are influential in determining the acquisition of some forms.

When a child first produces conditionals (between 2,6 and 3,2 in the data herein) he has an egocentric perspective and his language reflects this; his conversations are primarily concerned with his immediate experiences and needs. He first uses conditionals to refer to present, on-going events (present conditionals) and to predict what he believes will occur (predictive conditionals). Both these types of conditionals have a basis in real time and in the real world and both use indicative tenses that are regular (the simple present and the simple future).

At about three, most children acquire the conditional marker would and produce hypothetical conditionals. However, this morphological achievement conceals the fact that threes do not comprehend subjunctive or true counterfactuals and do not fully understand hypotheticals.

There is a marked change at four; this age group demonstrates comprehension of hypotheticals and counterfactuals and also produces generic conditionals. All these types of

conditionals require what Piaget called "decentration" --the ability to detach oneself mentally from the real world and the real time continuum. Hence at three, there was a morphological development, and at four the gain was a cognitive one. However, even though the child at four has the cognitive resources to comprehend and respond to all types of conditionals, he still must wait several years until his morphological capabilities catch up and he is able to produce all these various conditional types, especially counterfactuals.

The remaining developments are morphological in nature. At six, the informal adult forms woulda and would've appear for counterfactuals. At eight, these are supplemented with the more formal variant would+have+past participle (conditional perfect). The sixes are also the first group actively to re-order the clauses in a conditional structure.

At seven, the subjunctive form were appears frequently for the first time. Like the contracted conditional perfect auxiliary, woulda/would've, this is a more literate variant and is therefore a supplementary form. This explains its late appearance in spite of its morphological simplicity.

In addition to using the full conditional perfect form, the eights also demonstrate a new morphological awareness of tense co-occurrence restrictions in the antecedent and consequent.

Conditional development then, is a process in which a variety of factors, primarily cognition and linguistic complexity interact with pragmatic and sociolinguistic influences in a fluid readjusting balance to finally produce the adult model.

We have also seen that the interactive sequence is not unidirectional; cognitive development sometimes precedes and sometimes follows the acquisition of its linguistic correlate.

The discussion in the last chapter concerns phenomena occurring in the acquisition of conditionals which are relevant to the general language learning process. The relationship between form and function is examined as is the relationship between comprehension, production, and imitation. In the later part of the chapter, two learning strategies used in the acquisition of conditionals are discussed, the use of frames into which novel semantic material is inserted and conditionals constructed across turns.

This study was originally undertaken to discover how conditionals are acquired and what the development of conditionals would tell us about how children learn language. If nothing else, this study has again demonstrated the remarkable complexity of the language learning process and the amazing ability of children.

Footnotes

1. I would like to thank Sandro Duranti for these example sentences and his comments about them.

2. These insights about the peculiarity of past conditionals stem from a discussion with Daniel Kempler.

3. French and Nelson (1982) have noted that talking about familiar routines is an unusual topic in adult-child discourse. Adults often ask children about specific past events, but rarely about "what you do when..."

4. Discussion with Sandra Thompson about these forms and their use, has been especially helpful.

5. The prose transcription in Carterette and Jones (1974) added this to which does not appear in the phonemic transcription.

Appendix I: Procedure Stimuli

Procedure 1: What if?

With the book, Clifford Goes to the Circus (Bridwell 1977)

What if you had a dog as big as Clifford?
What if you had seen that circus sign?
What if you ran away to the circus?
What if you stuck your head in the lion's mouth?
What if they caught you?
What if Clifford gets a pie in his eye?
What if you got a pie in your eye?
What if you had been one of those clowns?
What if Clifford really walked into that tent?
What if Clifford wags his tail?
What if you had been that clown, right there?
What if you were Clifford? (to each child)

What if a bee stings you?
What if you eat lots and lots of chocolate cake?
What if _____is digging in the dirt outside?
What if you were a lion?
What if _____ chased you?
What if it's snowing in the mountains?
What if you eat three ice cream cones?
What if I push this button?
What if it rains?
What if _____ is riding you bike outside?
What if a tree falls on you?
What if you have the flu?
What if _____ eats dirt?
What if you eat three boxes of strawberries?
What if _____ were a snake?

(With the two- and three-year-olds, depending on their attention span, some questions were omitted, or with the twos, especially, other more contextually relevant questions were substituted. With the older children, who were tested with a partner, all questions were asked and they alternated answering.)

Procedure 4: Lion's Face Transformation

What if this lion had been a hippopotamus?
What if this lion had been an elephant?
What if this lion had been a snake?
What if this lion had been a fish?
What if this lion had been a giraffe?
What if this lion had been a pig?
What if this lion had been a rabbit?
What if this lion had been a mouse?
What if this lion had been a goat?
What if this lion had been a cat?
What if this lion had been a rhinoceros?

Procedure 5: Bears and Pigs

What if the straw house had been made of bricks?
What if this brick house had been made of straw?
What if this stick house had been made of bricks?
What if this brick house had been made of sticks?
What if this pig had lived in a brick house?
What if this pig had lived in a straw house?

What if the Daddy Bear's chair had been the Baby's chair?
What if the Mommy Bear's chair had been the Baby Bear's chair?
What if the Baby Bear's porridge had been the Daddy Bear's porridge?
What if the Mommy Bear's chair had been the Daddy Bear's chair?
What if the Daddy Bear's porridge had been the Baby Bear's porridge?
What if the Baby's chair had been the Mommy Bear's chair?
What if the Mommy Bear's porridge had been the Baby's?
What if the Daddy Bear's porridge hd been the Mother's?

Procedure 6: Imitation

If the sun comes out the snow will melt.
If you went out last night, you heard the sirens.
If I had been fishing, I would have caught the biggest fish.
If _____ eats spaghetti, he'll get fat.
If it rained last night, the dog got wet.
If a bee stings, it hurts.
If I were a bear, I would live in the forest.
If I had been sick, I would have gone to the doctor.
If you smash the TV, it won't work.
If I were a raccoon, I would live in a tree.
If it's raining, the car is getting wet.
If George comes, I may leave.
If you have eaten those cookies, they're all gone.
If you ate ice cream last night, you got sick.
If you can ride a trike, you can ride a big wheel.
If your mother is home, the dog is out.
If you touch the flame, it burns.
If _____ fell from a tree, he/she might break his/her leg.
If a snake bites, it hurts.
If the pipe is leaking, we're in trouble.
If I went fishing, I would catch the biggest fish.

Appendix II: Verb Forms and Auxiliaries (from transcripts)

These are the auxiliaries and various verbs that occurred in the transcripts. Except for modals (for the twos through fives) only new forms are mentioned. Conditional modals are included with past forms.

TWOS

Future: 'll, will, [wʌl], won't; can't/can; gonna, hafta, wanna, wanta, gotta, hava;

Past: would, could/coulden; [din], didn't; sleeped, maked, stood, rided, I been stamping; I never seen them before; one day I feed the pigeons; I came back; Patty woke up and eat; one fall off; I never seen you in a long time.

Present: bare verb; 0 copula: I not a baby; I driving; III+BE+verb+ing: she's wearing; is wiggling; somebody's crying; why is somebody crying; Is+BE: I'm teasing you; I'm leaving; I amn't/I'mn't; IIIs: it hurts/ itches/goes; he's want; it look like; This pig have a broken leg, but the kitty don't.

THREES

Future: 'll/will/won't; gonna; [na]; can/can't; wanna; supposed to.

Past: should; would/'d/wount/wouldn't; could/coulden/ couldn't; did/didn't/dint; said; gave; ate; drive; scared; kissed; got; dried; came; make/maked/makeded; had/haseded; stinged; drove; went/wenned away; saw; took; stucked; took; beed/was; we used to, but not anymore; useded; rocked; broked; he watch me did it. He got aten/he got atened.

Present: do/does/doesn't/don't; BE+ verb-ing with Is, and III person singular and plural. III singular -s.

Perfect: Have you ever been? (one token).

FOURS

Future: 'll/will; gonna; can/can't; might; wanna

Past: should; would/'d/ed/woulden; could/coulden/couldn't; did/didn't; fell; was/were; lost; had; ran; went; hammered; hurted; saw; came; stole; got.

FOURS(continued)

Present: does/do; BE in appropriate contexts with all persons.

Complex and Perfect: Someone has been sleeping/eating/ sitting in my...,etc.(from story); What if the lion had been a person? (modeled). I've heard this story before, haven't I?.

FIVES

Future: 'll/will/won't; gonna; might; gotta; spoze to be; wanna.

Past: would/'d/woulden/wouldn't; could/coulden/couldn't; huffed; puffed; wanted; blew; saw; shot; knocked; forgot.

Perfect: I haven't read it; I've done this before; I've seen this; she would've ate it.

SIXES

Past: same as fives; were supposed to.

Perfect: woulda broke/been/ate/had/eat/rocked; woulded went; would've blown/fell apart/ate/blow/be blown; wouldena had/be/been able; would have blowed; woulden have blown; [wʌ] hafta; we'd hafta.

SEVEN

Perfect: would have eaten; would've blown/had; woulda got killed/been/sat/had; woulden have been blown. I've only seen; I've had.

EIGHT

Perfect: It's never happened before; woulda froze/broke; would have gone; would have got blowed in; woulden have gotten eaten; woulden have fallen down; woulden have blown.

Appendix III: Transcription Conventions

Age of child: (years,months,days)

Unintelligible utterance ( )

Pause(.)

Utterance Boundary/

Adult utterances and stimuli are in quotes: "xxxxxxx"

Children's utterances are underlined: <u>xxxxxxx</u>

Phonetically transcribed utterances are in brackets: [xxx]

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