5. Universal and particular in the acquisition of language

This chapter is the result of cross-linguistic investigation carried out in the United States, Italy, Yugoslavia, and Turkey. Although there are clearly universal processes involved in language development (Slobin, 1973), different types of languages call distinctly different processes into play. It has long been a tenet of our field that all languages should be roughly equal in ease of mastery (e.g., see the exchange between Braine and Bever, Fodor, & Weksel in 1965). I think that, overall, this position is correct. However, there are considerable differences between languages in the relative ease of acquisition of various subsystems. First I examine some predictions of differences in ease of acquisition of various word orders — predictions which do not seem to be supported by cross-linguistic data. Then I explore the general issue of word-order rules and various types of inflectional systems for the expression of underlying grammatical relations, showing that some organizations of linguistic features are more accessible to the child than others. Following this, I show that the acquisition of terminology in a given domain — in this case, that of locative relations — is influenced by language-specific aspects of expression. Finally, after dwelling on ontogenetic linguistic relativism, I return to the search for common features of development.

5.1. The naturalness hypothesis: linguistic categories and word order

The acquisition of language is embedded in contexts of biology, cognition, and social interaction. But linguistic ontogenesis is more than the unfolding of an innate potential, or the mapping of sensorimotor schemata onto speech patterns, or the symbolic crystallization of social interaction. Language reflects the structures of biology, cognition, and discourse in its own ways, and these ways must be discovered by the growing child. The linguistic apriorism of Chomsky has stimulated some psychologists to search for nonlinguistic roots of language development. Although this endeavor is necessary for a full picture, it can lead to an apriorism which attributes the essentials of linguistic structure to the child before he or she has begun to master the grammar of the particular native language.

This new apriorism is based on claims of "naturalness" in the means used by human languages to map underlying semantic and pragmatic content onto surface utterances. Many of the naturalness arguments are appealing and convincing, and I certainly do not wish to challenge the position that language reflects deep-seated ways of thinking in nonarbitrary fashion. It is indisputable that children are aided in acquisition by the fact that the system was evolved by minds like their own, in adaptation to the human situation. And prelinguistic cognitive and social development obviously prepares children for the acquisition of the native language. But it does not provide the key to the particular categories and structures of that language. Cross-linguistic research cannot help but make one attentive to the diversity of human languages and to the varying acquisition tasks posed by languages of different sorts. My aim is to add to the constellation of nonlinguistic factors the fact that language, in itself, constitutes a complex body of knowledge which must be discovered and structured on its own terms.

The naturalness argument, as presently applied to child language, has two facets: the claim that semantic categories are given in cognition, arising from sensorimotor intelligence and mother—child interaction; and the claim that word order is a natural reflection of the order of thought. The categorization argument has an older history, and was already objected to by Bloom in One Word at a Time (1973). Towards the end of that monograph she concerns herself with "rich interpretation" at the one-word stage, and states that "describing relationships within the situation in which the child speaks is different from attributing to the child the linguistic knowledge for talking about such relationships" (p. 137). The issue is whether the categories used in linguistic description are the same as those used in cognizing the world. This position has been taken, with varying degrees of strength, by a number of investigators. For example, Roger Brown, in A first language (1973), presents the position in Piagetian terms:

In sum, I think that the first sentences express the construction of reality which is the terminal achievement of sensori-motor intelligence (the permanence of form and substance of immediate objects) and the structure of immediate space and time does not need to be formed all over again on the plane of representation. Representation starts with just those meanings that are most available to it, propositions about actions, schemas involving agents and objects, assertions of nonexistence, recurrence, location, and so on. [P. 200]

(Brown goes on, however, to clearly distinguish meanings from grammatical relations, leaving open for us the problem of the acquisition of the formal means of grammatical expression.)
Jerome Bruner (1975) seeks to derive Fillmorean case categories from the structure of interaction: "What is universal is the structure of human action in infancy which corresponds to the structure of universal case categories. It is the infant's success in achieving joint action (or the mother's success, for that matter) that virtually leads him into language" (p. 6).

Schlesinger (1977b) has posed thoughtful arguments against strong versions of what he calls "cognitive determinism." He deals primarily with the problem of meaning categories, and points out that, beyond cognitive skills of interpretation, "language learning depends in addition on a categorization of objects and events, which is needed solely for the purpose of speaking and understanding speech" (p. 155).

Shortly I will present my own examples suggesting that language learning involves more than the direct expression of early cognition. First, however, let us consider the other facet of the naturalness argument: the claim that word order reflects the order of thinking. Because so much of our work has dealt with one- and two-word utterances, this argument has not yet received detailed attention (though Braine, 1976, and others have presented evidence of deviations from strict word order at the early stages).

There are at least three major approaches to the word-order argument, coming from spokesmen who, in earlier years, represented quite divergent psycholinguistic positions. All three of them make predictions about both word order in early speech and the relative ease of acquisition of different types of languages - predictions which are not supported by cross-linguistic developmental data.

Bruner (1975) bases his theory of word order on the same grounds as his theory of semantic categories - namely, mother-infant interaction: "The argument has been that the structures of action and attention provide benchmarks for interpreting the order-rules in initial grammar: that a concept of agent-action-object-recipient at the pre-linguistic level aids the child in grasping the linguistic meaning of appropriately ordered utterances involving such case categories as agentive, action, object, indirect object and for so forth" (p. 17). The implication seems to be that early speech should follow an order of "agent-action-object-recipient," and that languages which do not adhere to this order in their basic sentence form, or that languages which present the child with a variety of word orders, should be more difficult to acquire. Neither of these implications can be supported by developmental psycholinguistic evidence.

David McNeill (1975) argues from a model of sensorimotor cognition: "When the cognitive schema has an intrinsic sequence, the utterance will tend to be produced in the same sequence" (1975, p. 367). "Intrinsic sequences" are sometimes based on the order of action (e.g., "object" precedes "location" in dynamic contexts, because the object moves to a location; but there is no intrinsic order to "object" and "location" in static contexts, where the two elements are at rest in a single location). Other intrinsic sequences come from mental processes. For example, "actor" precedes "action" or "object" because the speaker experiences his own intention to act before the act is carried out. On this argument, McNeill claims that the actor-action-sequence should never be reversed if the child speaker is the actor, because he must be aware of his own intentions; but reversals may occur when he speaks of the actions of other actors, because he may fail to take account of the intentionality of others. Again, a number of specific word-order predictions are made, in this case favoring the acquisition of SVO and SOV languages, and disallowing early word orders which are not consonant with "intrinsic sequences."1

Charles Osgood bases his arguments for natural word order on perception: "The natural order of constituents will correspond to that most frequently experienced in pre-linguistic, perception-based comprehending" (Osgood & Bock, 1977). On this argument, actors occur first in sentences because animate, human, and moving beings most readily attract attention. Osgood and Tanz (1977) make very strong (and false) language-specific predictions: "Our intuition about the nature of simple cognitions is ... that they have an SVO structure" (p. 539). And, in regard to acquisition: "Regardless of dominant-order type, in the process of language development in children there is initially a relatively fixed SVO ordering in 'sentence' productions" (p. 540).

Putting together these various cognitively and perceptually based theories, the task of discovering the grammar of one's language amounts to scanning the input for the terms which express categories such as "agent," "action," "object," "recipient," and the like, and learning the order of expressing these terms in the language. To the extent that the order is "unnatural" or varying, acquisition should be retarded. Add to this the well-established psycholinguistic lore that inflections and function words are difficult to master, and English becomes an ideal language for initial acquisition. When a theory of acquisition fits the local circumstances so well, it is time to look abroad.2

What's in a sentence?

A sentence is not a verbal snapshot or movie of an event. In framing an utterance, you have to abstract away from everything you know, or can picture, about a situation, and present a schematic version which conveys the essentials. In terms of grammatical marking, there is not enough time in the speech situation for any language to allow for the marking of
everything which could possibly be significant to the message. Probably there is not enough interest, either. Language evokes ideas; it does not represent them. Linguistic expression is thus not a natural map of consciousness or thought. It is a highly selective and conventionally schematic map. At the heart of language use is the tacit assumption that most of the message can be left unsaid, because of mutual understanding (and probably also mutual impatience). The subset of semantic notions which is formally marked in a particular language serves more to guide the listener to the appropriate segments and categories of analysis than to fully represent the underlying notions. The task facing the child learner is to determine which particular subset of notions receives formal marking in his or her language, and to discover the means for projecting these notions onto utterances.

Consider, for example, a child who wishes to report that it is “daddy” (and not someone else) who has just thrown a particular ball. For convenience, let us assume that the schematic core of this communicative intention – the basic features which must be preserved in any description of the situation – can be represented by a proposition about agentively caused object movement, and that the child knows it is necessary to say something about an agent and an object and a directed action relating one to the other. (The issue of the cross-linguistic propositional core is, of course, debatable, but I want to focus on problems of surface grammatical marking here.) A semantic structure of this sort is well available, it has been argued, on the basis of sensorimotor development. The task of language acquisition is learning to map such structures onto utterances.

In English the child might say, “DADDY threw the ball” – one word for each of the basic semantic elements, an extra word, the, and stress on the agent. The task seems reasonably straightforward, and well in line with cognitively based models of acquisition. It appears that the child simply has to express these terms in the proper order – which in English may be the “natural” order – AGENT-ACTION-OBJECT. It also seems natural to focus an element by verbal emphasis. Additionally, in English the child must learn to indicate whether the object was definite (the) or indefinite (a). Schematically, we can represent the English surface sentence in the following form, in which the putative core semantic elements are given in small, capital and grammatical features are given in square brackets:

DADDY threw the ball
AGENT action OBJECT
[focus] [past] [definite]

However, if we look across languages, it is evident that there is more to the task than meets the eye. Why indicate that the object, and only the object, is definite? And why indicate definiteness by a little word that precedes the object name? And why not indicate other facts, which are also obvious – the sex of the agent, for example, or that the action just took place, or that the balls are round? These are facts that receive obligatory grammatical coding in some languages. And what of other facts, which probably are not used for grammatical purposes in any language – for example, that the ball was thrown on a sunny afternoon, or that the child was pleased with the way daddy threw the ball, or that the ball was red, or that daddy was squinting at the sun while he threw the ball? It is evident that there are many things that could be said about the situation – even things that the child may have attended to and wished to communicate – but that English grammar requires only that basic elements be named, in a given order, with indication that the action was in the past, the object definite, and the agent in focus. Other notions can, of course, be encoded through separate words and phrases, but the issue here is one of obligatory encoding, and this is all that English requires for the production of a grammatical and appropriate utterance in this context. What the child must discover is which of the myriad of known aspects of this situation must be mapped onto surface forms in his or her native language. Perhaps the child has some way of limiting this myriad to that smaller myriad of facts which are universally used for linguistic marking, but we have no way of knowing. In any case, the problem is not simple.

Compare English with a closely related language, German:

\[
\begin{array}{c|c|c|c|c}
\text{AGENT} & \text{ACTION} & \text{OBJECT} \\
\text{warf} & \text{[past]} & \text{[definite]} \\
\text{[3rd person]} & \text{[singular]} & \text{[masculine]} \\
\end{array}
\]

The so-called natural-order rule still holds. And in German, as in English, the child is required to stress the focused element and to mark the object as definite by using a definite article. But German articles also encode gender, number, and case, while the English article, the, is neutral in this regard. The German equivalent of the ball, den Ball, says, in the single word den, that the ball is a definite object which is also singular and considered as masculine. And in German one can also mark the agent by an article (der Vater), indicating in this case that it is definite, singular, masculine, and the subject of the sentence. (I return below to the problems of learning this sort of fusional case-inflational system.) In addition, the German verb indicates not only tense but number. So the mapping problems differ. The nuclear proposition, which may correspond most closely to the child’s prelinguistic communicative intention, is elaborated in seemingly arbitrary ways from language to language.
Consider several other examples. In Hebrew the verb encodes more features of the agent than German, indicating sex as well:

\[
\begin{array}{llll}
\text{AGENT} & \text{ACTION} & \text{OBJECT} \\
\text{ABA} & \text{zarak} & \text{et} & \text{ha} & \text{kadur} \\
\text{[focus]} & \text{[past]} & \text{[object particle]} & \text{[definite]} & \\
\text{[3rd person]} & \text{[singular]} & \text{[masculine]} & \\
\end{array}
\]

But note that this information is not expressed as part of the agent noun phrase, as it is in German, but is part of the verb. (So even if the child is aware that sex is to be coded grammatically, it is not evident where in the sentence such coding should occur.) And whereas the German article, den, encodes both object and definiteness in one word, Hebrew uses a separate particle, et, to indicate that the following (definite) noun is the direct object. The focused agent still appears in first position, and is stressed.

In these three examples the order of the elements is the same. English, German, and Hebrew differ in how much must be said about number, gender, and definiteness of the participants, and in where and how this information is to be encoded. But – the naturalness hypothesis notwithstanding – there is nothing in the event that gives this order: When father throws a ball, father, throwing, and the ball all occur simultaneously in perception. It is only linguistic expression that requires these elements to be isolated and serialized; and the order of elements is not universal. In Turkish, for example, the basic order is subject-object-verb: *Babam topu atti,* “my-father ball threw.” However, in our example, “father” is in focus, and in Turkish the position immediately before the verb encodes focus. So rather than stress the word for “father,” the word order is changed:

\[
\begin{array}{llll}
\text{AGENT} & \text{ACTION} & \text{OBJECT} \\
\text{Top-} & \text{baba-} & \text{m} & \text{at-} \\
\text{[definite]} & \text{[possessed]} & \text{[by speaker]} & \text{[past]} \\
\text{[3rd person]} & \text{[singular]} & \text{[witnessed] by speaker]} & \\
\end{array}
\]

(Such pragmatic variations in word order, as discussed below, are easily acquired by Turkish children. The nature of Turkish agglutinating morphology and its acquisition are also discussed later in the chapter.) The Turkish utterance has three words, compressing information encoded by separate words in other languages. Word order does not communicate who did what to whom, but rather what the speaker is foregrounding and backgrounding in the utterance. The semantic relations are encoded by parts of words in Turkish. For example, the word for “ball,” top, has a case suffix, -u, that indicates that it is definite and the direct object. In addition, the Turkish child is required to indicate that it is “my father” who acted, and that knowledge of this action comes from direct experience. A different verb ending would be required if the child knew of the action by inference or hearsay. Again, the mapping problem is not at all straightforward or “natural” beyond the basic three elements.

We have encountered variations of order, but the languages we have looked at so far all consider that if someone acts on an object, it is the object that receives special grammatical marking: through a case-marked article, as the German *den*; or an object particle, as the Hebrew *et*; or a direct object suffix, as the Turkish -u. Even in English, special marking of objects appears in pronouns: *me, him, her, us,* and *them.* However, just as languages differ in the roles assigned to word order, stress, and grammatical particles, it is not universal that the object be the grammatically marked category. In some languages (called *ergative* languages) it is the agent that receives special grammatical marking. Consider Kaluli, spoken in Papua New Guinea:

\[
\begin{array}{llll}
\text{Balowo} & \text{do-} & \text{we} & \text{sanditabe} \\
\text{AGENT} & \text{OBJECT} & \text{ACTION} \\
\text{[possessed]} & \text{[agent]} & \text{[recent past]} \\
\text{by speaker} & \text{[ergative]} & \\
\end{array}
\]

Kaluli, like Turkish, is a verb-final language, using the position before the verb for focus. So the order, in both of these languages, is object-agent-verb for this example. But whereas in Turkish a suffix on the word for “ball” indicates that it is the object, in Kaluli it is a suffix on the word for “father” that indicates that he is the agent. Like the Turkish child, the Kaluli child must indicate that it is “my father” who acted. And the verb, though unconcerned with issues such as person, number, gender, and source of evidence, notes degree of recency of the event.

One can, of course, go on with such examples, considering languages like Tagalog, that are verb-initial and that indicate focus by an infixed particle in the verb, and so on. The important point is that the grammatical “embroidery” of word order, affixes, and particles is considerably broader and more diverse than envisaged in current Anglocentric psycholinguistics. The reader may object that these examples of forms of adult language do not speak to the point of early acquisition. Although the child must, eventually, go beyond the categories of sensori-motor intelligence (Brown) or the “universal structure of human action” (Bruner), can it not be argued that the child, of necessity, begins on these bases? Recall that our argument has to do with the acquisition of the
grammatical means of encoding intentions in utterances. As soon as the child goes beyond the use of bare words – as soon as any grammatical morphemes are used consistently – some commitment has been made to the particular set of categories grammaticized in the mother tongue. And, indeed, even on the lexical level, the mold of language-specific categories can be discerned. The English-speaking child, for example, in choosing between break and tear to refer to a damaged object, must attend to the ways in which our language distinguishes the substance of objects undergoing destruction; the German-speaking child, when speaking of eating, must distinguish between people (essen) and animals (fressen); and so forth. Such examples have been, of course, the stock-in-trade of Whorfian theorists. But one may cite these facts and remain neutral on the issue of linguistic determinism. American children know that people and animals differ; this is presumably part of prelinguistic knowledge. But the obligatory lexical encoding of this distinction in regard to verbs of eating is language-specific, just as are obligatory grammatical distinctions such as the marking of patient or agent or number. The adult language is not only an eventual end state, but acts as a filter for lexical and grammatical encoding from very early on.

When we consider word order, the issue is even clearer. Naturalness hypotheses rank languages according to ease of acquisition on the basis of word order. Yet languages of different order types do not seem to differ in learnability. Nor are there significant differences between the acquisition of languages with relatively fixed word order and varying degrees of freedom of word order. Striking evidence comes from our Berkeley studies of the acquisition of Turkish (see Section 5.3), and similar evidence is available for other languages with relative freedom of word order (e.g., Finnish: Argoff, 1976; Russian: Gvozdev, 1949; Serbo-Croatian: Radulović, 1975). Turkish, as discussed in Section 5.3, has a regular and reliable case-inflational system to mark the semantic roles of nouns. Consequently, word order does not play a significant semantic function, and various word orders are freely employed for pragmatic purposes of focus, contrastive emphasis, and the like, as demonstrated above. Children younger than 2 readily and appropriately produce the standard SOV order along with such orders as VO (to focus the verb), OVS (to focus the object), and OSV (to focus the subject). Contrary to McNeill’s proposal, frequent OVS and OSV forms involve postponing of the first-person pronoun – intentional ego-as-actor. The naturalness hypothesis overemphasizes the use of speech to convey semantic propositions. Speakers also take different perspectives on the events they communicate, focusing now on one aspect, now on another, of the event. As Bates and MacWhinney (Chapter 6) point out, semantics and pragmatics interact in determining the word order and grammatical shape of particular utterances. Similar to our Turkish findings, they have shown that early verb fronting and subject postponing in Italian and Hungarian can be most readily accounted for in pragmatic terms.

The universal list of word-order types is brief, but the list of features involved in obligatory grammatical markers is much longer – though not indefinitely long. There are obligatory verb particles for shapes of manipulated objects, as in Navajo. There are several gradations of time, such as Kaluli immediate past, recent past, and distant past. Looking across all of the languages of the world, one would find a finite list of those aspects of situations which the grammar requires one to encode – aspects of the temporal nature of the act, physical characteristics of the objects, and various psychological, physical, and social aspects of the human interactants. Some markers will perform primarily syntactic functions, while others will have more obvious semantic or pragmatic components as well. But the particular constellation of features receiving obligatory marking in a particular language must be discovered by the child, along with the particular means (word order, affixes, particles, etc.) of encoding those features. Thus there is a long way between a communicative intention, which may be present in basic form even at the one-word stage, and the semantic structure containing that particular array of notions which must be mapped onto a grammatical utterance in a specific language.

5.2. Cross-linguistic study of operating principles of acquisition

Opposed to the naturalness hypothesis and to the preformationist version of the innateness hypothesis is the suggestion that children are predisposed to acquire the formal structures of language, and that linguistic universals are the reflection of such universal learning dispositions or strategies. I have used the term operating principles to refer to predispositions to perceive speech and construct formal systems in particular ways (Slobin, 1973). Consideration of language-particular acquisitions illuminates the parameters and developmental priorities of such operating principles. Each language poses the child with a different set of problems: to solve in discovering the notions to be mapped and the means of mapping. Cross-linguistic examination of the developmental histories of various semantic domains in relation to various forms of linguistic expression is one of the most promising tools for revealing the inner structure of the human language-acquisition device.

In the remainder of the chapter I consider two specific problems in cross-linguistic detail: the mapping of underlying grammatical relations in several different types of word-order and inflectional languages, and the acquisition of locative adpositions. Whether or not there is a strong natural core to language, and a strong prelinguistic determination for cognitive and social development, specific mapping systems of the so
briefly alluded to above must be acquired for each language. By characterizing distinct languages according to the acquisitional problems which they pose, it is possible to arrive at a theory of the initial predispositions of the language learner. Or, put conversely, it is possible to discover which sorts of linguistic structures facilitate or impede the discovery process. In my paper on “cognitive prerequisites for the development of grammar” (1973), I proposed a basic operating principle in acquisition: “Underlying semantic relations should be marked overtly and clearly” (p. 202). Maratsos (1979) has pointed out that children do not always adhere to this principle in their speech production. In the discussion which follows I consider this operating principle as one which guides discovery, rather than production. Surface marking which is “overt” and “clear” is more easily discovered and acquired by the child and the cross-linguistic findings allow a more precise definition of just what constitutes overt and clear grammatical marking for the child. In the earlier work I suggested that postposed markers (suffixes and postpositions) are more salient than preposed markers (prefixes and prepositions). That suggestion has received a great deal of empirical support, and I will not review it here. This time I wish to offer several additional suggestions. I will argue that sentence processing is facilitated by the presence of what I call local cues, that is, signals to underlying meaning which occur at localized points in sentences. Consequently, inflectional marking of relations is clearer than the use of word order, and grammatical particles indicating such notions as causation, negation, and aspect may be especially clear grammatical devices. Although Anglocentric theorizing has assigned priority to sensitivity to word-order over other types of grammatical devices (as reflected in early “telegraphic speech”), cross-linguistic data point to early sensitivity to grammatical inflections as well. I also suggest that distinct surface realizations of underlying units in the form of separate clauses are easier to discover than particles which conflate several notions or nominalizations which condense entire clauses. On the lexical level, semantic clarity of forms and a minimum of lexical diversity facilitate acquisition.

5.3. The Berkeley cross-linguistic acquisition project

An extensive study of language development was carried out in 1972–3 in four field settings: Berkeley, Rome, Dubrovnik, and Istanbul. These settings were picked (among other reasons) because of the linguistic contrasts they represent. The three Indo-European languages — English, Italian, and Serbo-Croatian — are all SVO languages, with the collection of features associated with that word-order type (prepositions, postposed relative clauses, etc.). They differ among themselves in degree of flexibility of word order, with English and Serbo-Croatian representing extremes for languages of this type, and with Italian more flexible than English. These three contrast with Turkish, which is an SOV agglutinating language (with postpositions, preposed relative clauses, etc.). Of the two inflectional languages, Turkish and Serbo-Croatian, Turkish represents a pure inflecting system, with maximal freedom of word order, whereas Serbo-Croatian is a fusional language with mixed reliance on both word order and inflections for the expression of grammatical relations. Taken as a group, then, it is possible to compare the acquisition of fusional versus agglutinating inflectional systems, and the acquisition of relatively fixed versus relatively free word-order languages. The study is described in general below, followed by discussion of specific acquisition problems in each of the languages.

Subjects

Our overall research plan was to study matched samples of forty-eight children in each of the four field sites. By and large, we completed this plan, though there are gaps in the data at various points, due to the tribulations of carrying out research in foreign countries within a limited time schedule. We worked with groups of six children — three boys and three girls — at each of eight age levels, spaced at four-month intervals between the ages of 2;0 (years; months) and 4;4. In addition to this cross-sectional design, each child was retested four months later, providing one longitudinal check and giving an overall age range of 2;0 to 4;8. For purposes of this chapter, most of the results are from the first time of testing only, in four age groupings rather than eight: 2;0–2;4, 2;8–3;0, 3;4–3;8, and 4;0–4;4.

Since we were interested in cross-linguistic, and not cross-cultural, factors, we tried, as much as possible, to equate our samples on sociocultural grounds. To do so, we limited ourselves to children of urban, professional parents, at least one of whom had a college degree. By and large, we feel that we were working with a fairly homogeneous group of children across the four field sites, at least in terms of early material and intellectual experience. There are no evident cultural explanations for our findings. Nor have we discovered important sex differences. The major variables affecting performance are thus language and child.

Design

Each child was studied extensively, over a period of fifteen to twenty hours, within a ten-day span. The experimenter was always female and always a native speaker. Testing was done in both homes and preschools. At each of the two testing periods, each child was exposed to a battery of sixteen linguistic tests, listed in Table 5.1. Because cross-linguistic
Table 5.1 Cross-linguistic test battery

<table>
<thead>
<tr>
<th>Nonlinguistic Tests</th>
<th>Comprehension Tests</th>
</tr>
</thead>
<tbody>
<tr>
<td>Short-Term Memory</td>
<td>Locatives</td>
</tr>
<tr>
<td>Object Order</td>
<td>Static Configurations</td>
</tr>
<tr>
<td>Projective Straight Line</td>
<td>Dynamic Scenes</td>
</tr>
<tr>
<td>Free Speech</td>
<td>Wh Questions</td>
</tr>
<tr>
<td>Elicited Speech</td>
<td>Agent-Patient*</td>
</tr>
<tr>
<td>Locative Elicitation*</td>
<td>Causative*</td>
</tr>
<tr>
<td>Answers to Wh Questions</td>
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</tr>
<tr>
<td>Imitations</td>
<td>Relative Clause</td>
</tr>
<tr>
<td>Locatives</td>
<td>Comparative</td>
</tr>
<tr>
<td>Agent-Patient</td>
<td></td>
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</tbody>
</table>

* Tests summarized in this chapter.

work of this sort had not been done before, our aim was to sample a large collection of abilities across a broad age range. The tasks tapped both comprehension and production; production was both free and elicited. We were especially interested in acquisition of means of expression for locative, temporal, causative, and agentive notions, and these figured heavily in our design of tests. We are currently carrying out semantic and grammatical analysis of free speech protocols and question responses. The present chapter is based on analyses of the four tests footnoted in Table 5.1: comprehension of agent–patient relations, comprehension of causatives of instigation, comprehension of clauses conjoined by before and after, and elicitation of locative adpositions (pre- or postpositions).

The four tests

Agent-Patient Test. The aim of this test was to assess the child’s comprehension of the normal subject–object–verb sentences of his language, and the extension of this comprehension to grammatically deviant sentences. This is the key test in our series for determining attention to word order and inflections, since grammatical relations are expressed by word order in English and Italian, by case inflections in Turkish, and by both means in Serbo-Croatian.

The child was presented with a pair of toy animals or dolls and was asked to demonstrate an action of one object upon the other. Each instruction contained two animate nouns and a “reversible” verb (a verb which could take either noun as agent or patient, e.g., The squirrel scratches the dog). In Serbo-Croatian and Turkish all six possible orders of subject, verb, and object are grammatical. In Italian, although SVO is the only standard grammatical form for sentences of this type, the other orders are possible under conditions of contrastive stress on one of the two nouns. (The language also requires SOV order if the object is a pronoun, but we did not include such sentences. Yet it is important to note that they are heard by children.) In English only SVO is possible.

The design is most complex for Serbo-Croatian, where both word order and inflectional rules are at play, because the nominative and accusative cases are not distinctly marked for all genders. We used neuter nouns, for which the nominative and accusative cases are not distinguished morphologically (suffix -e in both cases) and feminine nouns, which have a marked accusative (nominative -a versus accusative -u). This allowed for (1) fully ambiguous utterances with two neuter nouns, (2) utterances with clear marking of subject only, using feminine nominative and neuter unmarked forms, and (3) utterances with clear marking of object only, using neuter unmarked and feminine accusative forms. Consistent responses to ambiguous utterances would require use of a word-order strategy (e.g., first noun = agent), whereas consistent responses to utterances with inflectional marking could rely on either word-order rules (resulting in errors on sentences with marked object first or subject second) or inflectional rules (resulting in correct performance).

Turkish has a uniformly regular and obligatory definite direct object suffix, and thus allows for six unambiguous and grammatical orders: SOV, OSV, SVO, OVS, VSO, VOS. In order to probe for the application of a word-order strategy in the absence of inflectional cues, some sentences were presented with two uninflected nouns, corresponding to the Serbo-Croatian NNV, NVN, and VNN sentences with two neuter nouns. It should be noted that these sentences are ungrammatical in Turkish (lacking the obligatory case suffix) but grammatical in Serbo-Croatian.

The design was simpler in English and Italian, because there are no case inflections. To parallel the design of the inflected languages, the nouns which received subject or object inflections in Serbo-Croatian received extra stress in English and Italian. Stress plays a role in disambiguating NNV and VNN sentences in Italian, but not in English.

If word-order regularities are basic to initial speech-processing strategies, we would expect good early performance in English and Italian of NVN sequences, with a probable generalization at some point of a first-noun-as-agent strategy to the deviant strings (Bever, 1970). Early correct performance should be limited to SVO sentences in Serbo-Croatian and SOV sentences in Turkish, with overgeneralization of the word-order strategy to sentences in which the first noun is marked as object, and to nonstandard orders. The course of development should be retarded in these languages, due to problems in acquiring the inflectional systems and applying them to sentence interpretation. As we will see shortly, these expectations were not confirmed. But first we must briefly consider the other tests.
Table 5.2 Causative constructions in the four languages

<table>
<thead>
<tr>
<th>English</th>
<th>The horse makes the camel run.</th>
</tr>
</thead>
<tbody>
<tr>
<td>NOUN</td>
<td>VERB</td>
</tr>
<tr>
<td>[causative]</td>
<td>[infinitive]</td>
</tr>
<tr>
<td>[3rd pers.]</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Italian</th>
<th>Il cavallo fa correre il cammello.</th>
</tr>
</thead>
<tbody>
<tr>
<td>&quot;the horse&quot;</td>
<td>&quot;makes&quot; &quot;to run&quot; &quot;the camel&quot;</td>
</tr>
<tr>
<td>NOUN</td>
<td>VERB</td>
</tr>
<tr>
<td>[causative]</td>
<td>[infinitive]</td>
</tr>
<tr>
<td>[3rd pers.]</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Serbo-Croatian</th>
<th>Jdrajevi devu da trči.</th>
</tr>
</thead>
<tbody>
<tr>
<td>&quot;horse&quot;</td>
<td>&quot;drives&quot; &quot;camel&quot; &quot;runs&quot;</td>
</tr>
<tr>
<td>NOUN</td>
<td>VERB</td>
</tr>
<tr>
<td>[causative]</td>
<td>[accusative]</td>
</tr>
<tr>
<td>[3rd pers.]</td>
<td>[3rd pers.]</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Turkish</th>
<th>Dev eyi koš tursun.</th>
</tr>
</thead>
<tbody>
<tr>
<td>&quot;horse&quot;</td>
<td>&quot;camel&quot; &quot;should make run&quot;</td>
</tr>
<tr>
<td>NOUN</td>
<td>VERB</td>
</tr>
<tr>
<td>[causative]</td>
<td>[optative]</td>
</tr>
<tr>
<td>[3rd pers.]</td>
<td>[3rd pers.]</td>
</tr>
</tbody>
</table>

**Causative Test.** This test, following the Agent–Patient Test, assessed children’s ability to comprehend structures in which one agent impels another agent to act. Again, two animals were presented, but the instruction followed the pattern *The horse makes the camel run*. A correct response required that the first animal instigate the action (either by direct contact with the second animal, or by verbal instruction uttered by the child for the sake of the first animal) and that the second animal carry out the action. Responses were also counted as correct if, on questioning, the child attributed instigation to the first animal (e.g., *The horse told the camel to run; The camel ran because the horse wanted him to*; etc.). As shown in Table 5.2, the four languages have different means for the production of such expressions. The three Indo-European languages have similar periphrastic constructions, differing in regard to the roles of word order and case inflection. Turkish, by contrast, encodes causation by the insertion of one or more causative particles in the verb. Note that there are word-order differences among the three SVO languages; roughly, these are: English – *The horse makes the camel run*; Italian – *The horse makes run the camel;* Serbo-Croatian – *The horse makes the camel that (it) runs*. In terms of surface marking, Serbo-Croatian provides the clearest cues of these three languages: A particle separates the causative clause from the action clause; the case-inflectional system marks the instigator as subject and the instigated as object; and the causative verb is a specialized one, used to discuss driving animals and impelling action, whereas the English *make* and the Italian *fare* are general verbs performing a large number of functions. The Turkish causative retains standard SOV order, embedding a causative particle within the verb and inflectionally marking subject and object. Again, we can ask whether reliance on such inflectional marking facilitates or retards development.

**Before/After Test.** This test follows the format familiar in the many English studies of these constructions (e.g., Barrie-Blackley, 1973; E. Clark, 1971; Coker, 1975; Keller-Cohen, 1974; and others). The child was given two animals and instructed to act out temporally sequenced events in which

Table 5.3 Before/After constructions in the four languages

<table>
<thead>
<tr>
<th>(1) The camel runs then the dog jumps.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Deve köpek atla-ma-dan öncé košun.</td>
</tr>
<tr>
<td>&quot;camel&quot; &quot;dog&quot; &quot;jump-negative-ablative&quot; &quot;before&quot; &quot;should run&quot;</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>(2) Before the dog jumps the camel runs.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prima che prije nego köpek atla-ma-dan</td>
</tr>
<tr>
<td>&quot;dog&quot; &quot;jump-negative-ablative&quot; &quot;before&quot; &quot;camel&quot; &quot;should run&quot;</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>(3) The dog jumps after the camel runs.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dopo che poslje nego köpek deye köş-tuk-tan</td>
</tr>
<tr>
<td>&quot;dog&quot; &quot;camel&quot; &quot;run-nominal-ablative&quot; &quot;after&quot; &quot;should jump&quot;</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>(4) The camel runs the dog jumps.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dopo che poslje deye köş-tuk-tan</td>
</tr>
<tr>
<td>&quot;camel&quot; &quot;run-nominal-ablative&quot; &quot;after&quot; &quot;dog&quot; &quot;should jump&quot;</td>
</tr>
</tbody>
</table>

| Note: The languages are listed in the order English, Italian, Serbo-Croatian, Turkish. Because the constructions are the same in the three Indo-European languages, only the conjunctions are given for Italian and Serbo-Croatian. |
each animal performs a different intransitive action. As shown in Table 5.3, subordination and event ordering with before and after are identical in the three Indo-European languages, resulting in four sentence types:

1. Event 1 before Event 2
2. Before Event 2 Event 1
3. Event 2 after Event 1
4. After Event 1 Event 2

Sentences (1) and (3) are syntactically simple, in that the main clause precedes the subordinate clause; sentences (1) and (4) are conceptually simple, in that the order of mention matches the temporal order of occurrence of the events. The Turkish sentences maintain the order-of-mention characteristics, but (1) and (3), rather than being syntactically simple, have embedded clauses. Turkish sentences (2) and (4), like their Indo-European counterparts, have the order subordinate clause–main clause. Thus all of the Turkish sentences are syntactically complex. In addition, the verb of the subordinate clause is always nominalized, with different nominalizations for before and after. These contrasts make it possible to compare the roles of syntax and the semantics of the two conjunctions. If meaning features of the conjunctions, or order of mention, are the main determinants of complexity, we should expect similar patterns across languages. If syntactic complexity is an important factor, the Turkish pattern should differ from the Indo-European.

Locative Elicitation Test. In this test the child was asked to describe arrays of objects, in an attempt to elicit the prepositions or postpositions for "in," "on," "under," "beside," "between," "in front," and "in back." On grounds of cognitive development, we should expect the same order of emergence of terms across languages. On the other hand, language-specific features could bring about varying orders of acquisition.

Cross-linguistic patterns of results
Figure 5.1 presents four graphs showing change in performance with age on each test for the four languages. The significant fact which emerges from this comparison is that the languages pattern differently according to task. It is crucial to our argument that language and task interact. This is the basis of the claim that subsystems of particular languages pose different kinds of acquisition problems.

The Agent–Patient graph represents average percentage of correct performance on all grammatical sentences in the language — that is, SVO for English and Italian and all six orders for Serbo-Croatian and Turkish (with inflections). The two noninflectional languages, English and Italian, show similar growth curves, with correct performance emerging by the second age group. The two inflectional languages, however, differ dramatically. Turkish shows essentially no development, beginning at a high level from the youngest age group. Serbo-Croatian begins low, dips, and reaches marginal significance only by the third age level. Clearly, there are important differences between the two types of inflectional languages, which we will explore in more detail shortly. This preliminary look at the Turkish data already makes it clear, however, that inflections and free word order do not retard — and can even accelerate — development of comprehension, since the young Turks have already reached a significant level of correct response at the earliest age of testing (see Slobin & Bever, in press, for details and statistical analysis).

The Causative graph divides the languages differently. Here the two inflectional languages, Turkish and Serbo-Croatian, are superior, overall, to the two noninflectional languages, English and Italian. Again, however, we see a dip in Serbo-Croatian performance at the second level, and more precocious achievement of peak performance in Turkish. And again the Turkish inflectional system seems to accelerate, rather than retard development, although low performance in the first age group suggests initial difficulty in acquiring the inflected verbal particle (see Ammon & Slobin, 1979, for details and statistical analysis).

The dip in Serbo-Croatian performance does not appear in the other two graphs — Before/After and Locative Elicitation — an indication that we have not simply happened to choose an exceptionally precocious group of Yugoslav children at the first age level. These two tests do not involve case inflections, and as we shall see, the Serbo-Croatian dip on the Agent–Patient and Causative tests can be attributed to problems in reorganizing the inflectional and word-order systems.

On the Before/After Test, Turkish again takes the lead, but in this case the three Indo-European languages show more similar patterns of growth. (Detailed analysis is forthcoming from Ammon and Slobin.)

The languages separate in yet another way on the Locative Elicitation graph, where Turkish and Italian form one group, developing more rapidly than English and Serbo-Croatian. These differences are explored later.

All four graphs suggest special advantages to Turkish, either in precocity or in more rapid growth. These advantages require detailed attention. If anything, our studies suggest that Turkish is close to an ideal language for early acquisition.

Figure 5.2 rearranges the same graphs by language. Here we see that the two languages which are most similar structurally — English and Italian — present the most similar pictures. The Agent–Patient Test is consistently superior to the other tests, and the Causative and Before/After tests reach only a middling level. In Serbo-Croatian, as suggested above, the two tasks requiring the use of case inflections — Causative and Agent–Patient — show a similar pattern of development, with a dip at the second age but
reaching a high level by the last age. In Turkish, growth between the first and second ages is rapid, except for the Agent–Patient Test, which is already at ceiling. By the last age, the Causative and Before/After tests have reached ceiling as well.

Figure 5.1. Performance on four tests by language and age: (a) Agent–Patient Test: percentage correct on all grammatical sentences; (b) Causative Test: percentage correct; (c) Before/After Test: percentage correct; (d) Locative Elicitation Test: percentage of locative terms correctly applied.
In sum, the tests pose different problems to the different languages. That is to say, the child’s acquisition of the means of encoding particular relations is influenced by the types of linguistic structures involved. There is something about Turkish which makes these structures especially easy

Figure 5.2. Performance in four languages by test and age: (a) English; (b) Italian; (c) Serbo-Croatian; (d) Turkish.
to discover, and there is something about Serbo-Croatian which both facilitates and impedes linguistic performance at various levels of development. Let us first consider the role of inflections and word order in Turkish, and then turn to comparisons with the other languages.

5.4. The acquisition of inflections and word order

Turkish

Edward Sapir once aptly characterized the Turkish agglutinating system as demonstrating "sober logic." Noun and verb stems, generally monosyllabic, are followed by strings of syllabic grammatical particles agreeing in vowel harmony with the stem. Vowel harmony and the basic stock of particles are easily acquired by age 2 or younger. With a handful of exceptions, all paradigms are almost perfectly regular, and apply to all words in identical fashion, there being no grammatical gender, arbitrary classes of verb conjugations, and the like. The same case-inflectional morphemes apply to nouns, pronouns, demonstratives, question words, and the various nominalized forms of verbs. Thus these morphemes are not only regular but highly frequent. Each morpheme tends to express a single element of meaning, and there are almost no homonyms among functions. Each syllabic morpheme receives equal stress. The system is so finely tuned and balanced – functionally and phonologically – that it has apparently maintained itself intact for two thousand years or more.

Consider, for example, the expression of the accusative, which figures in our Agent-Patient and Causative Tests. The inflectional morpheme is a high vowel which agrees with the stem vowel in fronting and rounding (‘il-ul-ul-u). For example, compare ev, "house," and the corresponding accusative, evi. The same morpheme applies to pronouns, as, for example, ben, "I"/beni, "me"; question words (e.g., kim, "who"/kimi, "whom"); demonstratives; and any other word functioning as a nominal. The plural is a separate morpheme, -ler/-lar, a low vowel agreeing in fronting, and immediately following the stem, in ev, "house"/evler, "houses." The accusative plural is formed by simple agglutination: evleri. The possessive morpheme can be inserted before the case inflection: for example, evim, "my house"/evimi, "my house accusative"/evlerimi, "my houses accusative." The full set of case inflections includes:

<table>
<thead>
<tr>
<th>Case</th>
<th>Morpheme</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nominative</td>
<td>/</td>
</tr>
<tr>
<td>Genitive</td>
<td>-il-ül-un</td>
</tr>
<tr>
<td>Locative</td>
<td>-el-da</td>
</tr>
<tr>
<td>Accusative</td>
<td>-il-ül-u</td>
</tr>
<tr>
<td>Ablative</td>
<td>-en/-dan</td>
</tr>
<tr>
<td>Instrumental</td>
<td>-el-la</td>
</tr>
</tbody>
</table>

This entire set of morphemes, along with the possessive and plural morphemes and much of the verb morphology, is used productively well before the age of 2 (Ekmecki, 1979; unpublished data of Doğan Cüceloğlu, Nail Şahin, and the Berkeley Project). The inflectional morphemes are well practiced in question-and-answer routines between parent and child, since the inflection of the question word is required in the answer. For example, a father asks a 2-year-old, Kimi gördün? "Whom did you see?" and the reply is Ahmed or Murad, providing a name with an accusative morpheme. One-word requests are often in the form of noun, pronoun, or demonstrative with the accusative.

It is clear that there are many interlocking reasons for the ease of acquisition of Turkish nominal morphology (and similar arguments could be made in regard to the early acquisition of verbal morphology as well). I can think of at least twelve factors which may play a role in facilitating acquisition, and it would take painstaking cross-linguistic research to pull them apart. The morphemes are: (1) postposed, (2) syllabic, (3) stressed. They are (4) obligatory, rather than optional. For example, the optionality of the Japanese object particle delays its acquisition and its use in sentence comprehension, in relation to Turkish (Hakuta, 1977). (5) The inflections are tied to the noun, rather than standing alone as separate particles or being attached to or conflated with other parts of speech. For example, the German case system, which is conflated with articles, is acquired much more slowly than the corresponding Slavic noun suffixes. (6) The postposing of inflections is consistent with the verb-final typology of Turkish. Semantically, the Turkish particles (7) seem to be rationally ordered (plural-possessive-case); and (8) are nonsynthetic in their mapping of function onto form. The fusional quality of Indo-European inflectional morphemes no doubt adds to their complexity (e.g., the typical conflation of number, gender, and case). (9) Functionally, the morphemes express only grammatical roles, while other devices are used for pragmatic functions (e.g., contrastive word orders and focusing particles). Japanese particles which express both pragmatic and syntactic functions seem to be more difficult to acquire. In terms of distribution and diversity, the paradigms are (10) regular (i.e., exceptionless), (11) consistently applied to all pro-forms (pronouns, demonstratives, question words, nominalizations), and (12) distinct (i.e., there are almost no homonymous functions). The absence of such regular and consistent paradigms in Indo-European languages undoubtedly contributes to the prolonged and confused course of inflectional acquisition in those languages (whence the common psycholinguistic assumption that inflectional systems are difficult to master).

Whatever the relative strengths of all of these factors, it is clear that at least some of them greatly facilitate the acquisition of inflections in Turkish. The course of development of case inflections is slower in all of the Indo-European languages that have been studied. In Finno-Ugric languages, which are similar to Turkish in many ways, the course of acquisition is more protracted, due to irregularities and morphophonological
Table 5.4 Percentage occurrence of utterance types in natural conversation in Turkish

<table>
<thead>
<tr>
<th>Sentence type</th>
<th>Children (N = 14)</th>
<th>Adult speech to children</th>
</tr>
</thead>
<tbody>
<tr>
<td>SOV</td>
<td>46</td>
<td>48</td>
</tr>
<tr>
<td>OSV</td>
<td>7</td>
<td>8</td>
</tr>
<tr>
<td>SVO</td>
<td>17</td>
<td>25</td>
</tr>
<tr>
<td>OVS</td>
<td>20</td>
<td>13</td>
</tr>
<tr>
<td>VSO</td>
<td>10</td>
<td>6</td>
</tr>
<tr>
<td>VOS</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

* Child-by-child analyses show similar word-order preferences.

strings, which correspond to the standard word order. This effect is marginal, however, and is a late achievement, rather than being part of Turkish children's early sentence-processing strategies. For normal Turkish sentences, the object inflection, wherever it occurs in the sentence, is a sufficient cue for identification of the patient by the youngest children (2;0) in our sample.

Comparison with word-order languages

In both English and Italian, performance on NVN sentences in the Agent-Patient Test does not reach significance until the second age level. (A similar pattern is revealed if the analysis is done on the basis of mean length of utterance [MLU] [Slobin & Bever, in press].) In Italian, where stress plays a role, performance at the first level is significant only on NVN sentences in which the first noun is stressed. In English, stress has no facilitating effect on early performance. Overall, then, sensitivity to word order is not reliably present in these languages until the second age (or MLU) level, whereas sensitivity to inflections is present at the earliest level among Turkish children.

Furthermore, the nongrammatical NNV and VNN forms do not show a strong effect of word order at any age in English and Italian. Apparently the word-order strategy, when it emerges, applies only to NVN sentences (hence its overextension to the passive in earlier studies of English development). The word-order strategy is thus specific to a certain "sentence Gestalt," or "canonical sentence schema." (This notion is developed at length in Slobin & Bever, in press, and Slobin, 1981.) In order for this strategy to apply, the child must operate on the entire string, identifying it as NVN and choosing the first noun, preceding the verb, as agent, and the second noun, following the verb, as patient. Here we have a possible explanation for the relative advantage of the Turkish inflectional system. The object inflection is a local cue. It applies to a particular noun, regardless of its position, and can be processed without taking the entire sentence into account. Word-order languages thus impose a greater burden on short-term processing capacity, with a correspondingly later emergence of word-order strategies in sentence comprehension. (Processing constraints limit the range of possible grammars of human language [E. Clark & H. Clark, 1978; Slobin, 1979, pp. 63-72]. Within such universal limitations, more extreme processing constraints at play in the child may help account for the relative accessibility of various grammatical devices.)

How, then, do American and Italian children appropriately understand everyday sentences before the age of about 2½? Sentences in context are almost never ambiguous. Reversible sentences are rare, and are almost always situationally overdetermined. In addition, English input (based on analysis of the entire input to Roger Brown's Eve) almost always used
pronouns for one or both of the participants in reversible sentences, and
pronouns are the one corner of English grammar where case inflections
have been preserved. Thus English-speaking children have inflectional
cues available for the processing of potentially difficult sentences in con-
text. The Agent–Patient Test assesses the child's abstraction of the gram-
matical devices of his or her language in the absence of normal situational
cues. In the comparison of Turkish with English and Italian, the abstrac-
tion of inflectional cues to agent–patient relations occurs more readily
than the abstraction of word-order cues.

Why, then, do regular orders occur in child speech in these three lan-
guages? The fact that regular orders occur does not mean that word order
is used as a syntactic device, though word order has traditionally been
taken as evidence of grammatical competence. In the case of Turkish,
the SOV order is frequent because it is pragmatically neutral, but it is
clear from our findings that the order of elements does not communicate
grammatical relations. In early English and Italian speech, SVO order
may occur simply because it is what the child has heard. Brown and
Bellugi suggested long ago that it is possible that the child "preserves
word order just because his brain works that way and ... he has no
comprehension of the semantic contrasts involved" (1964, p. 137). I be-
lieve that our data support this position. The use of SVO order in these
languages may, at first, simply be part of the children's general tendency
to behave like their models - on a par with acquiring their parents' pro-
nunciation and intonation, tastes, manner of sitting and walking, and the

like. Only later, as more sentence forms are acquired (e.g., passives, cleft
and pseudo-cleft sentences, relative clauses), does word order come to
play an active grammatical role.

At later stages, the use of order to express underlying relations poses
many problems to children learning languages like English - problems
which do not occur in languages like Turkish. Each of the more complex
sentences requires a different word-order rule. For passives, NVN order
expresses OVS. For object relative clauses (e.g., the man that the dog bit),
NNV expresses OSV. Again, the rules for identifying agent and
patient require that the entire structure be kept in mind, and the rules are
structure-specific. In Turkish, by contrast, the same inflectional cues
identify agent–patient relations in the various pragmatic reorderings.
As the Turkish child enters into more complex discourse, calling for dis-
tinctions of focus, he or she has less new syntax to learn than the English-
speaking child. (However, as we shall see later, the Turkish child has
considerably complex new syntax to learn when he or she begins to deal
with embeddings and nominalizations.)

Comparison with Japanese

The mere availability of grammatical particles to signal underlying rela-
tionships does not guarantee that they will facilitate sentence processing.
Japanese, also an agglutinating SOV language, is similar to Turkish in
many ways. But there are several important differences: Some of the
particles - especially, for our purposes, the object particle o - are optional
in speech, probably because word order is much less free than in Turkish.
In addition, particles serve both focusing and syntactic functions, so that
a proposed object is more likely to be marked by a focusing particle, wa,
than by the object particle. Because the language does not fully exploit
its potential for the pragmatic use of word order, Japanese children ac-
dquire inflectional strategies at a much later age than Turkish children.

Figure 5.3 presents a comparison of our Turkish findings with Japanese
data of Hakuta (1977), who had children act out reversible NNV sentences
in which either the first or the second noun was marked with the object
particle, o, or the subject particle, ga. The processing of SOV sentences
does not seem to be different in the two languages, but whereas the
Turkish children correctly interpret OSV sentences at all ages, these
sentences pose considerable difficulty to Japanese children well beyond
the age range included in our study. In their free speech, even the oldest
children used the o particle 44 percent of the time in contexts where it
is formally required. Thus inflectional strategies present a picture of pre-
cocious development only where they are called upon to play a major
role in sentence processing. (For a full review of Japanese acquisition,
see Clancy, 1983.)
Serbo-Croatian

Serbo-Croatian, like Russian and German and other Indo-European inflectional languages, requires the use of both word-order and inflectional strategies in determining underlying relations. The Slavic languages originally had special inflectional paradigms for animate nouns, with clear nominative–accusative distinctions, thus ensuring that subject and object could be uniquely identified in potentially reversible sentences. Neuter nouns, referring to inanimate objects, did not need these distinctions. Portions of this system remain, as in the marked nominative–accusative distinction for singular masculine animate nouns in Serbo-Croatian and Russian, and for plural feminine animate nouns in Russian. But much of the system has eroded, and now there are some feminine nouns which do not distinguish nominative and accusative (e.g., the Russian words for “mother” and “daughter”), and there are neuter designations of animates, with no marked accusative form available. As a result, if one of the two nouns in a reversible sentence is of the sort which has a distinctive accusative inflection, variations in word order are possible, as in Turkish. However, if an inflectional contrast is not available to distinguish subject and object, SVO order is adhered to, as in English. The Yugoslav (or Russian or German) child therefore has to master both kinds of systems.

Furthermore, the inflectional system, being fusional rather than agglutinating, lacks the clarity and transparency of the Turkish system. The selection of case suffix interacts with gender, number, and animacy, and there are many irregularities. The paradigms for nouns, adjectives (which are also case inflected), and the various person forms differ. Stems are sometimes insoluble (e.g., muč, “man nominative”/muža, “man accusative”) and sometimes not (e.g., žena, “woman nominative”/ženu, “woman accusative,” but žen does not occur in isolation). This example also reveals a pervasive problem of homonymy – for example, -a is the singular accusative (and also singular and plural genitive) of masculine animate nouns, the singular nominative (and plural genitive) of feminine nouns, and the plural nominative and accusative of neutrals. The entire set of case-inflectional paradigms, with seven cases, three genders, animacy, and number, is a vast and confused system. Consider simply the nominative–accusative distinction for regular nouns, shown in Table 5.5. Note that there is no unique marker of number, case, or gender. One can know the function of a suffix on a particular word only by knowing the class membership of that word in the overall paradigm.

In spite of the staggering complexity of this system, it is acquired in the preschool period. An accusative inflection is appropriately used at the early stages, as in Turkish child speech. However, while the Turkish child cannot possibly commit an error or an overgeneralization, since there is only one possible accusative suffix, errors and overgeneralizations abound throughout the course of Serbo-Croatian development (cf. my discussion of Russian acquisition [Slobin, 1966a]). At first the feminine -u accusative is overgeneralized in the singular, no doubt because it is the only uniquely accusative inflection in the paradigm. Its use thus ignores gender and animacy, as does the Turkish inflection. Although often an error in formal terms, its use as an accusative is appropriate.

It is a challenge to all of our theories of language development and cognition that such systems are learned in the first few years of life and maintained, with only gradual change, over centuries. Clearly, speech in context provides many more cues to meaning than case inflections. Yet the inflections are needed, because they allow for pragmatic reordering and because they serve as aids – probably often redundant but necessary aids – to speech processing. As yet we have no model of processing for such languages, but it is certain that the inflectional suffixes must play crucial roles in segmentation and interpretation.

As shown in Table 5.6, both children and adults use varying orders in their speech; but note that the three dominant orders – SVO, SOV, and VSO – preserve subject-object order, varying only position of the verb. Ninety-three percent of child utterances and 87 percent of adult utterances follow this order, as opposed to 73 percent for Turkish children and 79 percent for Turkish adults. What is more, children use the standard SVO order much more frequently than adults (72 percent versus 55 percent). These data suggest that, in the absence of a clear and fully reliable inflectional system, children rely heavily on word order (and that, in this case, the order is the putative “natural” one). This suggestion is also supported by very early developmental data. Radulovic (1975) found that Serbo-Croatian child speech begins with ordered sentences, retaining standard order for several months after the acquisition of inflections.

Table 5.5 The nominative–accusative noun-inflectional paradigm in Serbo-Croatian

<table>
<thead>
<tr>
<th></th>
<th>Singular</th>
<th></th>
<th>Plural</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Nominative</td>
<td>Accusative</td>
<td>Nominative</td>
<td>Accusative</td>
</tr>
<tr>
<td>Masculine</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Animate</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Inanimate</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Neuter</td>
<td>ol-e</td>
<td>ol-e</td>
<td></td>
<td>ol-e</td>
</tr>
<tr>
<td>Feminine</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>-a class</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>-u class</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>-o class</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Consonantal class</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

abound throughout the course of Serbo-Croatian development (cf. my discussion of Russian acquisition [Slobin, 1966a]). At first the feminine -u accusative is overgeneralized in the singular, no doubt because it is the only uniquely accusative inflection in the paradigm. Its use thus ignores gender and animacy, as does the Turkish inflection. Although often an error in formal terms, its use as an accusative is appropriate.

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Table 5.6 Percentage occurrence of utterance types in natural conversation in Serbo-Croatian

<table>
<thead>
<tr>
<th>Sentence type</th>
<th>Children (N = 48)*</th>
<th>Adult speech to children</th>
</tr>
</thead>
<tbody>
<tr>
<td>SVO</td>
<td>72</td>
<td>55</td>
</tr>
<tr>
<td>OVS</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>SOV</td>
<td>10</td>
<td>16</td>
</tr>
<tr>
<td>OSV</td>
<td>2</td>
<td>8</td>
</tr>
<tr>
<td>VSO</td>
<td>11</td>
<td>16</td>
</tr>
<tr>
<td>VOS</td>
<td>3</td>
<td>3</td>
</tr>
</tbody>
</table>

* Child-by-child analyses show similar word-order preferences.

Varying orders come with fuller mastery of inflections, but at first it seems that the child requires that word order and inflections support each other redundantly.

Results of the Agent-Patient Test also suggest that the youngest Yugoslav children attend to inflections only if they occur in normal sentence positions. Recall that there are three types of noun combination used in the test: (1) subject-marked (feminine subject, neutral object), (2) object-marked (neuter subject, feminine object), and (3) unmarked (two neuter nouns). The earliest performance is correct only in response to object-marked SVO sentences — that is, sentences which follow standard word order and mark the object with an inflection. It appears that children require normal marking in both word order and inflection for comprehension, just as they adhere to this redundant marking in production at an earlier developmental level.

The eventual accomplishment of the Yugoslav child is to balance out the two strategies, picking initial object-marked nouns as patients, final subject-marked nouns as agents, and following a subject-object order for unmarked noun pairings. This process requires a reorganization of sentence-processing strategies during the middle period, as reflected in the performance dips on both the Agent-Patient and Causative Tests. The picture is complex, and I will point out only some of its features here. (For a full discussion, see Slobin & Bever, in press.)

Results for the Causative Test are related in an interesting way. Word order and inflection never present contradictory information in that task. Although the same three types of noun pairings are used as in the Agent-Patient Test, in causative sentences like The horse makes the camel run the first noun is always subject and instigator, and the second is always object and instigated, regardless of the presence or absence of inflectional marking. But at the second age level, when children begin to be aware that case inflections can countermand basic word-order strategies, confusion is evidenced on this task as well. The performance drop at this age is only in regard to the object-marked sentences. It seems that some children have begun to realize that there is some relation between a marked accusative noun in a sentence and the possibility of reversed interpretation of the order of nouns in that sentence, but they are not yet clear on the interaction of word order and inflection. Thus the mere presence of an object inflection may lead to reversed interpretation in some instances. By the third age level it is the inflectionally marked causative sentences which show the greatest increase in correct performance, with the object-marked sentences reaching 100 percent by the fourth age. This suggests that after the second age level — as shown also in the Agent-Patient Test — Yugoslav children have become more proficient at using inflections to aid sentence processing.

In brief, some languages may require repeated reorganizations of parts of the grammar during the course of development — as in the balancing of word-order and inflectional strategies in Serbo-Croatian, or in the overcoming of word-order strategies in English (allowing for correct interpretation of passives and other reordered strings). As a result, growth curves for such areas of the language show dips or plateaus. In other cases — as in most aspects of Turkish which have been studied so far — growth curves tend to be smoother, differing only in rate of acceleration. In regard to such curves, the problems to be solved may be of varying levels of difficulty, but once solved, they do not have to be reexamined in the light of new acquisitions. One implication of these overall differences between languages is the possibility that the acquisition of later or more complex forms may be retarded because the child is still attempting to resolve problems posed by earlier acquisition. Hopefully, future research will provide clearer explanations of the nature and consequences of such differences in growth patterns.

5.5. The acquisition of locative expressions

Vocabulary development in a given semantic domain should reflect the order of development of the underlying notions. In this regard, we should expect cognitive development to play a more direct role than in the acquisition of syntactic and morphological rules. Yet we should also expect an interaction between general cognitive and language-specific factors. The set of locative adpositions is obviously not acquired at a single phase in development (though there is some evidence that postpositions begin to emerge earlier than prepositions).

Johnston and Slobin (1979) proposed an order of development of locative expressions in terms of cognitive complexity and communicative
salience. In the cross-linguistic study we followed the development of seven basic locative relations: IN, ON, UNDER, BESIDE, BETWEEN, BACK, and FRONT (generic locative relations are expressed in small capitals). On conceptual grounds, notions of containment, support, and occlusion predict early acquisition of IN, ON, and UNDER (Piaget & Inhelder, 1967). Earlier developmental linguistic studies support this prediction (e.g., Brown, 1973; E. Clark, 1977; Parisi & Antinucci, 1970). BESIDE, encoding a purely spatial proximity relation, independent of object features or viewpoint of speaker, should follow IN, ON, and UNDER, but should be conceptually simpler than BETWEEN, BACK, and FRONT. BACK and FRONT have two uses: for reference objects with inherent fronts and backs (e.g., people, cars, houses) the terms encode proximity to this inherent feature (referred to here as BACK and FRONT); for objects without inherent orientational features (e.g., trees, blocks, drinking glasses) the terms encode a projective notion with regard to the position of the speaker (referred to as simply BACK and FRONT). The projective notion, requiring attention to the speaker’s point of view, as well as a coordination of the relative proximities of speaker, reference object, and located object, is conceptually more difficult than the nonprojective BACK and FRONT and should be acquired later (Laurendeau & Pinard, 1970; Piaget & Inhelder, 1967). On conceptual grounds, therefore, we predicted a developmental order of BACK/FRONT < BACK/FRONT. As for the relative conceptual difficulties of BACK/FRONT and BETWEEN, the former require a specification of object features, and the latter requires a coordination of two proximity relations. Research in object feature specification (Masongkay, McCluskey, McIntyre, Sims-Knight, Vaughn, & Flavell, 1974) and proximity coordination (Braine, 1959; Piaget & Inhelder, 1967) suggests that the latter is developmentally more advanced. If basic cognitive complexity were the sole determinant of acquisition, one would expect locatives to appear in the order:

IN/ON/UNDER < BESIDE < BACK/FRONT < BETWEEN < BACK/FRONT

Another aspect of conceptual development concerns the relative salience of particular notions. That is, the child is more likely to explore and to communicate about certain aspects of the relational world. The child’s focus on disappearing or inaccessible objects, together with the improbability of asking about the location of a visible object, suggests that, all things equal, the relation BACK will have this quality of salience with respect to FRONT. This notion has been developed by Tanz (1980), with empirical support from comprehension studies with children, and statistical evidence on the more frequent use in English of behind and in back of than in front of. Tanz (1980) notes: "When we consider the multiplicity of occasions for using locative expressions, it seems plausible that on balance it is more often when some object is not immediately perceptible to an addressee. This is more likely to be the case when the object is hidden in back of something than in full view in front of it." (p. 41). On salience grounds, therefore, Johnston and Slobin (1979) specified the predicted order of development in more detail:

IN/ON/UNDER < BESIDE < BACK < FRONT < BETWEEN < BACK < FRONT

In broad terms, Guttman scaling of the order or acquisition of locatives supported this predicted order. For all four languages, IN, ON, UNDER, and BESIDE were mastered prior to BETWEEN and BACK/FRONT with featured objects. These in turn always preceded BACK and FRONT with nonfeatured objects. To this extent, the cross-linguistic study provides support for the primacy of cognitive development in language acquisition, as posed earlier in my own work (Slobin, 1973) and the work of many others.

However, within this broad pattern of developmental similarity, there are language-specific differences in the rate and sequence of development of particular linguistic forms, as shown in Table 5.7. As Johnston and Slobin (1979) have pointed out: "Languages differ - at least for the preschooler - not so much in what can be said, but in how things are to be said" (p. 530). We identified five major linguistic factors contributing to the language-specific differences of order of acquisition in the middle-level locatives (BETWEEN, BACK, and FRONT). As the reader has probably come to expect by now, the least linguistic difficulty is evidenced in the

Table 5.7 Order of acquisition of locative expressions in four languages and percentage of subjects producing each

<table>
<thead>
<tr>
<th>Locative</th>
<th>English %</th>
<th>Italian %</th>
<th>Serbo-Croatian %</th>
<th>Turkish %</th>
</tr>
</thead>
<tbody>
<tr>
<td>IN</td>
<td>90</td>
<td>91</td>
<td>88</td>
<td>90</td>
</tr>
<tr>
<td>ON</td>
<td>83</td>
<td>84</td>
<td>80</td>
<td>83</td>
</tr>
<tr>
<td>UNDER</td>
<td>81</td>
<td>84</td>
<td>72</td>
<td>79</td>
</tr>
<tr>
<td>BESIDE</td>
<td>74</td>
<td>77</td>
<td>77</td>
<td>74</td>
</tr>
<tr>
<td>BETWEEN</td>
<td>49</td>
<td>57</td>
<td>31</td>
<td>71</td>
</tr>
<tr>
<td>FRONT</td>
<td>30</td>
<td>42</td>
<td>26</td>
<td>53</td>
</tr>
<tr>
<td>BACK</td>
<td>21</td>
<td>41</td>
<td>19</td>
<td>50</td>
</tr>
<tr>
<td>BACK</td>
<td>14</td>
<td>23</td>
<td>16</td>
<td>7</td>
</tr>
<tr>
<td>FRONT</td>
<td>3</td>
<td>18</td>
<td>12</td>
<td>4</td>
</tr>
</tbody>
</table>
4. Morphological complexity. Adpositions differ in degree of morphological complexity, ranging from monomorphic expressions like in to multimorphemic forms like on top of and in the middle of. This factor interacts with other linguistic factors to predict cross-linguistic differences in order of acquisition of terms in the Johnston and Slobin study.

5. Homonymity. Some surface terms are homonyms for more than one underlying notion. As pointed out above, the terms for back and front are homonyms, in that they encode relations to featured and nonfeatured objects with no difference in surface linguistic form. On the grounds that children prefer one-to-one mappings between semantic concepts and surface morphemes (Slobin, 1977), it was predicted that homonymity should impose a measure of linguistic difficulty on acquisition.

Assigning linguistic complexity scores to the terms for between, back, and front on the basis of these five factors, we were able to account for the differing orders of acquisition of these three terms across languages. Thus a common order of acquisition predicted on conceptual grounds is realized with language-specific deviations on the basis of relative difficulty of linguistic processing.

5.6. Some general aspects of acquisition

Most of this chapter has dealt with cross-linguistic differences, as a counterbalance to earlier claims of universality. But it is clear that there are general processes at work as well. At some level of abstraction one moves from particulars to universals. The list of five factors of linguistic complexity affecting the acquisition of locative terms is one set of examples of cross-linguistic commonalities. But note that the commonalities are in terms of factors which influence ease of acquisition, and not in terms of common patterns of acquisition. Form and content may differ more than the procedures employed in the discovery and processing of linguistic structures. In the remainder of the chapter I consider several other cross-linguistic commonalities in processes of linguistic attention and the child's construction of grammar.

The role of "local cues"

In discussing the relative advantage of Turkish over word-order languages on the Agent-Patient Test, I introduced the notion of "local cue." I suggested that the object inflection can be easily processed because it applies to a particular noun and can be interpreted without taking the entire sentence into account. The cue is local because it operates on a localized sentence element. There are a number of other phenomena in the data which suggest the importance of this notion for sentence pro-
cessing and the acquisition of linguistic forms. (The notion is well known
in experimental psycholinguistics, where it is phrased in terms of “surface
cues to underlying structure” [see, e.g., J. A. Fodor, Bever, & Garrett,
1974, pp. 353–611].)

Ammon and Sobin (1979) introduced this notion to account for the
relative superiority of Turkish and Serbo-Croatian on the Causative Test.
They noted that these two languages, as opposed to English and Italian,
have several morphological particles which may facilitate sentence-pro-
cessing strategies. The sentence forms are given in Table 5.2. Note that
both Turkish and Serbo-Croatian indicate the instigated participant by
means of a direct object inflection. The Serbo-Croatian causative verb,

tjerat,
serves a specialized function in the language (as opposed to English

make and Italian fare) and, in this sense, is in some way similar to the
Turkish causative morpheme infixed in the verb, which is also specialized
in function. The Serbo-Croatian action verb in the causative construction
is finite and is separated from the rest of the sentence by a particle, da,
which may also call special sentence-processing strategies into play for
this type of sentence, or may at least serve to block strategies applicable
to simple declaratives. Thus, in general terms, Serbo-Croatian and Turk-
ish can be said to provide local cues within the sentence, in contrast to
English and Italian, where sentence structures require that the listener
hold the entire sentence in mind in order to determine the underlying
semantic relations.

Turkish performance on other tests also indicates reliance on local
cues. Before and after constructions in Turkish use different nominali-
izations of the verb in the subordinate clause for the two conjoining terms
(postpositions in Turkish). The subordinate clause in before conjoining
refers to an event which has not occurred at the time of the event of the
main clause. Accordingly, the particular nominal form of the verb indi-
cates potential, rather than realized action, and is followed by a negative
particle (something like “The dog not having jumped, first, the camel
runs”). In the case of after, where the event of the subordinate clause
occurs first, the nominal form expresses the fact of occurrence and, of
course, there is no negative particle. I do not think that children in the
age range tested have mastered the distinction between the two nominal
forms; but the negative particle in the before constructions appears to
function as an important local cue. If Turkish children perform only one
of the two actions called for in these sentences, they are twice as likely
to make a single response in regard to the before sentences as the after
sentences (35 : 17). They apparently interpret the negative particle in these
sentences as meaning that one of the actions does not occur.

In the case of correct performance of both actions, the overall course
of development for the four sentence types is almost identical (a finding
that incidentally poses problems for all semantic and cognitively based
explanations of performance on this test in English). The one major ex-
ception is an early peak on sentence type (2), corresponding to Before
Event 2 Event 1. Although this form reverses order of mention, it has the
salient local cue of the negative particle; and of the two before sentences,
it is the one in which the subordinate clause is not embedded. I suggest
that the negative particle serves to clarify the temporal order of the two
events, once the child comprehends that two events are to be acted out.

Local cues – in this case inflectional once again – play an interesting
role in Turkish performance on the Relative Clause Test. In this test
(following Amy Sheldon’s 1974 design), children were asked to act out
relations among three animals, such as The donkey that the sheep touches
rubs the camel. The four sentence types are shown in Table 5.8. Relative
clauses are exceptionally difficult in Turkish, and are acquired much later
than in Indo-European languages. None of the Turkish children in our
sample (up to age 4;8) correctly performed a single one of these instruc-
tions. What is of interest here is the strategy used by Turkish children
in determining their partial responses, since they generally carried out a
single action involving two animals. As one would expect, they consis-
tently ignored the embedded verb, which is always a nominalized form
(perhaps even unrecognizable as a verb) and performed the action of the
final verb, which appears in the normal position for Turkish. The patient
was always the accusative noun in its normal preverbal position at the
end of the sentence. Local cues play their role in the choice of agent.
Turkish children do not pick the first noun as agent, as one would expect
in the case of a word-order strategy. Rather, they tend to scan the sentence
for the first uninflected noun – that is, a subject noun (footnoted in Table
5.8). If the initial noun is marked as non-subject (by the accusative or
genitive inflection) it is passed over. As in the Agent–Patient Test, an
inflectional strategy plays the dominant role. Thus, several years after
they have acquired simple sentences, Turkish children employ the same
strategies in encountering complex sentences. In the case of sentences
with relative clauses, this strategy results in isolation of the main clause.
Again, we find a special elegance in the set of strategies for the acquisition
of Turkish, since the same basic strategy can be used again, over the
course of years, in interpreting more complex sentences.

Late acquisition

There are numerous determinants of structures which are acquired late
by children, and I have no space to review them here (see Bowerman,
1979, for a detailed review of the acquisition of complex sentences).
Having pointed out so many precocious elements of Turkish acquisition,
however, I should make special mention of late acquisition of relative
clauses. As is evident in Table 5.8, the clauses do not look much like
Building consistent expectancies

Having discovered part of their language, children behave as if they expect a certain consistency or generality to their findings. There are several lines of evidence that the interpretation of new forms or deviant forms is based on previously established sets and strategies.

On the Agent–Patient Test, performance was best on those sentence forms corresponding to the standard forms used in the language. The English and Italian children, overall, responded consistently only to NVN sentences. Slobin and Bever (in press) suggest that the failure of any pattern to emerge in response to NNV and VNN sentences may be due to the fact that the child will not apply any systematic analysis to a string which does not correspond to a "canonical sentence form." This notion would also explain early inconsistent interpretation of English passive sentences, since their verb morphology does not fit the canonical form of active sentences.

The notion of canonical sentence form also accounts for some features of the Turkish and Serbo-Croatian data. A small number of Turkish children responded consistently to some of the ungrammatical sequences with two uninflected nouns. The tendency to respond consistently to these forms is related to the frequency of occurrence of the three orders in the language: Thirteen children responded consistently to NNV strings, which parallel the standard SOV; seven were consistent on NVN, which is the next most frequent order in the language; and only four were consistent on VNN, which is the least frequent in Turkish speech. The early Serbo-Croatian tendency to attend to inflections only on SVO sentences is another example of children's notions of what constitutes a possible interpretable utterance in the language. Perhaps children attempt to interpret only structures which fit their notion of the language. As Newport, H. Gleitman, and L. Gleitman (1977) have put it: "The child has means for restricting, as well as organizing, the flow of incoming linguistic data; he filters out some kinds of input and selectively listens for others" (p. 111).

Turkish imitations also reflect a realization that the standard order is NNV. The eighteen sentences of the Agent-Patient Test were offered as stimuli for imitation to thirty of the Turkish children, with an average age of 3:9. Overall, 73 percent of the stimuli were imitated correctly (indicating easy acceptance of all possible orders). Reorderings were rare, but when they occurred, they reflected a sensitivity to the frequency of occurrence of sentence forms in the language: (1) Verb-final strings were almost never reordered; (2) NVN strings were reordered less frequently than VNN, and always into NNV order; (3) VNN strings were reordered most frequently — generally into NNV order, but also into NVN. Younger children reordered most frequently (from 46 percent at 3:0 to 11 percent by 3:8),
and younger children made more attempts to move less frequent orders (verb-initial and verb-medial) to verb-final order; these results suggest a greater early role for canonical order on this task, declining sharply by 3;4. Thus, in some circumstances, children may attend to noncanonical forms, but only to assimilate them to the canonical form. (For additional discussion of the notion of canonical form, see Slobin & Bever in press; Slobin, 1981.)

"The waiting room"

As a final suggestion for general aspects of acquisition, I draw upon a metaphor used by Johnston and Slobin (1979). In my earlier work (Slobin, 1973) I had proposed that "new forms first express old functions, and new functions are first expressed by old forms" (p. 184). In the locative study, for example, correct use of a locative term was frequently preceded by substitutions and circumlocutions using known linguistic forms. Such transient old forms expressing new functions can be most clearly seen in children's responses to BETWEEN items on the Locative Elicitation Test. BETWEEN is acquired at a time when the child already has a number of locative terms. Some of these are called upon while the unlexicalized notion is "waiting" for expression. BETWEEN is conceptually complex in that it requires one to take account of two reference objects. For many children, in all four of the languages, there seems to be a stage at which the child realizes the necessary plurality of reference objects, but has not yet acquired the appropriate term. Here several intermediate strategies emerge. A common response is to use some other locative term, generally a term for BESIDE or IN, with a plural noun. For example, an object is placed between two blocks and the child says BESIDE THE BLOCKS or IN THE BLOCKS, thus indicating his grasp of the plurality of the reference objects. This strategy is often replaced by the use of IN THE MIDDLE, which acknowledges the sense of enclosure better than the use of IN, but does not capture the duality of the reference objects. Often, when BETWEEN emerges, it appears with a singular noun, BETWEEN THE BLOCK, as if the child has decided that this particular adposition already encodes plurality, without redundant marking on the noun. These examples demonstrate children's ability to make use of linguistic means at their disposal while "waiting" to master the adult forms for particular notions.

The waiting room provides a metaphor for the entire line of cross-linguistic research reviewed here, because it has both a cognitive and a linguistic component. Each linguistic form in this metaphor has its own waiting room. The entry door is opened with the underlying notion as key; the key to the exit door is the appropriate linguistic form. The child receives the entry key when he or she discerns the existence of a given notion - primarily on nonlinguistic grounds, but perhaps at times with some prompting from established linguistic knowledge. The entry is thus determined by conceptual acquisition of the sort generally referred to as cognitive development. The problems to be solved in the waiting room are both semantic and morphologico-syntactic. The child must figure out just what aspects of the particular notion are encoded in the language, and what means are used for the encoding. The solutions take varying amounts of time and effort, depending on linguistic features, but finally the child leaves that particular waiting room with the appropriate "semantactic" key in hand. The important point of the waiting-room metaphor is its two doors: the cognitive entry door and the linguistic exit. I have suggested that we cannot hope to understand language acquisition without understanding the path between these two doors.

Notes

1 This chapter, written in 1978, was based on my interpretation of McNeill's 1975 paper. In his book, The conceptual basis of language (1979), McNeill extends his approach and responds specifically to my earlier interpretation of his work (pp. 243-5). Basing himself on the findings of precocious Turkish acquisition of inflectional morphology and flexible word order (described in the present chapter), he concludes, as I do, that "the idea of an 'intrinsic' word order loses credibility" (p. 245). This chapter supports his conclusion that "an iconic method of semiotic extension (involving word order)" does not seem to be easier to learn than "a symbolic method (involving inflectional morphology or other devices)" (p. 245). (McNeill is correct in pointing out that even Turkish-speaking children adhere to subject-first placement in a majority of their utterances (63 percent in our data), thus giving some evidence for "indexical word sequences." But it should also be noted - contrary to McNeill's expectations - that postponing of first-person subject is highly frequent in the Turkish speech of both adults and very young children. This chapter should not be taken as a rejection of McNeill's insights, but more as a collection of caveats based on language-specific characteristics of patterns of acquisition.

2 In support of arguments of natural word order, recourse is often made to the cross-linguistic tabulations prepared by Greenberg (1966) and others of the distribution of various order types among the world's languages. Bruner, for example, quotes Greenberg: "The order of elements in language parallels that in physical experience or the order of knowledge" (Greenberg, 1966, p. 103). However, Greenberg does not make this claim in regard to the ordering of subject and object. Indeed, his claim - and those of following investigators - has been a statistical one of dominant order types (SVO, SOV, and VSO) and co-occurring linguistic features, and not an absolute linguistic or psychological claim. The passage quoted from Greenberg refers to Universals 14 and 15, which have to do with clause orders: "14. In conditional statements, the conditional clause precedes the conclusion as the normal order in all languages . . . 15. In expressions of volition and purpose, a subordinate verbal form always follows the main verb as the normal order except in those languages.
in which the nominal object always precedes the verb" (p. 111). I believe that the naturalness position is more tenable in regard to clause orders of this type than in regard to the ordering of constituents of simple sentences. Osgood argues that the relative preponderance of SVO languages supports his position. However, a single counterexample — e.g., a VOS language (and there are some) which can be acquired and maintained in normal fashion — is sufficient to cast grave doubt on his theory. Clearly, to be interesting, the naturalness argument must be reshaped in terms of linguistic universals (see, for example, H. Clark & E. Clark, 1977, pp. 523-51; 1978; Talmy, 1978; in press)

3 My thanks to Bambi Schieffelin for the Kaluli example. She has pointed out to me that no SVO orders occur in her extensive corpora of Kaluli child language (for more details, see Schieffelin, 1979a, b).

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5 The data are selectively summarized in this chapter. Full reports of separate phases of the research can be found in Aksu (1978), Ammon and Slobin (1979), Slobin and Bever (in press), Clancy, Jacobsen, and Silva (1976), Johnston and Slobin (1979), Radulovich (1975), and in future papers. Chapters in Slobin (forthcoming) review and compare the acquisition of a wide range of language types, including those considered here: English (de Villiers & de Villiers), Romance languages (E. Clark), Polish and Slavic languages (Smoczynska), and Turkish (Aksu & Slobin).

6 Because of the need for a standard set of sentences across the four languages, there are some unavoidable differences in the task in terms of grammaticality: All of the stimulus sentences are grammatical in Serbo-Croatian; 67 percent are grammatical in Turkish; and only 33 percent are grammatical in English and Italian.

Part III

THE DEVELOPMENT OF GRAMMAR