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Carole Peterson and Allyssa McCabe

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CAROLE PETERSON
Memorial University of Newfoundland
St. John's, Newfoundland, Canada

and

ALLYSSA McCABE
Wheaton College
Norton, Massachusetts

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Preface

This book is a study of the ways in which language continues to develop after the age of three, after the child masters the complete sentence. The authors collected over 1000 narratives about personal experience produced by almost a hundred children ranging in age from 3½ to 9½ years. These narratives were then submitted to three different analyses of discourse structure. The first looks at the emotional as well as the referential content of narratives, viewing narratives as organized around emotional high points. The second is a story grammar analysis, which views narratives as organized around the formation and execution of goals by protagonists. Whereas the first two analyses are primarily semantic, the third analysis is syntactic. It looks at the ways in which some propositions in a discourse depend upon prior propositions. Passages of discourse are considered to be organized as syntactic hierarchies of dependent propositions. Each system delineates some part of the progress of children as they mature from 4 to 9 years and perfect the structuring of discourse.

This book is unique in including details and examples of these three types of linguistic analyses of discourse and a detailed comparison of the strengths and weaknesses of each system. We include scoring manuals and many graphs of the applications of each type of analysis. The book could be used by researchers as a consumer's guide to linguistic analyses or by linguists, psycholinguists, and educators as a training manual in the analysis of discourse.

We have included verbatim transcripts of over 70 of the narratives, so people interested in devising their own analyses may find this a useful source. If they applied their new systems to these same narratives, they would be able to directly compare their system to the ones we used.

This book as a whole is intended for both beginning and advanced linguists and psycholinguists. Developmental psychologists will find the meat of the book in Chapter 10 with its extensive treatment of age changes and sex differences. Educators may be interested in adapting the methodology we describe in Chapter 2 for use in the

classroom. Students of literature should look at Chapter 11, where we connect our analyses to various published works of literature.

The order of the authors' names is randomly determined and does not reflect relative contribution. We collaborated equally on most of the book. However, Carole Peterson was primarily responsible for the episodic analysis presented in Chapters 6 and 7, while Allyssa McCabe was primarily responsible for the dependency analysis presented in Chapters 8 and 9.

Acknowledgments

The children's narratives have continued to amuse and engage us in the seven years we have worked on this project. We begin by thanking them for this, and we cannot help but wonder what has happened to them since. We have come to feel that we know them well through their words.

James Deese has contributed in innumerable ways offstage as well as on stage in this work, and we are deeply grateful to him. He has read and criticized the entire manuscript, some parts of it several times, and of course has also written the foreword. Moreover, he has provided us with a provocative system, has trained the second author extensively in its use, and has checked over many of the dependency analyses of our narratives. Above and beyond all this, he has advised us about how to prepare a book.

F. Michael Rabinowitz has also provided us with invaluable criticism of large parts of this manuscript, for which we thank him.

This work began when the first author encountered Labov's system, which inspired this whole project. It was extended through conversations with Christine Glenn, who trained the first author in the intriguing system that she developed in conjunction with Nancy Stein. We very much appreciate the time Christine Glenn took to train us and to check our scorings.

Typical of peripatetic academics, we have found ourselves at several institutions of higher learning over the years, and we would like to acknowledge the libraries, computers, and other facilities with which they provided us. These institutions are (in chronological order): Oberlin College, University of Virginia, University of South Carolina, Memorial University of Newfoundland, and Wheaton College. Oberlin College supported a part of this work with grants-in-aid.

We are indebted to Francis Bishop and the students and staff of Camden Elementary School in Kipton, Ohio, and to Jackie Murray

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Thanks are also extended to our seven raters of narrative quality, Verena Goss, Virginia Grant, Michael Bruce-Lockhart, Abraham Ross, Tony Simmonds, Carol Farrell, and Patricia Kaufman.

Thank you, Charlie Cuneo, for a careful final reading.

A very special thanks to Ruth Price and Pam Crowley, our reliable and much-put-upon typists.

Finally, our families and friends. What can we say but "thank you".

Contents

Foreword

Peterson and McCabe have modestly and aptly subtitled their monograph "Three Ways of Looking at a Child's Narrative." Because they did not call it "Three Ways of Looking at a Child's Language" or even "Three Ways of Looking at a Child's Story," we must suppose that there is something significant and appropriate to the choice of the word "Narrative." And indeed there is.

A narrative is a kind of discourse. Narratives have characteristics that set them apart from other kinds of discourse. These characteristics, we are told by ethnologists, are universal in human cultures. Furthermore, narratives always serve some fundamental purpose. They are not simply accounts of something that has happened, but accounts of events from a very human point of view. Finally, every narrative is realized in only one particular way out of the countless ways it might have been realized. These aspects of narration are not unrelated. The particular form a given narrative takes on a given occasion is determined by the purposes served by that narrative.

Peterson and McCabe examine each of these aspects of narration, and each of the three methods of analysis they use is principally aimed at one particular aspect. Because, however, the features of narratives are interdependent, the three methods of analysis inform one another and relate to one another. As much as in anything else, the value of this monograph lies in its demonstration of the particular properties of each method of analysis and in how they are interrelated. These three ways are not alternative ways of getting at the same thing - converging operations, as it were - but are ways of getting at different aspects of narration.

Narratives are distinguished from other kinds of discourse in that they relate events distributed over time. From a neutral, physical point of view, events may be regarded as abstractions from the continuous flow of things in the world. But these abstractions are very human, and they conform to the limitations and powers of human perception and of human language. To a mechanical observer, a motion-picture camera's eye for example, the world might be perceived as a kind of continuous flow, with things only becoming busier at times and then subsiding again. But people do not see the world in this way. A person might record a continuous sequence of action with a motion picture camera, but when he or she develops the film and projects it for another person, that person does not see what the camera saw. He or she automatically and immediately places an interpretation upon the action. Well-defined events emerge and group themselves into episodes.

When a narrative is written instead of being recorded by some mechanical device, there is no escaping the episodic structure of the narrative. It is, so to speak, embedded in the nature of language itself. Language, like human perception, abstracts from reality, and it abstracts in such a way as to create discrete entities. That is one of the reasons why there are certain universal characteristics to narratives, no matter how particular are the cultural artifacts and social rules embedded in them. It is to the universal, episodic character of the nature of narratives that most of the so-called text or story grammars developed by psychologists and linguists over the past decade are addressed. Many of these grammars are particular to narratives. They are not general grammars for discourse. A few are such general grammars, and at least one, the analysis suggested by Fredricksen (1975), is sufficiently general so that it can apply to nonlinguistic narratives (such as pantomime or motion pictures), and it can be extended by application of the principles inherent in it to discourse in general. In its most generalized form, it is a kind of grammar for human knowledge.

The methods developed by Rumelhart (1975,1977) and elaborated by Mandler and Johnson (1977) are among those specific to narration. First of all, these methods for analyzing narration recognize that narratives are always about animate beings. In fact, the animate beings are always psychologically human or anthropomorphic. The characters in a folk tale may be a fox and a rabbit (and, indeed, exhibit certain behavioral characteristics of those species), but they are fundamentally human in nature. They often talk, and they always have very human motives.

So far as narratives are concerned, animate beings do two things: They behave, and they react internally - that is to say they have emotions and motives. Therefore, within all narratives there must be the potential for these two related but very differ-

ent kinds of events. Animate beings - that is to say in the context of the theory of narratives human beings or humanoids - have purposes or goals. Every action and its psychological concomitant are viewed as the consequence of a motive, whether conscious or unconscious.

But narratives do something else besides structure events into episodes of goal-directed external responses and internal reactions. They are often designed to illustrate a moral or morals. Whether or not they do so deliberately, it is absolutely obligatory that they express the point of view of the narrator. I have argued elsewhere (Deese, note 1) that natural human languages are constructed the way they are not for reasons of communicative efficiency, but because they must simultaneously express some message and at the same time convey the attitudes towards and feelings about the underlying message possessed by the speaker. The speaker may at the same time he asserts some proposition tell his hearer that he knows what the hearer knows about the proposition. Or he may be able, by the selection of a particular grammatical construction, to give his listener some notion as to the extent and quality of his faith in the accuracy of the proposition he is uttering. These properties are built into the grammars of language, and, save for the most extraordinary and likely in practice impossible effort they are unavoidable.

In short, given the grammar of sentences as well as the principles upon which discourse is structured, all narratives convey not only the simple and unadorned tale - structured into events and episodes - they are supposed to reveal, they also convey the subjective reactions of the narrator towards the tale as well as his or her feelings and attitudes about the persons to whom the narrative is addressed.

It is to this end, I suspect, that Labov distinguishes between reference and evaluation. The referential aspects of narration provide the listener or reader with the context in which the events take place, the temporal order among the events, and who and what is involved in these events. But, in addition to these things, the narrator inevitably, for he cannot escape it, provides his own personal view about the narrative and the relation of the narrative to himself and to his listeners. He evaluates.

One of the problems inherent in Labov's method has been but little commented upon so far as I know, though it is a problem in the application of the method employed by Peterson and McCabe. And it gives rise to a certain inherent ambiguity in the application of the work to therapeutic discourse (as in Labov and Fanshel, 1977). Labov uses as the unit of analysis the clause. Clauses are, both in the general sense and in the specifically grammatical sense, complex. They often serve more than one referential function as

well as an evaluative function. Furthermore, the evaluative functions are often ambiguous and even contradictory. Peterson and McCabe comment on this problem (p.182). The problem would be considerably mitigated if, prior to the application of Labov's scheme, the text were to be parsed into its underlying propositions.

On the other hand, there are virtues inherent in the fact that the high point analysis preserves the linguistic form of the text. Peterson and McCabe are able to exploit this feature in showing how children's narratives differ from what they call the classic pattern. In the classic pattern, events leading up to the climax of the narratives are told in a well-ordered way, then the complications brought about by the events in the story are resolved and loose ends are tied together.

Other patterns occur in children's narratives, Peterson and McCabe tell us. For example, one child got right to the climax of the narrative in his very first sentence. Then he went back and recounted the resolution and finally told about the events leading up to the high point of the narrative. Other children provide examples of what Peterson and McCabe call the ending-at-the-high-point pattern. They remind us that this might be, under certain circumstances, a very sophisticated pattern. It occurs, for example, in certain suspense stories. But when it occurs in the narratives of these children, it is probably an indication that the child using it has not fully developed a conception of and skills in narrating.

Other even more impoverished patterns occur. These appear to be the result of finding children at various incomplete stages of development in the production of narratives. However, the point is that variations from the classic pattern do occur, and that they may occur for many reasons. They may be the result of a very low level of skill in the production of narratives, but on the other hand they may be the result of the artifice of the skilled, professional story teller. The point is that there is no one pattern for telling a story. And, furthermore, the different patterns may serve different purposes. I suspect that even with these children, the choice of a particular form is functional. It may be functional in the sense that it enables the child, at his or her level of skill, to get the story out, or it may even be functional in the sense that at some level the child is aware of the nature of his or her audience and is, for some reason or another, developing the story accordingly.

I have commented on this matter at some length because my major purpose in writing this foreword is to discuss some of the features of the method I have developed for analyzing discourse. It is a method directly aimed at this problem. It characterizes

the particular pattern that the narrator has chosen as the vehicle for telling his story. I shall not describe the method in detail here, because Peterson and McCabe do an excellent job of doing just that in Chapter Eight. However, I do want to comment about what the analysis accomplishes and what it does not accomplish.

Style, of course, has long been the province of literary criticism, and a literary approach to style involves all features of a particular text. It deals with the story, its symbolic character, its origins, the relation of the story to the story-teller, as well as with the features of language in which the story is embedded. The method I propose deals only with the last, and it deals with linguistic features in a more or less mechanical way. Those linguistic features are (1) vocabulary, (2) grammatical structure, and (3) the relations among sentences (or, more accurately, the relations among propositions). There is a certain sense of artificiality in listing these things in this way, for while they can be separated, in natural language they interact with one another in countless ways. Because morphology is part of the grammar of sentences, the choice of a given syntactic structure restricts the morphological form a lexical item will take. One of the sentences above could have been cast in the following way: "It is artificial to list these things. . ." The form artificiality in one version is the word artificial in the other; the word listing becomes list. In short, morphology and syntax interact. A speaker may even avoid a favored word because the grammatical pattern imposed by the sentence he has started restricts him to an undesirable, or even (in the view of a proscriptive grammarian) inadmissible form. There is good reason to believe that the false starts and internal corrections one finds in spontaneous speech are in good part the result of the speaker's wish to avoid an undesired form.

The relations among propositions interact in a similar way with the grammatical pattern of sentences and with the choice of vocabulary. The relations among propositions are coordination and subordination. The speaker may choose to signal coordination by casting his or her sentence in the form of a compound sentence, or, alternatively, he or she may signal subordination by casting one clause in the form of a relative clause. So it is that listing these three aspects of style makes it appear that the constraints governing stylistic choice are simpler than they really are.

Furthermore, such a characterization is a simplification in other respects. It ignores the rich use of prosody (as well as nonlinguistic vocal devices such as "uh") to signal the attitudinal aspects of discourse, and it ignores deliberate aesthetic choices. A particular grammatical pattern, vocabulary, and order among propositions may be chosen simply for the sake of sound, ie. to

create a particular poetic effect. And so, when I characterize what follows as an attempt to describe and analyze stylistic variation, I mean that only in a narrow and restricted sense.

In order to deal sensibly with both the form and content of text, it is absolutely essential to reduce the text to something that can be described as its constituent propositions. There are many ways of doing this, depending upon whether one's conception of the notion of proposition is rooted in modern logic, in linguistics, or in psychology. One way, popular among text grammarians, is to reduce a statement to its constituent predicates and the arguments that govern them. These specify the smallest set of meaningful relations (ie. relations which have the potential for truth value). Because in doing an analysis of style it is better to retain as much of the syntactic character of the relations among concepts (where concepts may be said to be the constituents of propositions) as possible, I have preferred an alternative way of reducing text to its constituent statements. Because it is a compromise between an implacably logical reduction and the wish to retain the full ability of the syntactic structure to comment upon the underlying message, it will probably satisfy no one.

What I have done, as Peterson and McCabe describe in detail in their eighth chapter, is to make use of a list of base syntactic forms. It is derived from but by no means identical with a list of base phrase markers from an early (Chomsky, 1965) version of a transformational grammar. I have not chosen one of the many later alternative versions of a transformational grammar (not to say one of the now well-known augmented phrase-structure grammars) because this earlier version allows most clearly and directly the notion that the actual form of sentences is derived from an effort to impose subjective meaning upon the underlying propositions (see Szalay and Deese, 1978, re the notion of subjective meaning). Peterson and McCabe have described well and in detail how I have modified a more or less standard list of base phrase-markers to suit the requirements of a dependency analysis, and I shall not duplicate it here.

I am sure that the reader has a sensible notion of the nature of propositions as some irreducible set of relations among concepts. These may be asserted to be relations capable of being subjected to some truth-value analysis, given a set of definitions and a logical calculus, or to be some irreducible linguistic base. Whatever the particular conception, I do not think that I will be in danger of being grossly misunderstood, granted that the reader has grasped the last few pages.

Discourse is created by the relations among propositions. These relations are the result of a number of things, some of them linguistic and some of them characteristics of the things talked

about in the discourse. Syntactic form plays an important role in pointing to the nature of the relations in text. Unrelated statements do not make up a discourse. In its worst state, the speech of schizophrenics (see Hoffman, Kirstein, and Lense, in press) does not make discourse. A body of propositions cast in the form of sentences appropriate to a given language becomes discourse only when those sentences are dominated by a single topic. I cannot think of any other way to put this. Often the topic requires several propositions, so one cannot say that discourse is always interpretable by a single proposition (though a single proposition will always dominate the discourse). The term topic, however, suggests a misinterpretation because the topic so defined is not always identical with what the writers of handbooks on English composition call the topical sentence.

A topic is something that can be correctly interpreted by an appropriate listener or reader without reference to the balance of the text (or to any other source of information). That is to say, at a given level of interpretation, a discourse is more or less self-contained (I say "more or less" because, as we shall see, it is usually necessary to add to the actual text some propositions implied by the text in order to complete the discourse). Propositions that are not part of the topic require others for their correct interpretation in that context. Thus the context for certain propositions is provided by other, dominant or superordinate propositions. This can be made clear by an example. I have used this example, an excerpt from Willa Cather's novel, A Lost Lady, in several places to illustrate the principle involved.

The last sentence of the paragraph that constitutes the excerpt reads: "Every stick of timber was tortured by the turning lathe into something hideous."[1] Most literate persons can easily comprehend this sentence, though very few people, faced with no context whatever (not even that it is from a work of fiction) can place the correct interpretation upon it. If you ask people to tell you what the sentence is about you will generally encounter resistance. If you persist, you will be told that it is about sticks of wood that have been misshapened by being worked on a lathe. Some more imaginative person may tell you that it is part of the description of the workshop of an inept cabinet maker. However, I have never found anyone who could correctly tell me what the sentence is about.

The phrase that opens that paragraph is very much more easily interpreted. It is: "The Forrester place, as everyone called it, was not at all remarkable." Nearly everyone correctly assumes that the sentence is part of the description of a house. Furthermore, most people can draw a number of inferences, usually correct, about both the house and the people called Forrester simply from this sentence. By the time we get to that last sentence of the para-

graph, we know exactly what it is. It is a description of the gingerbread posts on the porches about the house. The statement in the first sentence provides the context for the correct interpretation of the remaining sentences and the propositions contained in them. Of course, the greater the context, the richer the interpretation. By reading the entire novel we will know that the Forresters live in Nebraska. If we know something about Willa Cather and her novels we will know that the Forresters were modeled on a well-known family from Nebraska. But notice that all this information scarcely bears at all on the correct interpretation of the sentence about the tortured timber. The interpretation of that sentence depends only upon the discourse developed in the single paragraph.

I have argued that the context relations in a well-structured text form a hierarchy. Originally, I believed that this was the case because a hierarchy is the simplest kind of structure that is rich enough to describe the relations one finds in discourse. It makes the least demands on memory both for the hearer and for the speaker. The speaker, of course, must not only remember what it was he or she started to say when he or she began the discourse, but he or she must also remember what of the discourse has already been said. In short, I argued that a kind of cognitive economy dictated the form of a discourse. Now I am not so certain that this is the case. It may simply be that any collection of propositions may form a discourse if one is allowed enough in the way of inferred propositions. It is difficult, not to say impossible, to draw a line between propositions that might be reasonably said to be implied by those in the text and propositions that could only be inferred from the text by a flight of fancy. In short, it might be possible to invent a hierarchy for any text.

Another way to put the matter that is less redolent of linguistic theory and less likely to cause the reader to search for a cognitive model is to say that any text can be outlined. An outline and a hierarchy are exactly equivalent. But by using the term outline it seems easier to grasp the fact that one must often invent superordinate propositions that will enable one to find logical places to put certain propositions that occur in the text.

Whether one wishes to ascribe psychological properties to the hierarchies of discourses or not, it is certainly the case that some discourses are easier to outline than others. Some discourses require nothing by way of inference in order to outline them in an entirely satisfactory manner, while other kinds of discourses require many propositions that are only implicit in the text. Furthermore, some discourse is utterly without structural ambiguity. Structural ambiguity occurs when we do not know what proposition a given subordinate proposition modifies. Peterson and McCabe provide an example: "I have a dog. My cousin has two cats.

They are nice." We don't know whether "They are nice" applies just to the cats or to the dog too. Needless to say, very many examples of such structural ambiguity are also examples of indefinite pronominal reference (as in the example), but not all are.

Then in real, oral discourse there are false starts, incomplete sentences, corrections, and sentence fragments. Sometimes these contain information relevant to the discourse. Then, as particularly evidenced in the children's narratives studied by Peterson and McCabe, there is a problem with the order in which things are said. In order to make an outline, one may have to skip all over the text of the narrative. Finally, there is the matter of redundancies and repetitions. Once again, the narratives studied by Peterson and McCabe are particularly rich in these.

It turns out that when one outlines a text, the degree of difficulty one encounters is exactly what you would expect from the degree of difficulty in comprehending the text. In a study of spontaneously produced adult discourses I have discovered that the accuracy with which people can remember these discourses is correlated with precisely those features I have mentioned - structural ambiguity, missing propositions, false starts, etc.[2] This and other results (particularly some of those achieved by Peterson and McCabe) suggests that the outline is not merely a descriptive invention but describes in some way what happens as a person invents a discourse.

I find the most convincing argument to the effect that something like an outline of text is the source of spontaneous discourse to come from the data on what, in accordance with general usage, Peterson and McCabe call staging order. Adults, even when they are, as the phrase goes, talking off of the top of their heads, tend to order propositions in such a way as to conform to a hierarchy. Now, there can never be a complete correspondence between staging order and the structure of a hierarchy, for a hierarchy is what graph theorists call a "partial order." Things are not only ordered from top to bottom, but many propositions are coordinate - that is to say they are on the same level. The result is that while the linear order of speech - one word after another - could conform to the vertical structure of text, there is no way of representing in that linear order the horizontal structure of text. That is to say, there can be many propositions coordinate at the same level, and it is not always possible to give a reasonable account as to why one should come first. The problem is compounded, of course, by the ability of the grammar of English to permit the interweaving of propositions in such a way as to make their dissection a bloody mess (I refer you to many of the dissec-

tions accomplished by Peterson and McCabe as examples of what, if one is to make a rational account of text, is an absolute necessity).

Nevertheless, it is possible to imagine a sensible order to the production of propositions, and that order should correspond to certain aspects of the structure of text. Granted that, the data from Peterson and McCabe tell us that adults are much better at this task than children. Adults, more often than children, tend to read out propositions, as it were, from top to bottom and from left to right. The "ideal" form of a hierarchy, I suspect from the data (including those of Peterson and McCabe) that I have seen is one in which all the necessary detail is gotten out of the way first and then some single branch is explored in great detail.

There is a difficulty with describing the structure of discourse as being in the form of an outline. The difficulty is caused by the very same problem that has prevented most of the text or story grammars from coming to grips with the problem of the particularity of discourse. It is that we tend to think of an outline as being "logical." That is to say, for a particular segment of information, we tend to think that there is only one possible outline. That is not the case. The outline for a given text will depend upon the purposes of the speaker (or writer), what he knows and assumes about his hearers (or readers), and the general context in which the discourse occurs.

The fact of the matter is that a given parcel of information can be outlined in many different ways. A "logical" outline (one that goes from the general to the particular) may not suit the occasion of the moment, and to so represent the structure of a given discourse may ignore the particulars of the speaker's mode of presentation as much as the analysis of his narrative into its constituent structures ignores the living reality of the discourse put into speech. I have been studying expository discourse rather than narrative discourse, and I can more easily illustrate this matter with exposition rather than narrative.

I have noted above that most of the handbooks of English composition say that the first sentence of a paragraph (which for the moment we may take to be a complete discourse, though one embedded, of course, in a larger discourse) should be the topical sentence. More sophisticated handbooks, such as the one by Christensen and Christensen (1976) recognize stylistic variation in the construction of paragraphs. Nevertheless the notion that the topical sentence comes first persists.

Now a topical sentence is "what the paragraph is all about," and we might readily suppose that it would sensibly come first and that, also, if we were to outline the paragraph, the topical

sentence would include the proposition that organizes the hierarchy. Here you see my reluctance to use the term topic for the sentence (or propositions) that organize the discourse, for the organizing proposition (the topic described earlier) may not be the same thing as what the paragraph is about (the traditional topical sentence).

It does happen often that the topical sentence (in the traditional sense), the sentence that organizes a discourse (say, a paragraph) and the first sentence in the discourse are the same. That is more or less the case with the paragraph from A Lost Lady, described earlier. Once again, I say "more or less" because Cather, unlike some student who might be asked to comment on this passage, does not say that what follows will be a description of the Forrester place. She simply tells us that it is not remarkable, and we are left to infer that it is a description.

However, this is by no means the only pattern. I have been exhibiting an example to the contrary for some years now. It is a favorite example of mine because it is so clear cut and because there now exists a fair amount of psychological data on it (see Karmiohl, 1979). The text is the very opening paragraph of Underwood's (1966) Experimental Psychology, second edition.

The topical sentence for this paragraph is the third one. It contains the essential message of the paragraph, which is that human behavior is consistent. This is not, however, the sentence which organizes the paragraph. That is the first sentence. It says: "Certain business organizations have as their major task the establishment of credit ratings." The paragraph then goes on to say: "Individuals as well as businesses ordinarily need some minimum credit rating in order to borrow money or to open charge accounts." It is only then that the author gets to his main point: "This whole enterprise is based upon the simple but critical assumption that there is consistency in man's behavior."

Notice that this critical sentence cannot stand alone. It is introduced by a demonstrative pronoun that refers back to the first two sentences. The sentence would be uninterpretable without the first two sentences, for we would have no idea what kind of an enterprise the author was talking about.

Now, if one were to outline this bit of text "logically" (that is to say in such a way as to make the topical sentence contain the information that organizes the paragraph) one might begin something like this:

I. Man's behavior is consistent.

    A. This can be illustrated by reference to credit ratings.

But an outline which preserved the organization of the text might begin something like this (see Deese, 1981, for a more accurate and detailed version):

I. Certain organizations establish credit ratings.

A. This enterprise is based upon the assumption that there is consistency in behavior.

The paragraph is a kind of parable which illustrates that behavior is consistent. It does so by presenting a pair of contrasting examples. It describes two men, one of whom always pays his bills on time and the other of whom doesn't. The point is readily grasped by readers. I once asked some students to read the passage and then recall it. More often than not the students reorganized the paragraph to conform more to the first outline above rather than the second.

Karmiohl (1979), however, discovered that what readers regard as the essential ideas in the paragraph depends upon a larger context. He asked some students to read the passage as if it were part of an assignment in a business class. In such a reading students change their views as to what they think is important. When they read the text as something from a book on psychology they know that the first two sentences are not particularly important. When they read it as if it were a textbook for a course in business, they regard the first two sentences as being much more important.

There is a different aspect of style in discourse that is revealed by a dependency analysis, and Peterson and McCabe have investigated this aspect in far greater detail than have I. What they have done is important and I should like to comment upon it. Furthermore, they have performed a signal service by linking their analysis not with linguistic or psychological theory, but with its proper ally, rhetoric.

In discussing this work it is more natural to talk about hierarchies rather than outlines, so at this point I return to discourse conceived of as being a hierarchy. Peterson and McCabe point out that some narratives have flat, shallow shapes. There is very little elaboration of any given theme, and all themes are related to one another only by virtue of the fact that they refer to a common topic. Such a style occurs not only in narratives, of course, but in other kinds of discourse. My favorite example of this style is provided by entries in Who's Who or the World Almanac. The information found in a given entry seldom explores any one thing in any depth, and the various facts are tied together only by being about some one person or some one place. More sophisticated kinds of discourse explore one or another or several branches in greater depth.

Peterson and McCabe recognize six structural types. They assimilate these to and use the labels provided by Christensen and Christensen in their admirable little handbook, A New Rhetoric (1976), for describing the structure of paragraphs. Peterson and McCabe also develop some quantitative measures, which when applied to the text, characterize the different types of structures.

It could be argued, of course, that the variations in patterns - that is to say how branches are developed in the hierarchy - are endless. Such an argument may be quite possibly correct. Nevertheless, I think Peterson and McCabe are correct in developing a typology of structures. That is what nearly every commentator upon language and its uses has done. Literary historians, literary critics, rhetoricians, and the modern grammarians of text, have all suggested typologies of text. But Peterson and McCabe look at the matter not just as a matter of describing text, they look at it as a matter of characterizing the linguistic skills, in particular the linguistic skills of children. Most importantly, Peterson and McCabe are able to show that their structural descriptions have developmental validity.

Simple coordinate structures (the Who's Who entry) decrease with age and ideal hierarchial structures increase with age. In the context of narratives, simple coordinate structures are primitive. As children become more sophisticated about story-telling they disappear. Similar developmental trends occur with other types. But there is another aspect of the Peterson and McCabe characterization of style that is even more important, I think.

My original belief that the major determiner of the nature of hierarchies in discourse was cognitive limitations, principally of memory, has been considerably weakened. I am now more inclined to view the hierarchical nature of discourse as simply descriptive. However, it is interesting to note that the more skilled children studied by Peterson and McCabe as well as the adults studied by me tend to produce discourse in such a way as to keep the burden of memory low for both the hearer and the speaker. Both these children and adults produce elaborations in discourse with the deepest branching on the right rather than on the left. That is to say, the most detailed elaboration occurs near the end of the discourse rather than at the beginning.

However, rather than argue that cognitive pressure forces discourse towards some particular form, I am convinced by the data exhibited by Peterson and McCabe that the argument ought to be the other way around. That is to say, the social and personal pressures push us into being coherent. Then there is some direct tuition that children receive in producing both oral and written narratives. Everything points in that direction. The more skilled children repeat themselves less (in particular there is less

recursive repetition). Older children produce structures of greater depth than do younger children. The quantitative changes in discourse structure that occur with age show that children become more skilled at producing narratives that are not only interesting but easy to follow. There is no change in the agreement between staging order and chronological order in the narratives. What happens is that the narratives simply become longer and more sophisticated. Eventually, however, staging order and chronological order must more nearly coincide, for adults keep a much closer relation of that sort in their discourses.

I am very pleased that Peterson and McCabe eschew assigning psychological reality to their structural descriptions. There is a long history to the attempt to make structure descriptions also descriptions of psychological processing. The very earliest attempts to use generative grammar psychologically were efforts in this direction, as every student of psycholinguistics knows. Nothing has contributed more to a sense of a lack of progress in the cognitive sciences than the insistence that all serious theoretical work be aimed at the development of process models and experiments designed to test these process models. Over the years the models have changed, not so much because the experimental tests have pronounced them a failure, as because they have gone out of fashion. Even the experiments themselves have gone in and out of fashion. It would be a foolhardy experimental psychologist indeed who would offer an editor of one of the more prestigious journals a piece designed to test the inhibitory-excitatory theory of the serial position effect with an experiment using the method of serial anticipation.

It would be very tempting to suppose that the schemas used to characterize these narratives are, themselves, characterizations of the processes used in generating those narratives. As Peterson and McCabe point out in their first chapter, some investigators have yielded to that temptation, but they do not.

What then is the value of such a study? Is not the principal aim of all serious psychological investigation to develop theories about how the mind works? To be sure. But we must carefully consider the meaning of that word, how. No psychological investigator is so naively reductionistic as to suppose, when he proposes or proposes to test a psychological model, that he is investigating the way neurons work, even though it may be an article of scientific faith so strong as to not even require articulation that the activity of neurons is at the bottom the cause and final explanation of all mental activity. Even those investigators who use such techniques as the recording of evoked potentials do not believe that they are really studying the processes by which mental activity occurs. They hope to establish that some particular mental activity is correlated with a particular pattern of electrical activity in a particular region of the cerebral cortex.

No, students of human cognitive activity do not suppose that they are working towards the ultimate reduction of psychological activity to its ultimate physical basis. They are much more likely to tell you that they are doing something like what the students of artificial intelligence do. They are investigating the capabilities of a particular kind of computing system - the one that guides human activity and thinking. Contemporary investigation of problem solving (eg. Johnson, 1981; Larkin, 1981) has been very much influenced by theory in computer science. It also closely resembles, in principle, the methods used by Peterson and McCabe. That is to say, experimental variation imposed upon artificial problems has given way to following step-by-step the way people solve real problems from such domains as physics and then subjecting the protocols to detailed analytic treatment. The result has been to tell us where people make mistakes in solving problems and to a degree why they make mistakes. The analysis can provide us with plausible cases for certain mistakes arising from misapplied computation, from a rule applied at the wrong time, or from a linguistic misinterpretation. But very few of these contemporary investigators suppose they will be able to answer such questions as whether certain processes in the head are parallel or sequential or what. In short, they do not fool themselves that their data will enable them to reconstruct what goes on in the mind when problems are worked on. They can, however, by analyzing their data find just what those data tell them - where someone applies a given rule, finds it wrong (and what told the person that it was wrong), and how and what new hypotheses are tried.

And that is very much what Peterson and McCabe are able to do with their data. They tell us not only that older children produce more sophisticated narratives than younger children, but precisely how the productions of older children are more sophisticated. This is the essential message of the book. It is to tell us in very great detail just how the ability to produce sensible, organized narratives embodying the basic rules of story-telling is developed. The standard towards which children move is that of telling a story with a complete episode, in the classical mode, embodied in an ideal hierarchy. This is not the only way a good story can be told - fiction writers, as Peterson and McCabe remind us, can and do use other patterns. But there is a standard which can set a pattern. Very young children may have grasped aspects of the principles inherent in this standard, but they cannot yet produce samples of it.

Finally, this standard must provide a model for the comprehension of stories. I do not mean a model in the sense of psychological theory, I mean a model by which the individual listener or reader may judge that he has grasped a story. Many stories, Peterson and McCabe tell us, embody primitive patterns. They cite as an example the common practice of having short stories end at

the high point. The withheld resolution then becomes a device, but in order to appreciate the device the reader must grasp that the resolution is not there, and he or she may even be invited to provide it. In order to understand and appreciate the author's intent, the reader must have developed a sense of the standard structure of narrative.

Peterson and McCabe cite a number of examples of deviations from a standard pattern used by such writers as Hardy, Faulkner, Virginia Woolf, and Dashiell Hammett. But it is essential to recognize that these are deviations (or, in some instances, elaborations). The mark of being able to understand these as deviations is the ability to cast one's own narrative in a standard form.

In this respect I cannot avoid saying a word about the hierarchical structure, not of narrative, but of discourse. There is a standard form here too, and it is not just the presence of what Peterson and McCabe call an ideal hierarchy. It is a structure which is hierarchically complete and in which the organizing statement is also the topical sentence. This typically occurs in what some of us have come to call the deductive structure of expository discourse (Deese, 1981). Here a general principle is stated at the outset and then elaborated by modifications, exemplifications, and implications. I have not studied expository discourse in children, but I would be willing to bet that such structures are more often found in older children. Certainly, the data supplied by Peterson and McCabe on narration suggest this is the case. It is a kind of standard for expository discourse. But, as we have seen from the example by Underwood, deviations do occur in the prose of skilled writers. A typical pattern for such a deviation is in what we have come to call an inductive structure. Here, the reader is gently led to the general principle or the main point by examples and by analogies. But once again, there is a standard. It is the deductive structure, which is what most people would be inclined to think of as the logical form. I suspect that good readers, led by example to some general principle, then in their own minds transform the inductive structure into a deductive one. Certainly many college students, on being asked to remember something that is inductively put, appear to do just that.

A final point concerns the contents of children's narratives. Peterson and McCabe hardly comment on this matter at all. I suspect that some of their reticence must stem from the fact that their technique may have suggested certain themes to the children. Nevertheless, in working with one of the authors on these narratives, I came to believe that the most common event in north-central Ohio was some sort of an accident. Car accidents, injuries, broken limbs, and fights appear to be routine. It doesn't matter, as one soon comes to realize on reading these narratives, that the children are being highly creative and that they may have

been responding to the prompting story told by the experimenter. It is that, in the more elaborate productions, imaginative skill at creating mayhem takes over. We have learned, through the work of Bettleheim and others, that children's fascination with these themes is both natural and useful. And, furthermore, I was struck with the skill with which these young story-tellers convey their gory themes. One nine-year-old boy starts out his narrative by saying "Then by Thursday we butchered our pig." This violates the classical pattern described by the high point analysis because it presents the ending first. Notice, however, that it does not violate the ideal hierarchical scheme, for in fact the whole of the narrative naturally depends upon and is almost totally uninterpretable without that opening statement.

One can imagine that the episode reported by this child was one that the telling of which relieved a lot of anxiety. We have no way of knowing of course, but unlike many of the other narratives, it has the ring of truth about it. But the experimenter did not have to drag the story out of the narrator, as appears to be the case in some instances. A few totally neutral prompts were made, but they have little role in directing the youngster to rehearse the details of this event.

I mention this particular narrative because it seems to encompass so much of the development of narration. The theme has to be stated at the outset, which, given the narrative itself, violates the classical pattern. Once stated, all of the events, down to the burning of the skin and the hair, that must have made a powerful impression upon this youngster are mentioned. He is still not skillful enough of a narrator to make explicit all of the things a more experienced story-teller would have. He leaves us to infer that his father had supplied him with an extra load of bullets. (As with many of the inferences necessary to complete these youthful narratives, the implication is not clear. It is possible that the narrator may have been supplied with a gun.)

My point is that the most skillful of these narrators are beginning to understand the uses of deviations from standard forms and to use these to suit the occasion. Indeed, children who are considerably less skilled at telling an interesting and obviously psychologically important story often use a standard form. One five-year-old girl describes her anxiety at going to the Doctor's (she doesn't say so, but she clearly was terrified that she was going to receive a shot). The narrative in content is primitive and is dragged out of the narrator with considerable (though entirely neutral) prompting. But in its structural aspects it conforms to the standard that provides a point of reference.

I don't think that this is a difference in the emotional quality of the narratives. In their different ways, these two

narratives both exhibit the capacity of children to deal with things that they regard as threatening. But they cope with the problem in different ways. Because these two stories and their two narrators differ in so many ways, it is futile to suggest any firm account of the differences, but nevertheless, I am inclined, in the interests of bringing the reader's attention to examining the content of these narratives in the light of their form, to suggest a possible interpretation.

It is universally acceptable, even in the milieu of these narrators, to have a certain fear of the Doctor. However, a nine-year-old boy from rural Ohio would be expected to take a hog slaughtering exercise in his stride. Both narrators start from an emotionally neutral point, but there they diverge. The essential details of the slaughter come out without prompting. What is left to be inferred are things that the nine-year-old mind takes for granted - namely that his listener knows enough about such things to infer that the narrator has been allowed to carry spare bullets. But the five-year-old narrator who tells of the visit to the Doctor leaves her listener to infer the most important part of the narrative, namely that she is afraid of injections. In short, that which is universally acceptable can be easily left to the listener to infer, on the assumption that he or she has experienced the same fears. But the horrors of some episode which one is not supposed to feel is really horrible must be dealt with in explicit detail. Such an artful difference may be what separates a grade B Hollywood horror movie from Henry James' The Turn of the Screw.

The authors conclude by saying that perhaps they have not been studying three ways of looking at narratives but thirteen hundred. I think perhaps they are right. That is one of the consequences of looking at events in the real world. But embedded in those thirteen hundred ways are patterns. Because the most significant and obvious way in which these children differed from one another was in age, it is age which organizes the patterns. The various tables, then, mainly show changes with age. The other set of patterns, of course, is organized by relations among the three methods of analysis. Once again, while there may be thirteen hundred ways of looking at narratives, patterns do emerge. As we have just mentioned, and as Peterson and McCabe point out in several places, it is possible for simple coordinate sequences to make a well-formed classic narrative, but statistically it is not likely. The thirteen hundred ways comes in when we consider the meaning of the statistical variations from the pattern of age-related results and comparisons among methods of analysis. Ordinarily, psychologists regard statistical variation as being stochastic, that is to say as arising out of some error-producing process. However, it is possible to regard such variation as significant in itself. The danger is, of course, one may read too much into a single example. But, if anything, it seems to me that

Peterson and McCabe have erred, if at all, in the other direction. That is to say they have been very cautious about detailed interpretation of any given narrative. One of the virtues of the book, however, is that enough material, both in its raw form and in the form appropriate to a given method of analysis, is presented to allow the interested reader to construct plausible patterns for the reader's own purposes.

James Deese

University of Virginia
Charlottesville, Virginia

1
Introduction

THIRTEEN WAYS OF LOOKING AT A BLACKBIRD

To heavily paraphrase Wallace Stevens, we might begin by saying that among sundry chilly psycholinguistic analyses, the only moving thing was the sparkle of the children's narratives. We hope that our readers, too, will not be so overcome by the pains-taking details of our three analyses that they lose sight of the freshness, the creativity, the unpredictability, the amusement, the raw edge of ordinary life to be found in the children's narratives that are the basis of this book.

WHAT IS A PSYCHOLINGUISTIC ANALYSIS?

Present psycholinguistic analyses markedly differ from past ones, and these differences concern the unit of language that is subjected to analysis. Early psycholinguistic analyses such as Deese's (1965) Structure of Associations in Language and Thought were concerned with the word. Going beyond the word, subsequent analyses such as Chomsky's (1965) Aspects of the Theory of Syntax and Fillmore's (1968) "The Case for Case" dealt with the structure of sentences. Recently, psycholinguistic analyses grapple with discourse or text - units of language beyond the sentence. Deese (Note 1), Fredericksen (1975), Grimes (1975), Kintsch (1974), Mandler (1978), Stein and Glenn (1979), and Thorndyke (1977) - all have devised psycholinguistic analyses of discourse.

There has been a parallel progression in the field of language acquisition. Students of language generally stop studying children soon after they master the unit of language that is the focus of

the particular experimenter. Early research in this area looked at how children acquired vocabulary in the first few years of life. Many of these studies are summarized by McCarthy (1954). Later on, Brown (1973) and Bloom (1970), among others, looked at how children mastered the production of sentences in the first five years of life. And now, people have begun to look at children's discourse (see Ervin-Tripp and Mitchell-Kernan, 1977). The present work is in this vein. We will be studying children's personal narratives, using three separate psycholinguistic analyses of discourse: high point analysis, episodic analysis, and dependency analysis. The children's narratives here are children's stories about their personal experiences.

THE SEARCH FOR UNDERLYING STORY STRUCTURE

Stories have long been of interest to psychologists, folklorists, anthropologists, and linguists, as well as the lay public. They are part of the oral traditions of every culture, in the form of folktales, fables, and myths, and they are also an important part of literature. Stories in the form of narratives about personal experiences are a common component of conversation (eg. "Did I ever tell you about the time that I . . ."). The most compelling question that has been asked about stories is: Do they share underlying commonalities of structure?

Different types of analysis have been used in the search for underlying story structures since Bartlett's (1932) early suggestion that stories are patterned. Some investigators have approached the analysis of stories by looking for common themes (eg. Botvin and Sutton-Smith, 1977; Colby 1973; Propp, 1968; and Sutton-Smith, Botvin and Mahony, 1976). Propp selected Russian folktales for study; he claims that there are a small number of functions that characters serve in folktales, and these functions are content-free in that they are independent of any particular story or character. Thus, functions "serve as stable, constant elements in a tale, independent of how and by whom they are fulfilled." (Propp, 1968, p.21). Some of the functions which are common to many folktales include Villainy (by an evil force), Struggle (between the hero and the evil force), and Victory (by the hero). Botvin and Sutton-Smith (1977) and Sutton-Smith, Botvin, and Mahoney (1976) have identified common themes in children's fantasy stories, and have described them as structured around primary plot units which are composed of some motivation or impetus for action (such as Lack or Villainy) and a resolution (such as Lack-Liquidated or Villainy-Nullified). Applebee (1978) on the other hand emphasizes overall coherence of stories, and particularly two aspects he calls chaining and centering. In chaining, different events are linked to each other, usually through time sequence or causality, and in centering, the elements of the story are linked

to one special aspect, such as a common theme or character. Other investigators (eg. Colby, 1966) did word frequency counts for various semantic categories of words in different parts of the story, such as at the beginning, the middle, or the ending.

But in general, most investigators have rejected the thematic approach as too general and the word count approach as too detailed. Instead they have focused upon the proposition (for a definition see Kintsch, 1974; Stein and Glenn, 1979; and Thorndyke, 1977), or the clause (Grimes, 1975; Labov, 1972; Labov, Cohen, Robins, and Lewis, 1968; and Labov and Waletzky, 1967), and their relationships in an effort to characterize higher-order structure. There have been two major approaches to the analysis of structure in stories at the proposition or clause level, and each is represented in this work.

High Points

Labov and his colleagues (Labov, 1972; Labov et al., 1968; and Labov and Waletzky, 1967) describe narratives as being structured around "high points," or "suspension points." They suggest that a story builds up to this high point through recapitulation of events and then often suspends the action at this crisis point while its importance is highlighted. Subsequently, the resolution of this crisis is provided through more recapitulation of events. Thus, narratives are organized around one or more key points which are stressed by the narrator. Two functions in narratives are emphasized: reference (the listeners or readers are told what happened), and evaluation (the speakers or writers reveal their attitude toward the events of the narrative).

Episodes

Other investigators describe stories as composed of episodes (Glenn, 1978; Mandler, 1978; Mandler and Johnson, 1977; Rumelhart, 1975,1977; Schank and Abelson, 1977; Stein and Glenn, 1979; and Thorndyke, 1977). After providing a setting (such as introducing the protagonist), the story is composed of "problem-solving episodes" (Rumelhart, 1977). Basically, something happens to protagonists, which causes them to respond to it or to set up a goal. Their actions or their attempts to accomplish the goal result in some resolution or state of affairs that terminates the episode. Episodes may follow one another sequentially or be embedded within other episodes. Investigators differ in the details of their "story grammars," but all of them parse stories into informational nodes showing how a protagonist solves a problem; these nodes include such information as initiating events, goals, attempts to accomplish those goals, and consequences. Glenn and Stein (Note 2)

have identified a number of story structures, some of which are diminutive and some more complex than the episode, although they are all related in some way. We have adopted all their structures.

Syntactic Dependency

The third analysis to be discussed in this work - dependency analysis - does not deal with stories per se but with discourse in general, and was developed by Deese (Note 1). In a number of ways, dependency analysis asks how coherent is any given discourse. Like high point and episodic analyses, dependency analysis views discourse as a tissue of propositions. But dependency analysis depicts the syntactic relations among those propositions rather than the nature of their content, which is the practice of the other two analyses. Whether a given proposition is coordinate or subordinate to any other given proposition is the principle question addressed by dependency analysis. Having undergone dependency analyses, propositions are displayed as a hierarchy, revealing the (hierarchical) syntactic complexity of a given discourse.

Contrasting the Three Approaches

Elements and Compounds. What do these three psycholinguistic analyses have in common? As in chemistry, each analysis has a set of elements, bonds, and resulting compounds, more specifically known as ideal structures and their sundry diminutives (see Table 1). And as chemical compounds can undergo changes of state from solid to liquid to gas while maintaining their identity, we will propose that these ideal structures can undergo various superficial transformations without changing their deep structure. In other words, we propose that what happens on the level of sentences also happens on the level of discourse: different surface structures can mask similar deep structures.

While the deep structure of sentences is considered to be syntactic in Chomsky's (1965) system, it is considered to be semantic in Fillmore's (1968) system. The three analyses of discourse to be used in this work have somewhat similar differences. In dependency analysis, the syntactic aspects of the deep structure of discourse will be assessed, whereas various semantic aspects of the deep structure of discourse will be assessed by both high point analysis and episodic analysis. Dependency analysis involved semantics only insofar as semantic content determines syntactic dependency. High point analysis involves syntax primarily to demarcate the boundaries of its elements, namely independent clauses, whose content then is categorized. Episodic analysis categorizes content irrespective of syntax. Categorization of semantic content differs substantially in high point and episodic

analyses. As is implicit above, we will not argue for the universal rectitude of any of the three analyses we examine. Instead, we view them as complementary: the three analyses differ in the information they provide, and thus each is useful for different purposes.

Having compounded analogies - between chemistry and psycholinguistic analyses, and between grammars of sentences and psycholinguistic analyses of discourse - let us qualify those analogies. While chemistry, standard transformational grammar, case grammar, high point analysis, episodic analysis, and dependency analysis all expose similar deep structures beneath different surface structures, they do not all expose different deep structures beneath similar surface structures. That is, colorless liquids may be comprised of radically different chemical compounds, for example. And Chomsky's grammar exposed the different deep structures that underlie "John is eager to please" versus "John is easy to please," while Fillmore's (1968) grammar is required to distinguish between the deceptively similar "John built the table" and "John ruined the table." But as far as psycholinguistic analyses of discourse are concerned, what would it mean to talk about similar surface structures with different deep structures? The complexity of the surface structure of discourse is so infinite, enormous, and everywhere present that one can barely imagine two extensive discourses with similar surface structures, let alone that those similar surface structures mask different deep structures. Thus, the thrust of the three analyses in this work will be to expose similar deep structures underlying sundry surface structures.

Among varieties of deep structures, those who devise psycholinguistic analyses typically select one that is considered to be the best, most sophisticated, most ideal deep structure (see Table 1). We will propose alternative deep structures as equally good for different purposes.

All these analyses have been modified by the present authors. We have adapted the elements in two of the three analyses, minimally in the case of Glenn and Stein's episodic analyses, more extensively in the case of Labov's high point analysis. We have made such adaptations for the same reason that we expect others to make further adaptations: any category system is inevitably unfinished, ineluctably evolving. Of course, this causes a certain amount of exasperation in that just when you have your scoring manual complete, tidy, and nicely typed, a component category seems to precipitate out of a larger one, or two separate categories seem to coalesce. These problems burgeon as category systems are applied to new, more-or-less different data. For similar reasons, we have also developed new varieties of deep structures in all three analyses, most minimally in the case of Glenn and Stein's episodic analysis.

Table 1. Parallel Components of Three Psycholinguistic Analyses

Analysis:	High-Point	Episodic	Dependency
Elements	Independent clauses:	Statements of Important	Functional Syntactic
	Orientation	Distinctions:	Propositions:
	Evaluation	Events	Most dominant proposition
	Complicating Actions	Motivating States	Level 2 propositions
	Resolutions	Attempts	Subordinate propositions
	Appendages	Consequences	(Levels 3-9 in our data)
		Reactions	
		Settings	
		Judgments	
		Appendages	
		Others:	
		External states	
		Internal states	
		Actions	
		Natural occurences	

Bonds	Intersection of time line of discourse with time line of experience	Relations between Elements: Temporal Causal Relations between Structures in Multiple-Structure Narratives: Temporal Enable Causal Allow Repetition	Syntactic Dependency: Coordination Subordination
Structures			
Generally from most to least complex (ideal structure is starred)	*Classic End-at-High-Point Leapfrog Impoverished Disoriented	Interactive Episode Complex Episode *Complete Episode Abbreviated Episode Action Sequence Descriptive Sequence	*Ideal Hierarchy Mixed Subordinate Sequence Mixed Coordinate Sequence Combination of Simple Subordinate with Simple Coordinate Sequence Simple Subordinate Sequence Simple Coordinate Sequence
Alternatives:	Chronology	Reactive Sequence	

This comparison of our three analyses is a cursory overview. We will not dwell here on the details of those analyses; such is the purpose of the rest of the book. The detail to be found in Table 1 is provided as a useful summary for the reader's convenience in grappling with the elaborate vocabularies to come.

Methods of Investigation: the Original Corpora. Not only do they differ in constructs, as we have seen, the three approaches described above differ considerably in the type of language upon which they were developed, the methods of investigation employed. The investigators who parse stories into episodes have generally drawn their constructs from traditional written stories, such as fables and folktales (Mandler and Johnson, 1977; Rumelhart, 1975, 1977) or stories taken from literature (Thorndyke, 1977). Mandler and Johnson (1977) have suggested that since folktales are the products of many generations of recalling and retelling, they should approximate "ideal" structure. Glenn (1978) and Stein and Glenn (1979) have also used products of written literature, with children's readers being the chosen sources of their constructs. However, they often modified the stories or made up parallel ones to reflect hypothesized information nodes in their story grammar. These investigators have tested their theoretical constructs by asking people to listen to the stories and to recall them (Glenn, 1978; Mandler, 1978; Mandler and Johnson, 1977; Rumelhart, 1977; Stein and Glenn, 1979; and Thorndyke, 1977) or to summarize them (Rumelhart, 1975,1977). The assumption was that if the listeners used mental structures or schemata to process stories, one should be able to tap the nature of their schemata by seeing what they recalled or stressed in their summaries. In general, their research supported the notion that probability of recall or inclusion in a summary of any specific item in a story was related to its function in the episode, or the type of informational node under which it was classified. Furthermore, they found that propositions at superordinate nodes were recalled better than propositions at subordinate nodes, as well as included more often in summaries. (See Brown and Smiley, 1977; Crothers, 1972; and Meyer, 1975, for similar conclusions about the recall of non-story prose.) In other words, patterns of recall support the constructs of story structure that these investigators deduced.

Recently, Glenn and Stein (Note 2) have looked at production of stories as well as memory. They asked children to make up stories about specified fictional characters, paralleling the kind of stories found in children's readers. They also found that one could describe many of the child-generated stories as composed of problem-solving episodes. Significantly, the stories analyzed by all of the investigators taking an episodic approach are about fictional characters having adventures which are often far removed from the actual experiences of the subjects telling or recalling the stories.

In contrast to the episodic analysts, Labov and his colleagues suggest that products of oral traditions or standard fictional stories are either too complex or too artificial for a beginning analysis of stories (Labov and Waletzky, 1967). Instead, they chose to analyze narratives about personal experiences: the kind of stories that people embed in conversation, narratives about, say, times when their life was in danger, or the worst fight they were ever in. Their data consist of such original narrative productions rather than story recall. Thus Labov's theoretical constructs are inductive abstrations of what their narrators consistently did.

Deese (Note 1) has taken yet a third approach. His analysis was developed from examination of numerous expository discourses by well-educated adults speaking at such public events as a city council meeting, a radio show, a graduate seminar. The speakers had planned the gist of what they wanted to say but were not reading from notes; that is, they spoke spontaneously on subjects to which they had given much thought. His goal was to analyze the most syntactically complex speech commonly found.

In the present study, our corpus of data is similar to that of Labov and his colleagues: narratives about personal experiences. The term "narrative" will be used only to describe recounting of personal experience, whereas the term "story" will be applied to fictional tales. Labov's narrators were adolescents and adults, whereas ours are all young children between 3 and 9 years old. The children were encouraged to tell narratives about events that they witnessed or participated in (eg. going to the doctor), rather than about fictional characters or standardized plots. A number of investigators suggest that children talk longer and in a more complex way about topics in which they are interested or have personal involvement (Cazden, 1970; Cowan, Weber, Hoddinott, and Klein, 1967; Labov, 1970; and Strandberg and Griffith, cited in Cazden, 1970).

The Psychological Reality of Structure?

This project is preoccupied with the structure, or schemata, of narratives. It is fitting then what we specify how we construe the structures we discuss. From any point of view, structure is a formal description of regularities to be found in language. But while we prefer to stop with this definition since we only looked at the production of narratives about first-hand experience, others do not. (This debate has been almost exclusively conducted with respect to the structure of the widely-publicized story though the lines of argument apply equally to structures of the other two analyses we consider.)

A number of researchers who deal with story grammar suggest that story schemas capture the structure of human memory. The following quotes are illustrative of their position.

> The present study is concerned with the extent to which materials having a common type of schematic organization lead to similar ways of organizing and retrieving information among various groups. Stories should provide ideal material for this kind of cross-cultural comparison, since similar types or organization of stories are found in folktales from around the world. The structure of folktales may even be a cultural universal, perhaps reflecting a universal structuring of human memory (italics ours). Presumably stories that survive in an oral tradition are either optimally structured for memorability in the first place or else have attained such structure through repeated tellings... The present study is an initial test of the notions discussed above. We made a working assumption that the organization of simple stories is a cultural universal and, furthermore, that it is consistent with daily modes of comprehension and remembering that are also universal, regardless of type of culture or amount of schooling. (Mandler, Scribner, Cole and DeForest, 1980, p.21)

> It is the isomorphic correspondence between incoming information and underlying cognitive structures which allows a subject to construct and retrieve an accurate representation of stories, not that story memory is an abstractive process. (Stein and Nezworski, 1978, p.191)

These researchers suggest that they have provided evidence supporting the psychological reality of (episodic) structure. Thus Mandler et al. (1980) found highly similar patterns of recall of stories by Liberian and American people; the fact that two very different peoples do the same things in recalling stories supposedly hints at a cultural universal, one way of supporting the psychological reality of episodic structure.[3] Stein and her colleagues (eg. Stein and Nezworski, 1978) have been occupied with showing that structure affects the nature and accuracy of story memory (the more ideal the structure, the more accurate the recall), in addition to guiding the reorganization of stories that do not conform to episodic structure. McClure, Mason, and Barnitz (1979) found that younger (3rd grade) children are more dependent upon a story following a normal, episodic sequence. In comparison to 6th and 9th graders, the younger children were much less accurate in correctly sequencing randomized comments from a story that began with a question or with the conclusion of a story than they were in sequencing randomized comments from a normal episodic story. This occurred despite the fact that aspects of the surface

text such as pronominal reference admitted only of the correct, if abnormal, sequencing. This experiment was also offered to show that ideal episodic structure is somehow primary developmentally, that it is psychologically real in that it represents how a story is first comprehended and organized for recall. Bower (1978) showed that people remember a text to the extent that it articulates the goal and plan of the main character, and that a character's alleged motive can influence the reader's interpretation of a text, affecting inferences that in turn distort recall of that text. Again, he uses these findings to argue that episodic structure, with its emphasis on goals and plans, captures the essence of human memory for brief stories.

The quotes and the findings above are sampled from many more like them. Most researchers feel that by delineating the structure of stories, recalled or produced for the first time, we have taken an x-ray of human memory. But there is at least one published exception to this interpretation. Schank (1980) says:

> It happens that ... story grammar has the important kinds of things highlighted, but that hardly argues for the psychological reality of story grammars. Here again we have the notion of formal descriptive structure being confused with that of higher level mental structure. Because one can write rules to describe what people do, it does not follow that people use those rules.

This debate is reminiscent of an older one concerning the psychological reality of sentence structures. After an extensive review of that literature, Fodor, Bever, and Garrett (1974) draw some pertinent conclusions. First, they conclude that structural descriptions of sentences are psychologically real in the sense that "they specify at least some of the descriptions under which linguistic messages are interpreted and integrated (Fodor et al., 1974, p.273)." It would seem that the same could be said of discourse structure: it captures some of the expectations we have of stories, expectations which in turn affect our comprehension and recall of stories.

But Fodor et al. (1974, p.270) also conclude that "The currently available data provide no convincing evidence that <u>any</u> syntactic description of a sentence is isomorphic to its representation in long-term memory." Again, we feel that the same must be said of the data pertinent to discourse structure: we do not believe that there is convincing evidence of a one-to-one correspondence between memory and even an aggregate of structure as envisioned by all three systems we use put together let alone episodic structure by itself.

The evidence used to argue for the psychological reality of (episodic) structure relies of necessity almost exclusively on linguistic representations of imaginary experiences. We suggest that structures, no matter how envisioned, are a form of organizing stories or experiences that is used in telling them, whether for the first time or the second, as in recall. We construe such structures as regularities of expression in language. These regularities are habits adopted by Americans (and perhaps others) when they are young children, habits used in telling stories, habits that reveal and promote expectations on the part of listeners. These structures may not necessarily represent the contents of memory. In other words, people may remember other kinds of information about a first- or second-hand experience but not usually incorporate them into their linguistic representations, or expressions, of that experience.

This suggestion is supported by the work of Evans (1980), and Omanson, Warren, and Trabasso (1978), as well as by our own data. Evans investigated kindergarten, and 1st, 4th, and 8th grade children's descriptions of various childhood games such as Hide-n-Seek, Simon Says, Musical Chairs, and Doggie, Doggie, Who's Got the Bone. She first asked children to tell her everything they could about how to play these games, and then she asked them questions which probed their knowledge of specific aspects of the games. She found that younger children in particular know far more than they report. Interestingly, the information they delete is not random. Their descriptions are not simply a reduced version of what they know but instead a systematic distortion of their knowledge. When the children told her "everything they could about how to play," they gave extended descriptions of the specific actions involved while playing the games, such as running around chairs in Musical Chairs, hiding the bone in Doggie, Doggie, Who's Got the Bone, copying a leader's actions in Simon Says, and so on. What they failed to volunteer, however, is information on how the game is set up, eg. that there is music which repeatedly and unexpectedly stops and that there is one less chair than there are players in Musical Chairs, or that there is a person in the middle of a circle ("it") in Doggie, Doggie, who hides his or her eyes while an object (designated the "bone") gets hidden behind the back of one of the surrounding children. The children knew this information and provided it when probed, although it was deleted in their original descriptions. Also deleted was information on how the games terminated - how a winner was chosen or how the next person to be designated "it" was chosen. Again, the children provided this information when probed, although not before. The important point to note is that the children's linguistic representations were not an accurate reflection of the content of their memory, nor even a reflection that is merely reduced in detail.

Omanson et al. (1978) found parallel results in their study of 5- and 8-year-old children's recall of stories. Children provided more story information under probed-recall conditions than under free-recall conditions. The core stories Omanson et al. asked children to recall were rather ambiguous, and for some children, these stories were embedded within a context that disambiguated many of the actions and referents of the story protagonist. Although children made more inferences and better ones when they were given such a context, Omanson et al. found that simple recall of the story propositions was less affected. In other words, here again linguistic representations may not be isomorphic with memory for those stories, since children did not linguistically represent increased knowledge and understanding even when they had it.

Our own data suggest the same. We were very careful not to probe for specific information while the children were narrating, since we did not wish to impose our notions of structure upon the children's narrations. But, being human, we slipped occasionally. Although this was rare, we did sometimes probe for specific information; when we did so, the children provided it, even though this information was not spontaneously incorporated into their narratives. The following is an example: During a narrative about what happened to a child at a hospital to which he was taken, the experimenter asked: "Why did you go to the hospital?" The child replied, "I was sick."

Thus, we see that whenever probes are used, there is more in memory than is linguistically represented when children tell of their personal or vicarious experiences, real or fictional. What would happen if children were asked to recognize aspects of previous experiences that they have not represented? This question is rhetorical, since it is well-known that recognition surpasses probed recall, not to mention free recall.

Linguistic representations are usually episodic whether people are telling about something that really happened to them or retelling a story they have heard about someone else or inventing a story about, say, cookie monsters. Mandler and her colleagues, and Stein and Nezworski all interpret this congruence of linguistic representation to mean that the episodic schema is a structure of memory. We feel this interpretation is unwarranted. Rather, we interpret this congruence of linguistic representation to be just that - a congruence of linguistic representation, not a structure of memory.

OVERVIEW OF THE BOOK

After describing our methodology (Chapter 2), we look at what we obtained by using it, ie. the children's production of narra-

tives, how many, how long, about what, and so on. Then each of our three methods of analysis is presented and we evaluate how well each captures the regularities of structure to be found in narration. First, high point analysis is described (Chapter 4) and the results of applying this system to our data are detailed (Chapter 5). In parallel fashion, the other two approaches are described and empirical findings are presented (Chapters 6 and 7 for episodic analysis, and Chapters 8 and 9 for dependency analysis).

Presentation of the three systems in isolation, however, only partially fulfills our purpose in writing this book. Chapter 10 explicitly compares these three systems to each other - Are they redundant ways of describing the same structures? Do they capture very different sorts of information? What are the strengths and weaknesses of each system? These questions and others of similar ilk are addressed. In Chapter 11, we consider the issues of what makes a narrative good (that is, what are the properties that people like when they hear/read it), and what good is a narrative in considering the interface between the child and his or her social world. Furthermore, we relate our structures (as defined by all three systems) to the world of literature.

This is a book about children's narratives; thus, many that we collected are found in these pages. Forty-nine are used as examples to illustrate various points or types of structure, and another 24 can be found in Appendix 3, two from girls and two from boys at each age level. Appendix 1 lists all of our narratives, where they are to be found, and the age and sex of the children who produced them. Their classification by each system is found there too. We hope that our readers will get some feeling for the skills of children as narrators from these pages.

2
Method

SUBJECTS

Ninety-six white, predominantly working class children, aged 3½ to 9½ years, chosen from a nursery school and an elementary school in a small town in Ohio, participated in the present study. There were sixteen children, eight boys and eight girls, in each of the six yearly age ranges, with mean ages of 4 years, 1 month, 5 years, 1 month, and 6 years, 7 years, 8 years, and 9 years, 0 months, respectively. Two additional subjects were dropped because of a failure to produce at least three narratives. The authors served as experimenters, and half of the available subjects at each age and sex level were randomly assigned to each experimenter.

PROCEDURE

Rapport was established with each child individually within the context of his or her classroom and playground. When the children were judged to be comfortable with us, ie. readily and spontaneously talked at length to us over a period of a few days, they were taken individually to a separate room where they were given a picture to put together out of construction paper and paint. The purpose of this task was twofold: it minimized the self-consciousness of the child, and it provided topics of conversation (eg. a picture of a doctor prompted stories about visiting one). While the child was working, he or she was given up to 18 verbal prompts, embedded in conversation, which consisted of short narratives about specific topics found to be of interest to children in pilot testing, such as car wrecks, trips to the doctor

and the hospital, etc. The short narratives were followed by a couple of questions about whether the child had had any similar experiences.

The general procedure outlined by Labov (1972) was followed, in that we raised a topic of conversation (in our case, by means of a short prompting narrative followed by a question of the form "Did anything like that ever happen to you?" and in his case, by means of a question such as "Were you ever in a situation where you were in serious danger of being killed, where you said to yourself - 'This is it'?"). When the subject said "yes," we asked follow-up questions such as "What happened?" or "Tell me about it." To quote Labov's discussion of this interview technique:

> Note that the original question calls for only one or two words: this is a "Yes-No" question. The subject first becomes committed to a narrative by a simple 'yes.' He then becomes involved in the more detailed account of what happened as a necessary justification of the claim made by this first response. The initial impetus provided by the Yes-No question is an important element in this procedure. Many formal interviews use questions of the form "Can you tell me something amusing (dangerous, exciting, important) that has happened to you?" Though such questions will produce some response in some listeners, they are quite unsatisfactory as a rule to both speaker and interviewer. (p. 354).

The entire conversation was tape-recorded.

An example of a prompt is the following:

> "I took my cat to the vet last summer and when the vet was about to give him a shot, my cat took off and ran around the office. Do you have any cats or other pets? (If necessary: Did anything every happen to your____?)"

Our prompts concerned specific experiences that were more or less unified or circumscribed in time. They did not ask for recollection of generic experiences (eg. "tell me about all the sports you play"), nor did they ask about experiences that are dispersed over long periods of time (eg. "tell me about how you learned to play baseball"). We felt that recollections of specific, discrete experiences were likely to inspire more elaborate narratives more representative of a child's linguistic competence than recollection of experiences that were not coherent to begin with.

Great care was taken to maintain the interaction as a conversation rather than as an interrogation. The children's narrations were maintained by such nonspecific prompts as "huh huh", "and?",

"then what happened?", or verbatim repetitions of a portion of the child's last utterance. Such repetition both reassured the child of our interest and aided later transcription by clarifying soft or impeded speech.

There was a need for many prompts in order to insure sparking the children's interest. If their interest was not engaged, their narratives were either non-existent or short and simple-minded, giving no hint of the verbal complexity of which they were capable. (For similar conclusions about non-narrative speech, see Cazden, 1970; Cowan et al., 1967; and Labov, 1970). For example, a 6-year-old girl (J.) showed no interest in one of our most successful prompts, but produced quite a complicated narrative to a different prompt. The following narratives are reproduced verbatim. It should be kept in mind that oral speech, even of adults, is much less polished than written speech. The experimenter is referred to as "E". Underlining denotes unusual vocal stress.

E: One time I was on a trip with my family, and we were driving along and all of a sudden our tire blew up and we went jerking off the road and we crashed into the guard rail.
J: Hmm?
E: We went crashing into the guard rail. Have you ever been in a car wreck?
J: No-o...
E: No?
J: We used to have show and tell but I don't know why we don't any more.

Narrative # 1

E: When I was at the doctor's office, there were these twin boys there. They were about five years old, and one of them was looking at a magazine and the other wanted to read the same magazine, so they fought over it and the mother ended up taking it away from both of them. They fought over every magazine either of them picked up. Do you have any brothers or sisters?
J: I just have a, one brother. He's in second grade.
E: Do you ever fight with him like that?
J: Yeah. He fights and fights and fights and fights.
E: Is there any fight that you really remember that you had with your brother?
J: Yes. I had one the other day. Over <u>my candy</u>.
E: Well, tell me about it.
J: Well, not over my candy. It's just that I <u>knocked</u> something down and it was only <u>two things</u> and he said, "<u>Put them back up</u>."

E: So you knocked something down and he said, "Put them back up." Then what?
J: It's only two things. And I didn't, so we fighted and fighted. So we had to go in our room.
E: So you had to go in your room? And?
J: That's all that happened. Really.

Successful prompts tap types of experiences that are unusual for any particular child, but that many children are likely to have met with in some form at least once in their lives. Specifically, we included experiences such as sickness, near-drownings while swimming, bee-stings, car accidents, spilling accidents, vacations, pet adventures, sibling squabbles, etc. By giving all children the same prompts, we are imposing the experimental control we considered valid for this kind of data. The uniformity of prompting narratives provided a useful conversational map and potentially fruitful topics according to pretesting. The prompting narratives were sufficiently general, however, that they permitted the child great flexibility in reacting to them. Some children spontaneously produced so many narratives that we used few of our prompts.

The youngest children often had more difficulty in making the leap from our prompts to their own experiences. In general, when older children were given a prompt about taking a cat to the vet, for example, they easily jumped to a narrative about their dog getting hit by a car. For the youngest children, however, we often had to closely match our probing questions to the children's experiences. Thus, for example, after giving our prompt about taking our cat to the vet, we would have to ask the younger children whether their pet had ever had babies, or had run away, or had gotten hit by a car. Again, to avoid resembling an inquisition, we would only try one or two specific questions per prompt. If we did not succeed in eliciting a narrative by the time, we moved on to another prompt.

It is now time to turn to how successful this methodology is in eliciting narratives about personal experiences from children.

3
Production of Narratives

DESCRIPTION OF OUR DATA

Children are quite willing to talk at length about many of their adventures. The taped conversations of the children were transcribed up to a cut-off point of 18 pages of transcript; the conversations of very few children exceeded this limit. An impressive total of 1124 narratives was produced. Only two children (a 4-year-old boy and a 7-year-old girl) produced fewer than three narratives and were replaced by other children. The average number of narratives produced by the children is found in Table 2.

The children produced an average of 11½ narratives each; this varied from three narratives (our criterion for inclusion) to thirty narratives. An analysis of variance, with the crossed factors of age, sex, and experimenter, was calculated for the children's production of narratives. Not surprisingly, older children produce more narratives than younger children, $F(5,72) = 5.89$, $p<.01$. There is a sex difference in production of narratives, with girls producing more narratives than boys, $F(1,72) = 9.39$, $p<.01$. The greater talkativeness of girls has been found in many studies; see for example Maccoby and Jacklin (1974).

Most of the children's narratives were prompted by our narratives. An analysis of variance, with the crossed factors of age, sex, and experimenter, was calculated on the number of prompts responded to by the children (see Table 2), and older children responded to more of our prompts than did younger children, $F(5,72) = 3.61$, $p<.01$, and again, girls responded to more of our prompts than did boys, $F(1,72) = 7.00$, $p<.01$.

Table 2. The Average Number of Prompts Responded to, the Number of Narratives Produced, and the Mean Length of the Children's Narratives - All Narratives and Their Longest Three - at Different Ages

Measure	Sex	Mean Age 4	5	6	7	8	9
Average number of prompts responded to	girls	6.2	8.0	6.6	8.9	8.2	9.9
	boys	5.6	6.6	5.8	8.5	6.5	7.1
Average number of narratives produced	girls	10.5	10.5	12.0	14.3	13.1	16.1
	boys	8.4	9.0	8.1	13.6	9.8	14.0
Average length of narrative	girls	7.3	7.3	9.9	10.7	12.6	12.0
	boys	6.7	8.1	9.8	9.7	9.9	13.9
Average length of longest 3 narratives	girls	12.2	15.6	17.4	19.1	20.4	21.6
	boys	9.0	12.3	13.1	17.0	14.8	24.1

However, not all of the children's narratives were prompted; one fifth of the narratives produced by the children were volunteered. In general, the children did not start volunteering narratives about topics of their own choosing until they had responded to some of our prompts; the child who came into the room volunteering narratives was unusual.

The lengths of the narratives were assessed by dividing each narrative into narrative clauses, defined as sentences or independent clauses, as Labov does. The narratives varied from 2 to 84 narrative clauses. An analysis of variance was calculated on the length of the children's narratives, with the crossed factors of age, sex, and experimenter, and again not surprisingly, the older children's narratives are longer than those of the younger children, $F(5,72) = 7.09$, $p<.01$.

Because many narratives of the youngest children were very short, are their narratives too impoverished to analyze meaningfully? More than three-fourths of the 4-year-olds of both sexes produced narratives that were 10 or more narrative comments long, and two children (both girls) produced narratives that contained more than 20 narrative comments. Thus most of these children's narratives are not impoverished in terms of length, and furthermore, a good sample of reasonably long narratives was produced by our youngest age group.

There was also a significant age by experimenter interaction, $F(5,72) = 3.93$, $p<.01$. This was due to two age groups (both the youngest and oldest ages) that produced longer narratives when

talking to one of the experimenters. There were a few unusually loquacious children in these age groups, and this difference between experimenters was not present at other ages. Since preliminary analyses showed no experimenter effects in any other analyses, all subsequent data from the two experimenters were combined.

Despite strong gender effects in responsiveness to prompts and production of narratives, there was no significant effect of gender on the mean length of each of the narratives produced, $F(1,72) = 1.84$. In general, the boys' narratives are as long as those produced by the girls, though this equivalence is not found in the following analysis.

For many of the analyses discussed later, only the three longest narratives produced by each child were selected. An analysis of variance, with the crossed factors of age and sex, was calculated for the average length of the children's three longest narratives, and as expected, older children's narratives are longer than those of younger children, $F(5,84) = 6.76$, $p<.001$. There is also a sex difference in average length of these selected narratives, $F(1,84) = 9.33$, $p<.01$; girls' narratives are longer than those produced by boys. This finding contradicts the lack of sex differences in the average length of the total corpus of narratives produced (above), but this is not surprising. Since girls produce more narratives overall, selection of their longest three would bias them toward greater average length. Nevertheless the narratives produced by boys are reasonably long and complex and quite similar to those of girls. In fact, the two children who were our best narrators, who produced the longest and most complex narratives, were both boys. One of these boys was also our most productive narrator, producing a grand total of 30 transcribed narratives and a number of narratives that were not transcribed because we only could afford 18 pages per child.

Because many of the children's narratives were prompted by narratives of our own, it is possible that the children were merely modeling our narratives. However, this possibility seems unlikely since parallels between our narratives and the children's were extremely rare. We also avoided giving overt evaluations of our prompting narratives such as "that was really scary" or "I loved my cat." Overt evaluation is the only easily extractable, generalizable component of narratives. Thus, the experiences that the children narrated and what they said about the meaning of those experiences were clearly their own. Furthermore, it will be recalled that approximately one fifth of the children's narratives were unprompted, and some children even began narrating before we had given a single prompt. These unprompted narratives did not differ from those that followed a prompt. How do our narratives (prompted or not) compare with other tales children have told?

COMPARISON WITH OTHER EXISTING DATA

Few personal narratives have been collected from children, and thus little data exists with which we can directly compare our body of narratives. Kernan (1977) and Labov and his colleagues (Labov, 1972; Labov et al., 1968, and Labov and Waletzky, 1967) are the only investigators who have elicited narratives from children. Kernan's sample is quite small - 18 narratives altogether, six from girls who were 7-8 years, 10-11 years, and 13-14 years old respectively. In addition, he selected narratives of intermediate length, deleting both long and short narratives from his sample. Since our sample is so much larger, it is difficult to compare our data. Most children in our sample are younger than those in Kernan's sample; the only sample in common is the 7-8 year olds' narratives. However, his sample consists of 6 narratives at this age level, and ours consists of 406 narratives. This whopping difference in productivity is not very meaningful because we encouraged them to keep talking and analyzed every narrative we collected while Kernan only reports his analysis of 18 narratives and does not report how many others were collected.

Labov and his colleagues have collected a larger body of narratives from children and adults than has Kernan. But all of Labov's subjects are older than ours, since his youngest group is 9-13 years of age. These investigators have suggested that young children are poor narrators. This discrepancy with our data reflects differences in the manner the data were obtained. Labov and his colleagues asked children to talk about certain specified topics; television programs proved to be the most successful topic. The latter is vicarious experience, and Labov persuasively argues that narratives of vicarious experience such as television programs lack the affective evaluation characteristic of personal narratives, and thus are poorer narratives.

In other words, Labov's conclusion that children are poor narrators may reflect the topics he gave them rather than their skill per se. Furthermore, because their interview consisted of probe questions, there seemed to be a test-like tenor to the interchange between experimenter and child, despite their concern to avoid that. By exchanging narratives with the children rather than asking isolated questions, we managed to hold a real conversation with them. In such conversation, they told about their own experiences in ways that are structurally well-formed.

Watson (1975), and Watson-Gegeo and Boggs (1977) have also collected narratives from children, but these are collective narratives that interweave real events with fantasy, with two or more narrators who generally alternate in contrapuntal style. They bear little resemblance to our narratives in delivery, form, or content.

A number of other investigators (Appleby, 1978; Botvin and Sutton-Smith, 1977; Glenn and Stein, Note 2; Pitcher and Prelinger, 1963; and Sutton-Smith, Botvin, and Mahony, 1976) have elicited or analyzed existing fictional stories from children. These fantasy stories about, say, witches, cookie monsters, and little girls who live on beaches, are very different from narratives about real experiences. Nevertheless, these fictional tales may share similarities of structure with our factual narratives. We look for such hypothetical similarity in the current study, since one of our three methods of analyzing narratives is derived from the structural categories developed by Glenn and Stein to analyze children's fictional stories.

Two relationships may exist between factual narratives and fictional stories. On the one hand, fictional stories may be more complex than personal narratives because the child is not tied down by the need for factual reporting of events. Thus, more attention can be paid to the overall structure of the story. On the other hand, imaginary tales may be less complex than narratives because the child may have ordered the real events and perhaps even previously reported them. This would allow the child to devote more attention to the organization of the narrative. In comparing our narratives with the fictional stories obtained by Glenn and Stein, the latter relationship is suggested. Our children produced more story structures as well as more complex ones, than did Glenn and Stein's children. Hence, oddly enough, our data provide a better test of their hypotheses regarding age changes in the structure of stories than do their own data. This is not very surprising since we analyzed the longest three narratives produced by the children in terms of their story grammar system, whereas they obtained only three stories from each child and thus could not eliminate shorter stories if longer ones were obtained. There are some differences in ages of the two sets of subjects although they are generally overlapping. Our sample of 96 children included younger ones, and we included each age between 3½ and 9½ years, whereas Glenn and Stein's sample of 54 children were aged roughly 5, 8, and 10.

Our intention in the present study was not to compare real vs fictional productions by children, since we did not ask our subjects to produce imaginary stories, although this comparison would be a good question to pursue in the future. However, such a study would be fraught with methodological difficulties. One would have to insure that the child did not pattern a fictional tale on a recently told narrative, merely changing the names of the characters and a few details of the events, nor merely give a slightly changed version of a story he or she knows already, such as a familiar fairy tale. Furthermore, eliciting a rich sample of imaginary tales may be more difficult than encouraging the child to talk about unusual events in his or her life; in the latter, the child is beginning with something concrete and known.

Overall, then, we have gathered a much larger and richer sample of extended discourse from young children than have previous researchers. We now wish to consider why this might be.

METHODOLOGICAL CONSIDERATIONS

When eliciting language from young children, methodological considerations are of paramount importance. In other words, both the task set before the child and the topic of discourse strongly affect the kind of speech the child produces. A number of investigators (eg. Bever, 1970; Brown, 1973; Cazden, 1970; Labov, 1970; Menig-Peterson, 1975; and Menig-Peterson and McCabe, 1978) have suggested that children are better at doing things that they are used to doing or at least doing things in familiar places with familiar objects.

A recent study by Hood and Bloom (1979) is a notable example of how different tasks may elicit remarkably different kinds of speech from children. They recorded 2½- to 3½-year-old children's everyday speech in their own homes, and assessed their use of causal connectives such as 'because' and 'so'. They found that even such young children can appropriately use causal connectives. Other investigators have found quite different results when they have used more traditional tasks where the child is asked to construct or respond to isolated causal sentences in a constrained experimental task (Bebout, Segalowitz, and White, 1980; Corrigan, 1975; Emerson, 1978; Katz and Brent, 1968; Kuhn and Phelps, 1976; Menyuk, 1969; Piaget, 1928; and Werner and Kaplan, 1963). They all conclude that children do not understand causal connectives until they are 7 or 8 years of age, and full mastery of these connectives may not occur until age 10. This remarkable discrepancy between Hood and Bloom's findings and those of other investigators may be due to their methodological differences (we shall return to the issue of causality in Chapter 7).

In the investigation reported here, the children's speech was constrained only insofar as we encouraged narration; but what the children talked about, how they talked about it, and how much they talked about it - all were determined by the children themselves to a large extent. This seems to be reflected in the number, complexity, and length of the narratives they produced.

The topic of discourse also affects children's speech. Strandberg and Griffith (cited in Cazden, 1970) asked children to talk about photographs they had taken either at school under the experimenter's instructions or at home of personally relevant objects such as their favorite climbing tree or their mother's mouth. Their speech was much more extensive and complex when talking about objects that were meaningful to them. Similarly,

Cowan, Weber, Hoddinott, and Klein (1967) asked children to talk about pictures of various topics, such as people standing around a new car or children at a birthday party, and found large differences in the sort of speech elicited by different pictures. Personally meaningful topics were more successful. Williams and Naremore (1969a and b) also found parallel large differences in children's discourse depending upon the topic they were asked to talk about: their favorite programs, the games they played, or what they wanted to be when they finished school. Favorite TV programs and games elicited much longer and more complex speech than did questions about a future job.

We too found that children responded to some topics more reliably than to others. However, despite such general patterns, remember that there are considerable individual differences. Table 3 shows the number of narratives that children produced in response to our various prompting narratives on different topics. Keep in mind the fact that many children did not get all of our prompts since they took off on their own topics in our loosely structured conversation. So long as children continued to produce narratives we did not impose our preselected topics upon them, since we felt that to do so was an inappropriate slavishness to experimental rigor. We see, then, that children in rural Ohio are more likely to respond with narratives of their own to narratives about trips they've been on, adventures with their pets, car wrecks they've seen or been in, and visits to doctors than to narratives about seeing people engaged in the type of job they'd like to have when they grow up, plane, train, or boat rides, or fights they've been in.

But simply looking at the number of narratives children produce in response to a particular topic is not enough. Of perhaps even greater interest is the length and hence the complexity of what they say in response to a particular topic. Table 3 shows that children talk at greater length about car wrecks and hospitalizations than about domestic accidents in which they spilled or broke things, or about their future jobs. Overall, then, children like to talk about (and produce numerous, lengthy narratives about) trips, car wrecks, hospitalizations, and pets. They produce many narratives (but not especially lengthy ones) about trips to the doctor, and although they talk less frequently about parties, their narratives about them are long.

Talking about successful prompts in terms of the average lengths of the narratives they elicited is still not enough. We were struck by similarities in the focus or angle children took in their narratives. In talking about a car wreck, one could stress the way it interfered with one's plans, or the damage to the car or landscape, or the events precipitating the accident. Instead, our children were prone to dwell on how a victim's "head was barely

Table 3. Number and (Average Length) of Narratives Produced for Each Prompt Topic

Topic	4	5	6	7	8	9	Average Number	Average Length
Spills, breakage	9 (6.1)	9 (6.1)	11 (7.1)	13 (6.5)	16 (9.3)	15 (8.1)	12.2	(7.4)
Trip	16 (6.8)	17 (7.3)	15 (10.5)	38 (11.0)	17 (11.4)	24 (13.4)	21.2	(10.4)
Plane, train, boat	9 (5.6)	9 (7.4)	1 (11.0)	6 (9.8)	7 (10.7)	4 (14.2)	6.0	(8.8)
Car wreck	9 (9.4)	14 (8.9)	19 (11.3)	15 (11.2)	24 (16.0)	27 (15.3)	18.0	(12.9)
Party	8 (8.9)	8 (7.9)	3 (9.7)	6 (13.3)	8 (11.9)	11 (12.1)	7.3	(10.7)
Ripped clothes	4 (6.8)	7 (7.4)	4 (9.8)	10 (8.2)	12 (11.8)	9 (9.2)	7.7	(9.2)
Fight	4 (3.3)	6 (7.7)	8 (10.9)	9 (9.1)	8 (13.4)	5 (11.8)	6.7	(9.9)
Doctor, shot	12 (5.9)	11 (6.3)	20 (10.9)	25 (9.3)	13 (9.3)	20 (11.5)	16.8	(9.3)
Hospital	14 (9.0)	14 (8.3)	9 (14.0)	17 (9.2)	11 (13.6)	17 (15.1)	13.7	(11.4)
Pets	12 (6.0)	14 (8.9)	17 (11.4)	21 (10.1)	20 (11.4)	28 (10.3)	18.7	(10.0)
Urchin/Bee sting	3 (7.0)	14 (7.1)	11 (6.6)	10 (9.6)	9 (11.2)	21 (10.8)	11.3	(9.1)
Future job	0 (-)	0 (-)	3 (7.7)	3 (7.7)	5 (6.6)	1 (13.0)	2.0	(7.7)
Volunteered or misc. prompts	50 (7.0)	32 (8.1)	38 (8.5)	50 (11.6)	42 (9.8)	60 (15.2)	45.3	(10.8)

hanging on," or the death of participants. When children talked about death, they did so in a markedly different fashion than when they talked about any other topic. Oddly enough, such narratives were almost purely descriptive rather than emotionally toned in the same way other narratives were. (See Menig-Peterson and McCabe, 1977, for a fuller discussion of this issue.)

In a nutshell, children are interested in pain, gore, and Keystone Cop-style mishaps, as cartoonists and scriptwriters have known for years.

But, you might ask, why shouldn't they talk about blood, guts, and gore when we are asking them about car wrecks, bee stings, injuries, trips to the doctor, and hospitalizations - topics that easily lend themselves to such a focus? First of all, as we have suggested, children need not have taken the focus they did. But more importantly, we selected the prompts we did precisely because they were so successful in pretesting. Moreover, we asked the children about many other topics, such as plane, boat, or train rides, sibling fights they have had, domestic catastrophes and ripped clothes, but as we have seen, these are less successful.

As all of us have found, topic is important; children are more likely to talk about some topics than others, and they talk differently about different topics. Of course, no topic is infallibly interesting to all children. For example, urban children might well hold forth on other topics.

Rather than looking at the amount and complexity of their speech, other investigators have looked at children's causal or moral reasoning as a function of the topic of their conversation. Shultz and Butkowsky (1977) found that kindergarten children could reason about multiple sufficient causes in the attribution of behavior (eg. if there is no external environmental cause for someone's behavior then there must be an internal motivational one, and vice versa), but they could do so only if the vignettes were presented as videotapes of real behavior. If the same information was presented in the form of hypothetical stories, children showed little ability to consider alternative causes of events. Keasey (1977) investigated the maturity of children's moral reasoning when they were told a story and asked to assess the naughtiness of a child's behavior. If children pretended to be the central character, they reasoned at a higher moral level than when the same actions were ascribed to an unknown story character. Thus, topic may affect children's level of reasoning as well as their verbal productivity.

Taken together, the above studies suggest that a great deal of caution is in order when evaluating children's language. Task and topic, among contextual factors, clearly affect their speech. (See

Stropner and Nelson, 1974, for parallel conclusions about children's sentence comprehension.) The competence-performance issue rears its ugly head yet again; drawing conclusions about children's competence on the basis of their performance on a specific task in fraught with difficulty.

So far, we have looked at how much children talk. We now look at how they structure what they say.

4
High Point Analysis

BASIC ASSUMPTIONS OF HIGH POINT ANALYSIS: EVALUATIVE VS REFERENTIAL FUNCTIONS OF NARRATION

Labov, a pioneer in the study of personal narratives, focussed on the semantic function and form of such presentations of personal experience. He defined a narrative as "one method of recapitulating past experience by matching a verbal sequence of clauses to the sequence of events which (it is inferred) actually occurred" (1968, p.287).

Labov distinguishes two functions of narratives: reference and evaluation. The first function is simply to relate information to the listener. Thus, some referential clauses abstract the main point of the narrative at its outset. Other referential clauses orient the listener to who and what was involved in the event, where and when the event took place. Still others present the temporal sequence of actions that occurred. But Labov points out that a narrative may reiterate all necessary facts, yet seem difficult to understand because it seems to have no point. In other words, narrators could, if they wished, give the listener a straightforward, unvarnished account of what has occurred in their lives, but this is almost never what they do. Instead, they heavily evaluate those events. Thus, the second major function of narration is to tell the listener something about what the events meant to the narrator or something about the narrator him- or herself (eg. how brave or clever or embarrassed he or she was). In short, evaluation is about why the narrative was told.

To illustrate the difference between the two narrative functions, we have chosen the following two narratives told by girls,

both of whom were stung by a bee. The first was told by an 8-year-old girl "B" and fulfills the referential function completely, but lacks evaluation (it was a very unusual narrative for that reason):

Narrative # 2

E: Have you ever gotten jabbed with anything?
B: By a bee.
E: By a bee. Oh, tell me about it.
B: It got kind of cool one day and my grandma came. She called me and she wanted to know where Dennis was.
E: Where Dennis was?
B: Yeah, and I ran outside to tell her and I was running and I stepped on a bee.
E: You went outside to tell her and you were running and you stepped on a bee. Ah. Then what?
B: Nothing. I just went in the house and had to have something on it.

The second narrative, by a 5-year-old girl "L", fairly bursts with evaluation:

Narrative # 3

E: Have you ever gotten jabbed with anything?
L: Uh huh. I got jabbed with a bee.
E: By a bee. Oh, tell me about it.
L: See, I got jabbed on my foot. I was barefooted. I screamed and I screamed and I cried and I cried. I screamed and I screamed. Until my next door neighbor came out and my Dad came out and my brother came out. And, they all carried me into the house but after that happened I got to sleep overnight with my neighbor.

This second child clearly conveys a sense of the enormity of her suffering. In addition, it required the efforts of two adults and an adolescent boy to carry this afflicted 5-year-old into her house, and she merited as a reward for such pain the special treat of a night spent at a neighbor's house. This is the epitome of evaluation. But as far as we can tell, the first girl's experience meant little to her.

In the present analysis, Labov's approach will be heavily drawn upon. Each narrative is divided into clauses, and each clause is then individually categorized. Subsequently, the entire passage is classified according to the way clauses are structured. Each step in the scoring system, ie. the definition of acceptable clauses, the classification of clauses, and the classification of the passage will be discussed in the following three subsections.

DEFINITION OF NARRATIVE CLAUSES

Narrative clauses in Labov's system are composed of two types of independent clauses. Restricted narrative clauses recapitulate a single event which occurred at some discrete or restricted point in time such as, "he hit me." These are distinguished from free narrative clauses (eg. "I know a boy named Joe"), which are true during the whole length of the narrative and which are not as bounded in time as are the restricted narrative clauses. A minimal narrative, then, is "a sequence of two restricted (independent) clauses which are temporally ordered; that is, a change in their order will result in a change in the temporal sequence of the original semantic interpretation" (Labov and Waletzky, 1967, p.28). Note that subordinate clauses cannot serve as narrative clauses because they may be tacked on before, after or even during the main clause without affecting the inferred order of events. For example, the following sentences are equivalent: (1) while we were there, we played ball; (2) we played ball while we were there.

Grimes (1975) also stresses the importance of matching the time sequence of the original event with that of the narration, noting that this is a "strict requirement for all narration" in many languages (p.34). When the narrator departs from this normal order of narration, he or she must clearly mark the departure as, for example, a flashback. Grimes notes that in successful flashback narratives, "there is no doubt about where each episode fits into the whole" (p.43). Within the context of a flashback episode, of course, there is the normal match of progressive narration to progressive events.

The different types of narrative clauses will be defined, and for a summary the reader is referred to Table 4.

Complicating Action and Resolution

These are temporally restricted narrative clauses which refer to chronologically-ordered events. The complicating action is the series of events which occur up to and including the evaluative high point (discussed below) of the narrative. This is the backbone, the information component of narratives, and is the only essential type of comment.

Resolution, then, is that portion of the sequence of chronologically-ordered events which follows the evaluative high point. Such later events resolve the high point action in some sense, clearing the stage or capping off the experience.

Table 4. Types of Clauses in High Point Analysis

Complicating Actions - Specific events which occur before the evaluative high point of the narrative.
Resolutions - Specific events which occur after the high point, and resolve the high point action or crisis.
Appendages
- Abstracts - Summaries of the narrative that occur at the beginning.
- Attention-Getters - Explicit bids for listener attention.
- Prologues - Statements of the ending or lasting significance of a narrative, occurring at the beginning.
- Codas - Formalized endings of a narrative.

Orientation - Statements that provide the setting or context of a narrative, including:
- Participants
- Time
- Location
- General conditions
- Ongoing events
- Tangential information
- General cases
- Imminent events
- Objects or features of the environment

Evaluation - Statements or words that tell the reader what to think about a person, place, thing, event, or the entire experience, including:
- Onomatopoeia
- Stress
- Elongation
- Exclamation
- Repetition
- Compulsion words
- Similes and metaphors
- Gratuitous terms
- Attention-getters
- Words per se
- Exaggeration and fantasy
- Negatives
- Intentions, purposes, desires, or hopes
- Hypotheses, guesses, inferences, and predictions
- Results of high point action
- Causal explanations
- Objective judgments
- Subjective judgments
- Facts per se
- Internal emotional states
- Tangential information

Appendages

This is a composite category, and includes narrative comments that are attached to either the beginning or the end of the main body of the narrative. They are superfluous niceties of narration, and are of four types. Abstracts are defined as summaries or encapsulations of the whole narrative that appear at its outset, such as "I broke my leg one time," prefacing a narrative about how it happened. Such remarks also signal a narrative to follow. There are two other types of remarks that signal a narrative: Attention-getting devices are located at the beginning of a narrative, such as, "Guess what I did?" Prologues are remarks that bring a narrative's importance or consequences up to the present time (as do codas, see below), but they occur at the beginning of a narrative. For example, "My arm still hurts," is a prologue for a narrative about breaking an arm.

Codas are endings of a narrative. They can be succinct, as for example, "that's all," or "that was that." They also can tie the events of the narrative together, for example, "they finally took the wreck to a junk yard." Skillful codas bring the narrative's importance and/or effects up to the present time, as in "we only have two dogs now," after a narrative about the death of a dog. This latter type of coda is equivalent to the coda as defined by Labov: devices located at the end of narratives that bridge the gap between the moment of time at the end of the narrative proper and the present. But all of these types of codas serve the general function of closing the narrative, signalling that nothing else happened which was relevant to the story line.

Orientation

Certain free clauses serve as orientation to the people, place(s), time(s), and ongoing behavior of the narrative; they set the stage for the narrated events. Although some orientation is embedded within complicating actions, resolutions, etc. (eg. "Next day I hit him back" is a complicating action that also provides information about time), the bulk of it is not. Therefore, we did not further remark this embedded orientation for this analysis (though we analyzed it in Menig-Peterson and McCabe, 1978). There are nine general types of orientative remarks. These are summarized in Table 4 and outlined in greater detail in Appendix 2.

Evaluation

Evaluation clauses are free clauses which give the point of the narrative: why it was told, what the narrative was getting at, or what to think about a person, place, thing, or event. While

many narrative clauses are fully devoted to evaluation, it is also possible for any narrative comment (complicating action, orientation, etc.) to incorporate evaluation by means of phonology, lexical choice, or attachment of dependent clauses. Thus every narrative comment potentially can be evaluative. We found many different types of evaluation, as did Labov. Some involve simple voice stress or other modification in pronunciation or the insertion of an evaluative word such as "funny" or "very" ("he hit the ball very hard"). Others involve inclusion of an entire sentence or dependent clause in order to give judgments, discuss causes or desires, etc. ("He did it 'cause he was mad; I think that was cool.") The twenty-one types of evaluation are listed in Table 4 and described in Appendix 2.

CLASSIFICATION OF NARRATIVE CLAUSES

In summary, narratives are broken into sentences or narrative clauses. Within each narrative clause, the main or independent clause is scored as one of the following: orientation, complicating action, resolution, evaluation, or appendage. There were several subcategories within some of these five main categories; many clauses were members of several such subcategories and were scored as such. For example, "My Dad and Mom and I were in Wisconsin that Christmas" is scored as an orientative clause with the subcategories of participants, time, and location. We have already noted that some complicating actions, resolutions, appendages and orientations are evaluative, and this is indicated by means of a superscript to the major category designation.

Dependent clauses were also scored; they were always orientation or evaluation. When the dependent clauses were of the same major category as the main clause, we did nothing more than mark the additional subcategories to which they belonged. This happened frequently with orientation and evaluation (it could never happen by definition with complicating action and resolution). Examples include, respectively: "When I was in Florida, it was hot;" "He was ugly because his nose was all bloody."

Some orientative and evaluative dependent clauses are subordinate to appendages, complicating actions and resolutions. Often an orientative comment is subordinate to an evaluative comment and vice versa. When this occurs, the category (and various subcategories) of the subordinate clause is indicated by means of a subscript to the category of the main clause. Examples include: an orientative clause subordinate to complicating action, "When I was in the lunchroom I cut myself;" an evaluative clause subordinate to resolution, "He apologized because he was scared of me;" an evaluative clause subordinate to orientation, "He wore his red shirt, which was my favorite."

With any categorization scheme, one must decide how detailed the analysis will be. In our analysis, we did not take particular account of prepositional phrases, though they are often possible transformations of dependent clauses (contrast "In the lunchroom, I cut myself" with "When I was in the lunchroom, I cut myself."). Neither did we count multiple-subject-single-predicate (other than compound) sentences as separate clauses, as did Labov. Our young subjects naturally had simpler sentences than adults, most of them equivalent to single independent clauses. We will focus on syntactic complexity in the third approach described below, a dependency analysis of children's narratives.

ORGANIZATION OF CLAUSES INTO STRUCTURES

A fundamental question in narrative analysis is how the sequence of clauses of the narrative are related to the sequence of events which occurred. Two timelines are involved in narrative analysis: The timeline of the actual experience (In what order did the events happen?) and the timeline of the narrative (How are those events recapitulated?). In a narrative which is simply a recapitulation of facts, these two timelines will be in close correspondence; each event will be described by one narrative clause. However, in actual narratives which are usually evaluated, this one-to-one correspondence between events and narrative clauses is seldom found. Although the order of events is preserved, the timing of event recapitulation is often altered substantially. Narrators frequently dwell on events by repeating them, by describing their emotional reaction to them, by providing explanations of why they occurred, or by inserting orientation. To quote Labov and his colleagues,

> The emotions which were actually felt at the time may have been contemporaneous with the action, but when they are expressed in separate sentences, the action stops. The very process of stopping the action calls attention to that particular part of the narrative as important, and connected to the point (of the narrative), almost irrespective of the content of the clauses. Any series of non- (event recapitulation) clauses inserted at a point in the narrative will have this effect, and if it is done at a point that may be seen as critical, the listener will hear this as creating suspense. (Labov et al., 1968, p.307)

This manipulation of the timeline of the original events can be seen in the second bee-sting story above. After describing the event of stepping on a bee, the narrator suspends the action by inserting an orientation (she was barefooted), and then dwells for six repetitive comments on her reaction to the bee-sting. By such suspension of action, she is clearly emphasizing the importance of that bee-sting.

The use of a range of techniques to stop the action and create suspense can be seen in the following excerpt from a narrative about barely avoiding a car wreck by an 8-year-old girl (this narrative, # 27, is quoted in full on p.132):

> "We went skidding down the road and it wouldn't stop. So my Mom had to hurry, and the brakes wouldn't work either, and my Mom had to hurry, and this was her car, and she had to hurry and take out the keys. And it stopped right in the ditch."

The narrator repeats her refrain of "my Mom had to hurry" three times, and within this refrain she inserts an orientation and two negative statements: the car wouldn't stop and the brakes wouldn't work. All of these are evaluative; the child appears to be stopping the action for as long as possible to heighten suspense. Deviations from a strict temporal ordering of a-then-b clauses such as the above serve the function of evaluation.

Not all highly evaluated narratives deviate from the temporal ordering of a-then-b clauses. It is possible to incorporate evaluation via lexical choices or syntactic complexity, and such evaluation would not suspend the action or affect the strict temporal progression of event recapitulation clauses. However, in the present graphical analysis of narrative structure, such internally incorporated evaluation will be ignored in order to emphasize the relationship between the two timelines. However, it will be discussed in our analysis of the elements of narratives.

In studying the structure of the narratives produced by children, it was apparent that several patterns of organization were used. One pattern is similar to the typical form of adult narratives found by Labov (Labov, 1972; Labov et al., 1968; Labov and Waletzky, 1967), and which henceforth will be referred to as the "classic" narrative pattern. However, the other patterns were developed by the authors. The types of patterns are summarized in Table 5.

The Classic Pattern

Labov and Waletzky define the "classic" pattern as a prototypical narrative structure. They describe the classic pattern as follows:

> A simple sequence of complication and result does not indicate to a listener the relative importance of these events or help him distinguish complication from resolution. ... Therefore it is necessary for the narrator to delineate the structure of the narrative by

> emphasizing the point where the complication has reached a maximum: the break between the complication and the result. (Labov and Waletzky, 1967, p.34-35)

In the classic pattern, the events leading up to the high point or crisis are recapitulated in a well-ordered series; at the high point the action is suspended and the high point evaluatively dwelled on, then the events which resolved the high point are successively related. The occurrence of an orientation section at the beginning or a coda at the end does not alter this basic pattern.

High points are identified not only structurally via action suspension, but semantically as well. The existence of a pause in the temporal ordering of events is not sufficient to define a high point, although it is necessary. Thus, a narrator may pause to evaluate a number of different points in the complication and resolution of his or her narrative, in addition to the high point. At times a narrator will explicitly identify the high point, as a 9-year-old girl did when she said, "Oh, I gotta tell you the <u>important</u> part."

The classic narrative pattern is illustrated in Narrative # 4, produced by an 8-year-old boy, R. Each narrative comment is sequentially numbered.

Table 5. Structural Patterns of Narratives in High Point Analysis

Classic pattern - The narrative builds up to a high point, evaluatively dwells on it, and then resolves it.
Ending-at-the-high-point pattern - The narrative builds up to a high point and then ends; there is no resolution.
Leap-frogging pattern - The narrative jumps from one event to another within an integrated experience, leaving out major events that must be inferred by the listener.
Chronological pattern - The narrative is a simple description of successive events.
Impoverished pattern - The narrative consists of too few sentences for any high point pattern to be recognized, or the narrative extensively reiterates and evaluates only two events.
Disoriented pattern - The narrative is too confused or disoriented for the listener to understand.
Miscellaneous patterns - Any narrative that does not fit into one of the above categories is classified as miscellaneous.

Narrative # 4

E: Did you ever see cars wrecked?
1 R: Right up by the corner by 303 you know.
2 That's where we live, you know.
3 And back when we had friends camping and, you know this one car, you know, it same right through there
4 and this other car was going so fast, you know,
5 and it didn't stop in time, you know,
6 and it went (crash sound) right into the other one
7 and the other one flipped over
8 and then it caught on fire.
9 It was right by a creek, you know,
10 and guys were grabbing buckets of water
11 and throwing it on the car that was on fire.
12 That creek belongs to us too.

The high point of this narrative is comment 8, the car catching on fire. It is possible to represent a narrative graphically. The events are isolated and their order inferred. For many events, their order is necessarily fixed. In the above narrative, the crash or impact between the cars necessarily preceded the flipping over of one car. However, it is occasionally not possible to determine the temporal ordering of two original events. In these cases, as well as those where different events may have been either successive or simultaneous (see L's bee-sting story where she describes the appearance of her neighbor, father, and brother), it is assumed that the child's temporal ordering is correct. If two events are clearly simultaneous in occurrence, as in the above narrative where one car "came right through there" while another car "was going so fast," they are both placed upon the same event line.

In R's narrative, one can infer six successive temporal events: (1) the one car was "going through there" while the other car was "going so fast," (2) the crash, (3) a car flipping over, (4) and catching on fire, (5) guys grabbing buckets of water, and (6) throwing the water.

The orientation statements of where the child lives, the accident's location relative to a creek, and ownership of the creek, are not time bound in that they are true at every point in the narrative. In Labov's system, they are "free clauses" as opposed to "temporally restricted clauses."

Negative statements (eg. "it didn't stop in time") are assumed to occur simultaneously with a positive statement (eg. "this other car was going so fast"). Although what does not happen in a situation is often at least as important as what does happen, non-events, strictly speaking, hold true throughout the narrative.

That is, they could be placed anywhere in the temporal sequence because by definition they are atemporal.

A graph of this narrative can be seen in Figure 1. The successive events are placed on the ordinate, and the narrative clauses are numbered on the abscissa. The vertical lines represent the temporal extension of the various comments. Thus, the orientation clauses have a vertical line extending across all of the events since they are not time bound and are true at every point in the narrative. Although Labov's general notions about graphical representation were followed, a number of details of the two systems differ.

We found several variants of the classic narrative pattern, all of which can be viewed as equally sophisticated. Narrative # 4 illustrates the basic outline of this pattern. Many children include an abstract with their classic narratives that often identifies the high point event before the narrative begins. Both Narrative # 2 and Narrative # 3 are classic narratives with abstracts mentioning the bee-sting event at the outset.

Another variant of the classic pattern, which was seldom found, provides the ending first, and then goes back and fills in the beginning; or, in terms of our analysis, the narrator begins

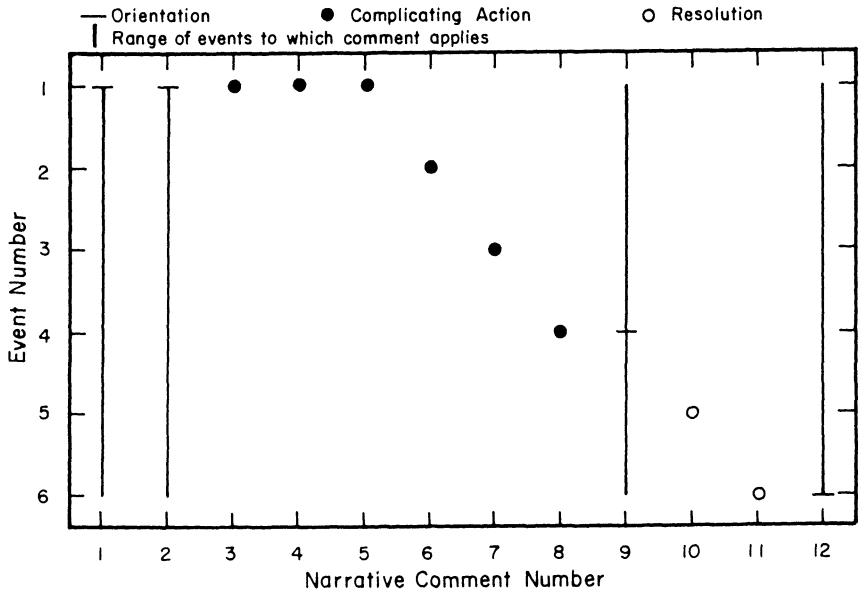

Fig. 1. Graph of Narrative # 4, a classic pattern in high point analysis.

the narrative with the resolution, gives the complicating actions that led up to the high point, and then dwells on that high point. The following narrative, produced by a 9-year-old boy, "B", exemplifies this variant, and it is graphed in Figure 2.

Narrative # 5

B: Then by Thursday we butchered our pig,
our, our, then Friday we went up Thursday night we went.
I help him cut up the lard for it.
E: Cut up the lard for it?
B: And my cousin was there helping me cut up the lard,
and that pig he weigh, he's a nice big one.
He weighed 199 pounds.
And my Dad had, had to waste five bullets on him before he went down.
E: Five.
B: For he got him into the one pen,
he got him aimed up good
and set against his head
and he shot
but just as he was ready to shoot the pig moved his head,
and he hit him right here.
E: So he hit him right there.
B: Then the pig knocked all the stuff down that we had before,
started running around,
and I quick come I quick come running with my small bullets.
I said, "Dad, that's going to probably take about two more,"
and I was wrong.
It was going to take more.
And this, we take, my Dad got him over by the, by the pig boat into the, by our barn.
I mean in our fence.
He broke the bottom bar.
My Dad shot him in there
and come out
and broke another bullet
and the, and then my Dad shot him by the barn at three, no, it was four.
Then when my Dad, when he come he went over there by where we had stakes pounded up.
He starts swooning.
My Dad shoot, got aimed up right by him.
He had a perfect shot.
Shot him down right there with my Dad standing.
No problem.
That's where we were going to burn the skin off him and the hair off him and so

E: That's where you were going to do it anyway?
34 B: Yeah, so we were at least lucky we didn't have to carry him there.
35 Um-Hmm!
E: At least you were lucky you didn't have to carry
36 B: He's, he's smart enough to go there.
37 (Giggle)
38 I'm, I'm the one that's usually buried them.
E: Really?
39 B: Yeah, I'm, I'm usually dragging,
40 my Dad usually carrying the front end while I'm dragging.
41 I can't lift them up.

The first six narrative comments are the resolution. The child then backtracks, provides a précis of the action of the narrative (comment # 7), and sequentially details that action in clauses 8-30. The last eleven narrative clauses (31-41) provide the high point event of killing the pig ("shot him down right there", comment # 31) and then dwell on it by evaluation and orientation.

Ending-at-the-High-Point Pattern

We labeled the second basic pattern that emerged the "ending-at-the-high-point" pattern. In this pattern, the narrator provides successive complicating actions until the high point is reached.

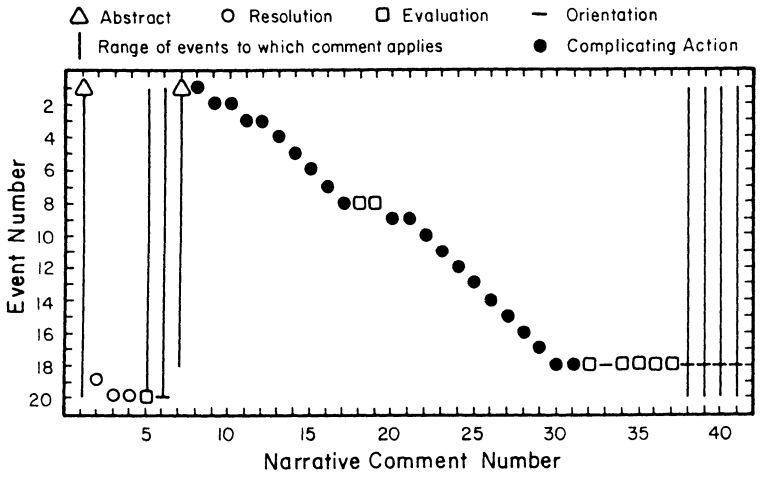

Fig. 2. Graph of Narrative # 5, a classic pattern with the resolution stated first in high point analysis.

The high point is dwelled on in the same manner as in the classic pattern, but then the narrative is terminated. There is no resolution.

It is possible for such a pattern, that includes only the first two-thirds of the classic pattern, to be deliberately used by a sophisticated narrator. Ghost stories or stories with surprise endings often have this form. However, in the present study we viewed it as a developmental approximation to the classic pattern. We usually perceived the child as simply ending too soon, or forgetting to resolve the high point action. Thus, these narratives are an approximation of classic narratives.

An example of an ending-at-the-high-point narrative is given below. It was produced by a 5-year-old girl, D. A graph of this narrative is given in Figure 3.

Narrative # 6

	E:	Did you ever go to the doctor's office?
1	D:	Uh-uh. No, yes, over Dr. Graham's house, night.
	E:	You went there? What happened?
2	D:	Nothing. Just I sticked around
3		and he told me to come in first
4		and then he, and, that's all I had to do.
5		And taked me out, out, and
6		and he put me in the doctor office.
7		And I had a cold.
	E:	You did?
8	D:	Last night.
	E:	Right.
9	D:	And I, I was scared to come in.
10		And he didn't shot me or nothing.
	E:	He didn't shot you or anything?
11	D:	Uh-uh. He didn't even shot me.
	E:	He didn't shot you?
12	D:	He gave me them, them tiny pills too, just like you.
13		That's only reason I had.

The narrator takes us up to the point of what the doctor did and did not do when she was in his office, dwells on this high point, and then terminates the narrative. Other children in similar narratives resolved the treatment received at the hands of the doctor by describing how fast they got well as a consequence of medical treatment, by telling about getting a sucker for good behavior in the doctor's office, or by going to see Grandma to be fussed over before going home.

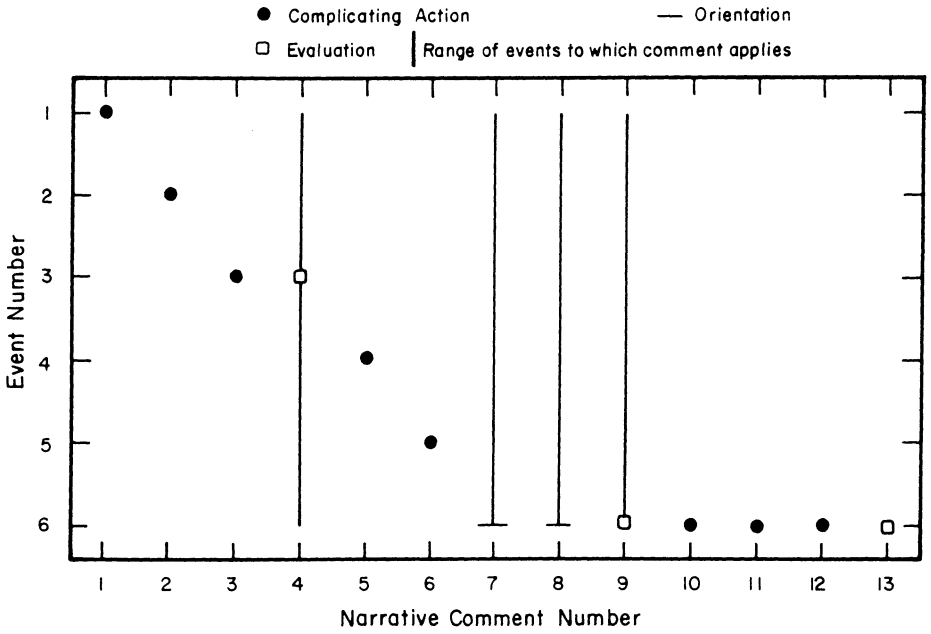

Fig. 3. Graph of Narrative # 6, an ending-at-the-high-point pattern in high point analysis.

Leap-Frogging Pattern

We found several primitive patterns. One of these we labeled the leap-frogging pattern. In this pattern, the child jumps from one event to another, but clearly leaves out various major events such that it is difficult to reconstruct the original events being described by the narrative. Narrative # 7 is a leap-frogging narrative, produced by a 4-year-old girl, "B".

Narrative # 7

E: When I go home I have to visit my aunt who's in the hospital. She broke both of her legs. And she has to have them kind of hung up, suspended from the ceiling with those little wires.
B: She had to have cast on.
E: That's right.
B: My sister had, she's had. She broke a arm when she fell in those mini-bike.
E: Tell me about what happened.

B: She broke her arm. She had, she went to the doctor, so I, my Dad gave me spanking, and I
E: Your Dad gave you what?
B: A spanking to me.
E: A spanking?
B: Yeah. And she had to go to the doctor to get a cast on. She had to go get it, get it off and, and it didn't break again.
E: And then it didn't break again?
B: No. She still got it off. She can't play anymore.
E: She can't play anymore?
B: She can't play we, she can play rest of us now.
E: Oh good. ... Have you ever had a shot?
B: Mm, she has cast on. When she was home. When she came back and she, and she, and she hadda go back and, take off the cast.
E: She had to go back and take off the cast?
B: Yeah. The doctor.

The child is obviously deleting important events. For example, the child explains how her sister fell and broke her arm, and then says that her Dad gave the narrator a spanking. The narrator probably contributed in some way to her sister's accident, which would account for the spanking, but we have no way of knowing how.

Chronological Pattern

Another pattern is a simple chronological pattern. These narratives contain only a-then-b event clauses, and are merely a description of successive events. Thus, they are temporally rather than structurally integrated. The narrative is not built around a high point. An example of a chronological narrative is Narrative # 8, given by a 6-year-old girl, "K", and it is depicted in Figure 4.

Narrative # 8

E: Have you ever been in a train or airplane or boat or anything else?
1 K: I have been on a boat.
E: Oh, you have. Oh, tell me about it.
2 K: We went deep sea.
3 And, and, we had a ski boat.
4 And you know what my brother did?
E: What?
5 K: He jumped out of the boat.
6 And he skied on the back.
E: He skied on the back?
7 K: We went to, I don't know what it's called.
E: You went to some place around here? Uh huh, yeah?

8 K: And we got a, we got a turtle cause it wasn't, it was right in front of the road
9 and we picked it up.
E: It was right in front of the road, and you picked it up?
10 K: And, our cousins went.
11 And, our uncle went.

K. is providing a chronological list of things that she did on a trip; there is no functional integration of these various bits of information. The majority of narratives of this pattern were about what the child did on a trip or at a party. However, some were accounts of specific adventures, but the narrator did not organize the narrative around high point events. Thus the narrative was merely a recapitulation of what happened.

Impoverished Pattern

Impoverished narratives are the third type of primitive pattern. These narratives either consist of so few sentences that they form no recognizable or analyzable pattern, or they provide two successive events (the minimal definition of a narrative used both by us and by Labov), and then go over and over them, often providing extensive orientation and evaluation about these two events. Narrative # 9 is an example of the first type of impoverished narrative. It was produced by a 6-year-old boy, "R".

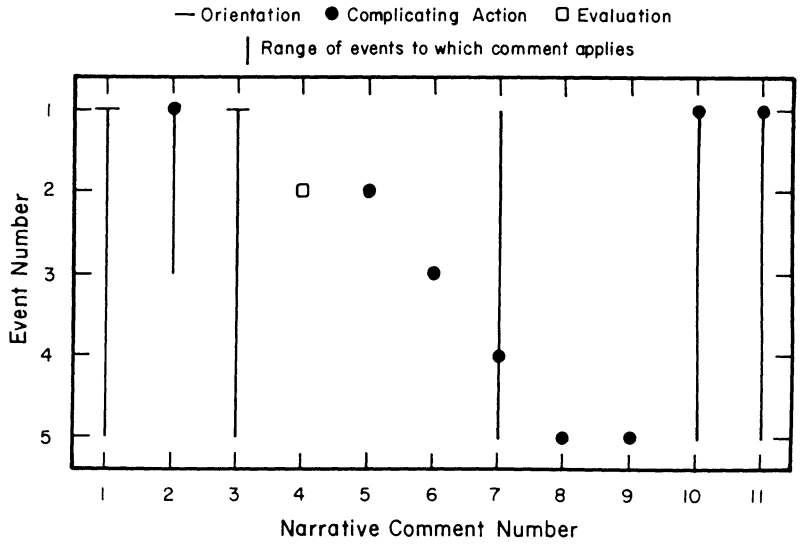

Fig. 4. Graph of Narrative # 8, a chronological pattern in high point analysis.

Narrative # 9

E: Have you ever been to Oberlin? or Cleveland?
R: I went to Oberlin, not Cleveland.
E: You did?
R: Burger open, and went to Burger Chef.

An example of the pattern of dwelling on two events is given in Narrative # 10, produced by a 9-year-old boy,"S".

Narrative # 10

E: Have you ever been to a birthday party?
S: To my next door neighbor's.
E: You did? What happened?
S: Ah, Ah, gad, he's the fastest boy on Marsh Road. His Dad can't even whip him.
E: His Dad can't even whip him?
S: He runs, he run all the way to Quarry Road sometimes.
E: Quarry Road.
S: Almost, do you know where Oberlin is?
E: Uh huh. I live there.
S: You know where the, you know where Quarry Road is? That's where he ran.
E: He ran all the way there.
S: Marsh Road, you know where Marsh Road and the next road is? Well, Andy ran, ran the second house from this side. That's his house, and other one, I'm next door to him. When he came back he said, "Oh, man, I just about broke my leg."

In the eleven clauses of this narrative there are only two events: Andy running all the way to Oberlin from his house, and his statement when he got back about almost breaking his leg. All of the other narrative comments are orientation about precisely where he ran, and evaluation of his prowess. Thus, the narrative is highly evaluative, but one cannot assess its structural integration since two comments provide only minimal structure.

Disoriented Pattern

The last category of primitive narratives are disoriented narratives. In these narratives, the child either is confused or disoriented about the events being narrated or misuses language (eg. misuses negatives) such that the narrative cannot be understood. An example of a disoriented narrative is Narrative # 11, produced by a 4-year-old girl, "B".

Narrative # 11

B: So we had a witch game at Renee's party.
E: You had a witch game?
B: We had a party, and we had some gum and chips.
E: You had some chips?
B: Yeah. And gum, and pretzels, and all the people comed and so me and Renee and Beth Ann and Barbara come. Barbara didn't come to the party cause she didn't want to. So, so we had, we have a fun party. And Beth Ann and Barbara comed over Renee's and she blew out the can and now go to the party.
E: She blew out all the candles?
B: Yeah. And she, and, and they cut up the cake and I didn't get any cake.
E: You didn't get any cake?
B: But I was home, at my, my Mom didn't want me go.
E: You were home and your Mommy didn't want you to go?
B: She didn't want me go Renee's house.
E: Oh.
B: She didn't want me to go to Renee's house.

In this narrative, we are told that both the narrator and her friend Barbara were at a party, and engaged in various activities there, and simultaneously were at home either because they were not allowed to attend the party or they didn't want to. We could make no sense of such a narrative.

Miscellaneous

Most of the children's narratives fit one of the above patterns. Any narrative which could not be classified as an exemplar of one of these patterns was classified as miscellaneous. These included narratives which were pure fantasy, thematically-linked attached narratives such as a chain of narratives about the same general topic (eg. pet deaths), and combinations of different narrative patterns.

We turn now to how well the above descriptions of narrative units (orientation, complicating action, etc.) and overall structural patterns (classic pattern, chronological pattern, etc.) fit the narratives produced by young children. Are there any age changes or sex differences in the units or structural patterns of their narratives?

5
Results and Discussion
High Point Analysis

AGE CHANGES

Overall Narrative Structure

All of the narratives produced by the children were divided into clauses, and the constituent elements identified. For analysis of the overall structure of the children's narrative, ie. of how their narrative clauses are put together, we selected the three longest narratives produced by each child, since length is correlated with complexity (Brown, 1973). The narratives were independently classified as belonging to one of the previously described patterns by both authors, and agreement on classification was 87%. When there was a disagreement, the narrative was discussed and a consensus reached. The relative frequencies of these patterns across ages is shown in Table 6.

Leap-frog Narratives. The most common pattern found in 4-year-olds is the leap-frog pattern, where the child jumps from event to event unsystematically, leaving out important events. Some of the salient events are indeed touched on or highlighted, but the deletion of other important events makes a reconstruction of the original events difficult. The child is putting a heavy burden on the listener, who must infer what the child has left out. Although this pattern is the most frequently used one by the youngest children, it precipitously drops to a low level by the time the children are 4½ years old or older.

Impoverished Narratives. This pattern is also common in 4-year-olds. At all ages, about half of these narratives consist of two events that are reiterated via orientation, evaluation, and

Table 6. Classification of the Children's Three Longest Narratives as a Percentage of the Total

Mean Age	4	5	6	7	8	9
Classic	12	21	35	48	62	58
End-at-the-High-Point	2	29	23	17	17	17
Leap-frog	29	4	6	0	0	0
Chronology	23	25	15	25	21	13
Impoverished	15	10	10	2	0	6
Disoriented	8	4	2	0	0	0
Miscellaneous	10	6	8	8	0	6

repetition, and thus, although not short in terms of statements, they are short in terms of events referred to. Not enough events are present to form a recognizable pattern. The other impoverished narratives are too short even in terms of statements. These latter are an indication of the child's disinterest rather than a reflection of narrative competence. Their more frequent occurrence in the 4-year-old group than in any other age group may reflect the more restricted experiences of the youngest children. They are less likely to have seen a car accident, been to a party, or owned a pet. It may also reflect their greater difficulty in making the cognitive leap between our prompts and their own related experiences.

Disoriented Narratives. This pattern is also more common at the youngest age level than at older ages. These narratives are usually contradictory, and seem to reflect the child's confusion about the events described or the child's difficulty with language (especially misuse of the negative). In view of the less advanced state of cognitive and language development in the youngest children, this greater incidence is not surprising. Perhaps most noteworthy is the relative rarity of this pattern; only 8% of the narratives of the youngest children are placed in this category.

Chronological Narratives. These are commonly told by 4-year-olds. These narratives consist of temporally sequential event clauses. In some, the child is not relating an integrated experience, but rather a series of events that occurred at the same time. If the experience being described is disjunct, then the unsystematic recapitulation of various events may appear similar to that found in leap-frog narratives. Since chronological narratives tell about a series of discrete, independent events that occurred within a specified time period (such as a trip), they do not place the burden of inference on listeners that leap-frog narratives do.

Other chronological narratives recount what happened during an integrated experience, but merely list the events without dwelling on any particular event as a high point.

Chronological narratives seem to reflect the child's non-involvement with the narrative. These narratives strictly fulfill the referential function of narration, but do not fulfill any evaluative function. They tell us what happened, but not the affective importance of those events. They are present at all ages.

Miscellaneous Narratives. Little can be said about narratives that are categorized as miscellaneous. They occur at all ages, and reflect little system.

Ending-at-the-High-Point Narratives. The incidence of the various patterns of narratives is quite different in the 5-year-olds. With the exception of the chronological pattern, the most common pattern in the 5-year-old group is the ending-at-the-high-point pattern. This is also a common pattern in the 6-year-olds, and decreases in frequency at later ages after its burst of relatively high frequency at ages 5 and 6. These children seem to be evolving the structure of the classic narrative.

Classic Narratives. For children 6 years old and older, the classic pattern is the most common pattern. This pattern seems to be the epitome of narrative structure, and the incidence of this pattern steadily increases with age (except for a slight dip at the age of 9 years). This is in contrast with the ending-at-the-high-point narratives that decrease in frequency with age after their high incidence in the 5-year-olds.

Summary of Structural Patterns. In order to analyze age differences in children's production of different narrative structures, a discriminant function analysis was computed on the proportion of structures of each type that the children produced. One significant function was found, $\chi^2(20) = 82.14$, $p<.001$. Age changes in the incidence of leap-frog, end-at-the-high-point, and classic patterns contribute most to this significant effect, although changes in the incidence of chronological narratives also contribute to a small extent. The significant function distinguished three groupings of children by age: 4-year-olds are distinguished from the 5- and 6-year-olds, who in turn are distinguished from the 7-, 8-, and 9-year-olds.

The three patterns - leap-frogging, ending-at-the-high-point, and classic - summarize the changes in narrative structure occurring in $3\frac{1}{2}$ to $9\frac{1}{2}$-year-old children. The most sophisticated narratives (the classic pattern) are carefully organized around a central point. The narrative comments build up to this high point,

evaluate it, and then cap off the experience or clear the stage. Younger children, although also organizing their narratives around a central important event, are prone to forget resolving actions. They cover the most exciting part of their experiences, but then chop off the narrative. The youngest children in our study even tend to omit some of the salient contributing events.

Additional evidence suggests that younger children truncate their narratives, ie. they end them at the high point while older children tend to continue. The transitional 6- to 8-year-olds often place a coda or explicit ending between the complicating actions and the resolution rather than at the end. The child ends the narrative after the high point, and then apparently decides that resolution is possible, and tacks it onto the narrative.

Elements of Narratives

All Elements Combined. In the above analysis of narrative structure, only the three longest narratives of each child were used. In most of the following analyses, the total corpus of 1124 narratives was used, so that the identity and incidence of even relatively rare types of elements could be assessed.

The narrative comments or independent clauses were classified according to type of element, and their relative frequencies assessed. (For statistical reasons, dependent clauses and embedded evaluation were ignored in this analysis.) All of the scoring was done by one person. However, 15% of the transcripts were scored by a second person, and reliability calculated. Agreement on the different types of elements ranged from 86% to 91%. Agreement on the subcategories of orientation averaged 87%, with the agreement on individual types of orientation ranging from 100% to 75%. Agreement on the subcategories of evaluation averaged 86%, with the agreement on the subcategories of evaluation ranging from 100% to 67%.

Incidence of the different types of elements is shown in Table 7. Because older children produce more numerous and longer narratives, the varying length of the narratives is controlled by the use of proportions - dividing the incidence of each type of element by the total number of narrative comments produced by the children. While the frequency of complicating actions, resolutions, and the appendages in Table 7 is an accurate reflection of their incidence in narration, the given frequencies of orientation and evaluation substantially underestimate their incidence. Dependent clauses (which would not be included in Table 7) are always orientative or evaluative or both; additionally, evaluation may be incorporated into <u>any</u> narrative comment by means of lexical choices or phonology. Incidence of total orientation and evaluation will be given later, in Tables 8 and 9.

Table 7. Percent of the Total Number of Narrative Units that are of the Different Types

Mean Age	4	5	6	7	8	9
Orientation	19.9	21.7	22.3	24.2	22.9	24.5
Evaluation	13.2	14.2	17.2	13.6	15.7	14.0
Complicating Action	58.1	55.6	7.0	48.6	47.3	43.7
Resolution	5.9	4.2	7.7	9.7	10.3	13.9
Appendages	3.1	4.1	5.4	3.9	3.8	3.9

In order to determine what combination of elements maximally differentiate the age groups, a discriminative function analysis was computed on the proportion of narrative comments of each type. One significant function was found, $\chi^2(15) = 33.38$, $p<.01$. Three categories of elements contribute to this significant age effect, which distinguishes the three younger age groups from the three older age groups. The proportion of resolutions clearly contribute the most to age differences, although the proportion of orientations also makes a substantial contribution. Changes in the proportion of complicating actions are less important, but also add to the significant age differences. The substantial increase in the proportion of resolution in the older children's narratives (along with a parallel decrease in complicating actions) is not surprising, in view of the increasing incidence of classic narratives. Older children also seem to be providing proportionately more orientation than younger children. Orientation will be discussed at greater length below.

Appendages. The proportion of appendages does not vary with age. However, controlling for total length of the narrative may not be appropriate for assessing appendages. After a child provides an abstract, for example, it is not relevant whether the child subsequently continues for an additional 10 narrative comments or an additional 50. He or she has still highlighted the main event at the beginning. Consequently, age changes in the number of each type of appendage (abstracts, prologues, codas, and attention-getters) per narrative were analyzed by means of a discriminant function analysis. One significant function was found, $\chi^2(5) = 20.95$, $p<.01$. The number of abstracts produced by the children is the only contributor to this significant age effect; their incidence increases steadily with age. The youngest age group begin their narratives with an abstract less than 5% of the time while the oldest two age groups do so 20% of the time or more. The increasing incidence of abstracts with age is related to

the increasing organization of the children's narratives. Abstracts give the listener a brief answer to the question of what the narrative is about; they emphasize its central point.

Prologues and attention-getters are relatively rare at all ages; children begin narratives with a prologue or an attention-getter less than 5% of the time. Codas, however, are more common. About one-sixth of the narratives had a formalized ending. However, the sophistication of the codas changes with age. When the incidence of simple, explicit endings (eg. "the end," or "that's all") vs more sophisticated endings (such as tying the entire narrative together or bringing the narrative up to the present) was compared by a χ^2 analysis, a significant age effect was found, $\chi^2(5) = 26.13$, $p<.001$. The younger children give proportionately more simple, explicit endings, whereas the oldest children almost exclusively provide complex endings.

Overall, the increasing tendency to resolve high point action, and to abstract the high point at the beginning, suggests that older children's narratives are more carefully organized around central crisis points. They know where they are going in their narratives from the beginning and often provide a road map (via an abstract) to ensure that the listener knows too. This greater organization is also reflected by the increasing sophistication of their endings. These results are consistent with those of Applebee (1978), who found children to increasingly demarcate their fantasy stories with formalized beginnings and endings with age.

Orientation. All of the children provide a substantial amount of orientation while narrating. They are clearly concerned about embedding their narratives in a context of who, what, where, and when. Such context aids the listener's comprehension of the events of the story.

Within each narrative, older children provide more orientation than younger children. If one analyzes the total number of orientative independent and dependent clauses per narrative, and calculates an analysis of variance for the crossed factors of age and sex, a significant age effect is found, $F(5,84) = 4.66$, $p<.001$. However, the narratives of the older children are also longer than those of the younger children. Those of the older children average 12.0 narrative comments in length, whereas those of the younger children average 7.1 narrative comments in length. Thus, it is not surprising that older children give a larger absolute number of orientative clauses.

The larger amount of orientation given by older children is more apparent than real. If length of their narratives is controlled for, this age difference disappears. Analyses of variance were calculated with the crossed factors of age and sex for both

the proportion of independent clauses that are orientative, and the proportion of these fully orientative comments plus those that are partially orientative. By partial orientation, we refer to comments that have orientative dependent clauses. The minimal orientation that is contained within complicating action and resolution (such as orientation about the existence and ownership of a window in "he hit the ball through our neighbor's window") is not reflected in these two analyses. This latter residual orientation is appraised in the subjective analysis mentioned below (Menig-Peterson and McCabe, 1978). Age was not a significant factor in either analysis, $F(5,84)$ $p<1.15$.

Contextual information is information that is readily available to the speaker through memory, but not to the listener. This information is essential for the listener's understanding. In order to provide orientation to context, speakers must pause in telling what happened to mention who, when, where, etc. Such suspension of action to provide context requires role-taking. Children must be sensitive to the differing state of knowledge between themselves and their listener, and use this awareness appropriately. It is noteworthy that younger children take time out to orient their listeners just as often as do older children, relative to how long they talk. This supports the increasing number of reports in the literature of role-taking abilities in young children (eg. Blank, 1975; Hoy, 1975; Maratsos, 1973; Menig-Peterson, 1975; and Shatz and Gelman, 1973). It is true, of course, that older children are able to provide more details of context, since they give a larger absolute number of orientative clauses per narrative. Menig-Peterson and McCabe (1978) also found that the contextual information of the older children is more thorough if the narratives are subjected to a qualitative analysis of how well they answer the traditional orientative questions of who, what, where, when, why, and how. Nevertheless, the fact that almost a third of all narrative comments at all ages are partially or fully orientative suggests that all the children know that the listener needs context to make sense of their narrative.

To assess the independence of the nine different types of orientation (see Table 8) a factor analysis was computed that consisted of an initial principal components analysis followed by a varimax rotation. Two factors were found. The first factor is comprised of references to time, conditions, tangential information, and, to a lesser extent, imminent events. All of these types of orientation are not essential for understanding the children's narratives, but they provide a richer, more vivid context for the events. The second factor is comprised of two pieces of information that are more central: who and where. Orientation to location of the events usually includes orientation to who the participants are, although the reverse is not necessarily true. This is an ecologically valid artifact of the scoring

Table 8. Percent of Each Type of Orientation per Narrative Comment

Mean Age	4	5	6	7	8	9
Total	29.1	30.5	31.9	33.4	32.6	35.1
Time	5.6	6.1	3.7	6.0	4.4	5.7
Location	6.0	7.3	5.6	7.5	4.7	6.5
Conditions	0.2	0.3	0.2	0.4	1.0	0.4
Who	19.9	21.8	21.6	24.3	18.1	22.3
Props	7.6	8.0	6.9	8.2	4.9	7.0
Ongoing Events	6.2	5.1	7.3	6.0	7.9	9.6
Tangential Information	0.4	0.2	0.3	0.3	0.7	0.7
General Cases	2.5	0.8	2.0	1.8	1.4	3.1
Imminent Events	0.1	0.7	0.4	0.6	0.6	0.6

procedure, because whenever location of people is mentioned, as in "we were at John's house," this is orientation to both who and where, and was scored as such.

Although there are no age changes in the overall incidence of orientation, it is possible that different types of orientation are correlated with age. This was assessed using a discriminant function analysis. One significant function was found, $\chi^2(25) = 42.84$, $p<.05$, distinguishing the two oldest age groups from the younger ones. The overwhelming contributor to this effect was the proportion of comments that orient the listener to ongoing events. Any event of importance occurs within a context of activity as well as of objects, places, and persons, and older children seem to be increasingly sensitive to this. Perhaps more importantly, ongoing events, as we defined them, are given only in the past progressive tense - a more complicated verb form which the older children naturally are more likely to have mastered than are the younger children. Three other types of orientation contribute in a minor way to this significant age effect: conditions, participants, and general cases. However, no clear trends emerge with these three types of context.

Older children also orient their listener in a greater variety of ways. An analysis of variance was calculated on the variety of orientative comments used, with the crossed factors of age and sex. A significant age effect was found, $F(5,84) = 4.46$, $p<.01$. Four-year-olds provide an average of only 5½ types of orientative context while narrating. The 9-year-olds, on the other hand, average seven or more of the nine possible types of context in their narratives. This contributed to a subjective feeling that the older children were providing richer contextual embedding for their narratives.

Contextual information is not only essential if a listener is to understand a narrative, it is also more useful if it is provided at the beginning of a narrative. That is, if the listener knows who the narrative is about, as well as when, where, and under what conditions the events occurred right from the start, his or her comprehension is aided, as journalists have long known. In order to assess children's awareness of this, the number of orientative clauses produced by a child in each quarter of their longest three narratives was divided by the number of narrative comments in that quarter, and an arcsine transformation of the data was done. A repeated measures analysis of variance was calculated for the crossed factors of age and sex, and for the repeated factor of quarter. The effect of quarter was highly significant, $F(3,252) = 17.65$, $p<.001$. The children clearly concentrate their orientative comments at the beginning of their narratives. For all age groups except the youngest, the density of orientation is substantially higher in the first quarter than in any succeeding quarter. The density of orientation within the first quarter of the narratives increased from .33 in the 4-year-olds to .50 in the 9-year-olds. However, the interaction between age and the repeated factor of quarter missed significance, $F(15,252) = 1.51$, $p<.10$.

The suggestion that older children increasingly concentrate their orientation at the beginning of their narratives is given more substantial support if one selects a constant number of comments from the beginning of the children's narratives, and assesses the density of orientation within those initial narrative comments. The first seven narrative comments in the longest three narratives produced by the children were selected. Only 4% of the children's narratives did not exceed seven comments in length. If one or more of a child's selected narratives was less than seven comments in length, additional narrative comments were added from a longer narrative among the three selected ones to compensate for the missing comments in a shorter narrative. Data from the three children who still did not reach a criterion of 21 narrative comments were dropped, along with the data from another nine randomly-selected children to equalize the number of children per cell. An analysis of variance was calculated, with the crossed factors of age and sex, and a significant age effect was found, $F(5,72) = 5.37$, $p<.001$. Thus, if one controls for overall length of narration by examining only a constant initial portion of the narratives, older children produce substantially more orientative clauses. This is found in spite of the fact that older and younger children produce equivalent proportions of orientative comments overall. This finding is explicable only if older children increasingly cluster their orientative clauses near the beginning of their narratives, rather than scattering them randomly.

The reason for the significant difference between the analysis of orientation density per first quarter of narrative and per first

seven comments is that there is only so much orientation pertinent to any narrative. A narrative that is forty or more comments long (common among the older children's most complex narratives) does not really require four times the orientation of a narrative that is ten comments long (typical of younger children's most complex narratives). The older child is also concerned about providing a more fine-grained account of the action and meaning of his or her experience.

In summary, all children are conscious of the need to provide context, or to orient their listeners - younger children as well as older children. However, older children provide a greater variety of contextual information, including the surrounding activity as well as objects and location. Thus, the context of their narratives seems richer and more detailed. Menig-Peterson and McCabe (1978) also found that contextual information in the narratives of older children is more complete when assessed qualitatively. Furthermore, there is a tendency for older children to insert their orientation where it is most useful to the listener - at the beginning.

Evaluation. When narrating, children not only tell a listener what events occurred during the experiences they are describing and embed those experiences within a context, they also tell the listener the meaning of those experiences. That is, their narratives do not merely provide information; they are bristling with evaluation. Fifteen percent of their comments are fully evaluative - the child pauses in his or her recapitulation of events to insert an independent clause whose sole function is evaluative. An additional 35% are partially evaluative. This means that almost half their narrative comments express some evaluation, whether through particular words, phonology, or through attaching an evaluative dependent clause. The rest are simply informative, such as "It was raining" or "We went swimming." There were no significant age changes in the proportion of evaluative narrative comments, $F(5,84) = 1.32$, $p > .05$.

Twenty-one types of evaluation were isolated; surprisingly, they all seem to be relatively independent. When their incidences were correlated, the correlations were uniformly low. Only the correlation between the two types of phonological evaluators, stressors and elongators ($r = +.39$) was significant at the .01 level. To assess the independence of the 21 different types of evaluation, a factor analysis was computed that consisted of an initial principal components analysis followed by a varimax rotation. No major factors emerged. On the contrary, 17 different factors were necessary to account for 90% of the variance. Table 9 shows the proportion of each type of evaluation per total number of narrative comments.

Table 9. Percent of Each Type of Evaluation per Narrative Comment

Mean Age	4	5	6	7	8	9
Total	46.1	47.8	54.5	46.3	48.0	45.5
Onomatopoeia	1.2	0.6	2.0	1.2	1.5	2.1
Stressors	8.6	6.6	17.3	13.3	8.6	6.1
Elongators	0.8	0.6	1.7	2.3	0.5	0.2
Exclamations and Laughs	2.0	3.2	2.0	2.7	2.7	2.2
Repetitions	2.6	2.6	3.2	1.7	1.7	1.5
Compulsion Words	6.3	5.0	5.5	5.1	3.8	4.8

Mean Age	4	5	6	7	8	9
Similes and Metaphors	0.1	0.6	0.1	0.3	0.3	0.4
Gratuitous Terms	11.0	14.7	11.9	12.4	11.5	14.1
Attention-Getters	2.7	2.6	2.4	1.6	1.4	1.2
Words per se	1.7	1.7	3.5	3.7	3.8	3.4
Exaggeration and Fantasy	0.6	0.9	0.4	0.7	0.1	0.1
Negatives	8.4	8.7	8.1	5.3	7.8	8.0
Intentions or Desires	0.4	0.8	1.6	0.7	1.1	0.7

Mean Age	4	5	6	7	8	9
Hypotheses or Inferences	1.6	1.6	2.8	2.3	2.8	2.9
Results of Hi Point Action	0.3	1.5	1.6	1.2	2.5	1.8
Causal Explanations	4.0	4.8	4.7	4.1	3.8	4.5
Objective Judgments	0.1	0.0	0.0	0.7	0.1	0.4
Subjective Judgments	1.3	1.2	1.2	1.0	1.0	1.2
Descriptions of Internal Emotional States	0.7	1.3	1.6	0.6	1.2	1.4
Facts per se	0.3	0.2	0.2	0.6	0.5	0.4
Tangential Information	0.2	0.1	0.1	0.2	0.2	0.5

There are large differences in the popularity of different types of evaluation. Gratuitous terms and stressors are heavily used, since they are incorporated in at least one-tenth of the children's total narrative comments. Negative statements, compulsion words, and causal explanations are also heavily used. On the other hand, children very seldom use the evaluative categories of facts per se, exaggeration and fantasy, words per se, similes and metaphors, objective judgments, or tangential information.

Although there are no age changes in the overall incidence of evaluation, older children use a larger variety of evaluators. The youngest children use less than ten different types of evaluation on the average, while older children use an average of almost fifteen different types of evaluators. An analysis of variance, for the crossed factors of age and sex, was calculated, and a significant relationship between age and variety of evaluation was found, $F(5,84) = 6.04$, $p<.001$.

To determine whether children of different ages have predilections for using different types of evaluation, a discriminant function analysis was computed on the number of evaluative clauses of each type produced per narrative comment. One significant function was found, $\chi^2(45) = 85.50$, $p<.001$. It discriminated three groups: the 4- and 5-year-olds, the 6- and 7-year-olds, and the 8- and 9-year-olds. The two largest contributors to the significant age effect are stressors, which are used almost twice as often by the middle age group (6- and 7-year-olds) as by either the oldest or youngest children, and evaluative words per se, which are produced less often by the 4- and 5-year-olds than by the other children. In addition, repetitions, results of high point action, tangential information, facts per se, and negatives contribute to the significant age effect. In general, younger children use more repetitions, fewer results of high point action, less tangential information, and fewer evaluative facts per se. Seven-year-olds also use fewer negatives.

We also investigated whether children randomly scatter their evaluators throughout their narratives, or concentrate their evaluation in certain parts of their narratives, as was the case with orientations. To assess this, the longest three narratives produced by each child were divided into quarters, and the density of evaluation in each quarter assessed. The number of narrative comments in each quarter that carried evaluative information was divided by the total number of narrative comments in that quarter, and an arcsine transformation computed. A repeated measures analysis of variance was calculated for the crossed factors of age and sex, and for the repeated factor of quarter. The factor of quarter was significant, $F(3,252) = 25.55$, $p<.001$. About one-third of the narrative comments in the first quarter carry evaluative information, and the proportion of narrative comments that are

evaluative steadily increases as the narratives progress, until almost 60% of the narrative comments in the last quarter are evaluative in some way. No other effect was significant. This greater attention to evaluation shown by all age groups in the latter part of their narratives is not surprising. The high point of a narrative tends to be toward the end of a narrative, and this is the part of the narrative that would be likely to be most heavily evaluated.

In order to look more precisely at the location of evaluation within the structure of the narrative, the two most sophisticated patterns of narrative - the classic and end-at-the-high-point patterns - were selected for further study. All of the narrative comments that comprised the high points of each narrative were identified. These included all comments contiguous to the high point event and overlapping it in time. Thus, repetitions, orientations, and evaluative comments surrounding the high point were included. We assessed how much evaluation occurred before, at, and after the high point by means of repeated measures analyses of variance. The density of evaluation in each structural segment was averaged separately for all of the classic narratives and end-at-the-high-point narratives produced by each child at each age level; the factor of sex was not included due to the small size of the sample of children who produced either classic narratives or end-at-the-high-point narratives at some age levels. Four-year-olds even had to be totally excluded from the end-at-the-high-point pattern analysis because so few produced these narratives, although (curiously) they were included in the classic narrative analysis. For the classic narratives, the location of evaluation within the narrative was significant, $F(2,116) = 19.80$, $p<.001$. Evaluation is concentrated at the high point of these narratives. For end-at-the-high-point narratives as well, the location of evaluation within the narrative was significant, $F(1,31) = 45.95$, $p<.001$, with the density of evaluation much higher at the end. Thus, the children are concentrating their evaluation at the high point of their narratives. Narrators do not merely inform; they convey the importance of the narrated events, and tell how these events should be interpreted and weighed by the listener.

SEX DIFFERENCES

In general, a lack of significant sex differences is the most striking finding in our assessment of narration of boys vs girls. The only analyses in which sex effects were found were discriminant function analyses of types of orientation and evaluation used by the children. Boys and girls in general prefer different sorts of contextual information and evaluation.

A significant sex difference was found in the discriminant function analysis of sex and type of orientation, $\chi^2(5) = 15.64$, $p<.01$. Location is the largest contributor to this significant χ^2 calculation: boys provide more orientation to location than do girls. Boys also provide more orientation to conditions and to props than do girls, while girls provide more orientation to general cases and to imminent events. Thus, boys seem more concerned with the physical environment whereas girls are more concerned with future events and with relationships between a specific event and the class of general events to which that specific event belongs.

A significant sex difference was found, $\chi^2(12) = 43.36$, $p<.001$, in the discriminant function analysis of type of evaluation. The largest contributor is sound effects. Boys are more likely to insert verbally graphic descriptions of events (such as "bang," "pow," etc.). They are also more likely to elongate their words, stretching them out for emphasis (eg. "the giraffe had a lo-o-o-ong neck"), and to include gratuitous words such as "just," "very," etc. Girls on the other hand are more likely to interject exclamations such as "wow," or "oh, boy!", and to underscore the importance of particular words by means of verbal stress. In addition, boys put more emphasis on intentions, purposes, or desires, while girls place more emphasis on causal explanations. Thus, overall, boys are more orally graphic in their descriptions and more interested in internal motivations, while girls exclaim, stress words, and describe why various events occurred.

Across analyses, however, it is clear that both boys and girls are doing similar sorts of things in their narration. Sex differences are the exception rather than the rule. Both boys and girls are orienting their listeners to context, evaluating their experiences, and organizing their narratives around central events in similar ways.

SUMMARY

The high point analysis is a good way of studying narratives. It captures narrators' divergence from the time-line of their real experience to tell their listener what it all meant to them. Not only does this analysis sensitively describe personal, emotional information, it also monitors the child's niceties of presentation and his or her orientation of listeners.

With age, children develop the classic (adult) pattern of narration at least among their longest narratives, so that by 6 years it is the most prevalent form. Prior to this, the youngest children jump from one event to another in telling about what must have been an integrated experience. At age 5, they end their

narratives at the high point. But after that, children build to a high point and resolve it in classic form.

Components as well as the form of narratives undergo development. Niceties increasingly are present, setting apart the narrative from the rest of conversation. Abstracts tell what children are going to talk about; sophisticated codas bring the listener up to date about the narrated events. Older children have more differentiated as well as more usefully placed orientation, namely more clustered at the outset. They also use a richer variety of evaluations. But all children pay a great deal of attention to this latter crucial component of narratives and place it where it is most useful - around the high point.

COMPARISON WITH OTHER INVESTIGATORS USING HIGH POINT ANALYSIS

Foremost among our comparisons is that with Labov and his colleagues, the developers of this system. We, as well as they, found children's narratives to express evaluative and referential information; their narratives were chock-full of both. And many of our narratives could be described by the format they outlined, with abstracts, orientation, complicating action, high points, resolution, and codas following one another in an orderly fashion. Each of these sections is important to a classic narrative, and it is not surprising, therefore, that children increasingly think so too. Thus, older children include more abstracts, concentrate their orientation at the beginning to a greater extent, include more resolutions, and in general are more likely to organize their narratives around high points.

Labov and his colleagues also analyzed changes with age. Their youngest children, however, are older than our oldest ones. Their groups consisted of pre-adolescents (age 10-12), adolescents (age 13-16), and adults. The changes that we found in types of high point structures were obviously not explored by them since we developed the diminutive structures; however, they suggest that the pattern of the classic narrative is less frequently found with younger children, which is consistent with the age trends we found.

Most of Labov's discussion of age focusses on types of evaluation, but we cannot meaningfully compare our findings with theirs because of definitional differences between our respective categories of evaluation. Many of their categories are more tightly wedded to linguistic form or syntax than are ours, which are more often semantically defined. In part this is due to our not finding many instances of the complex syntactic constructions that they found with their older sample. Labov et al. classify their evaluative devices into four main categories: (1) Intensifiers emphasize a specific event among a chain of recapitulated events, and include

such subtypes as gestures, expressive phonology, quantifiers, lexical items, foregrounding, repetitions, rituals, and exclamations. (2) Comparators contrast an event that occurred with potential other events that did not, ie. "unrealized possibilities," and include imperatives, questions, negatives, futures, modals, quasi-modals, or-clauses, and comparatives. (3) Extensives "bring together two events that actually occurred so that they are conjoined in a single independent clause (1968, p.322)," and include grammatical constructions that incorporate the form of be...ing, double..-ing, double appositives, double attributives, right and left branching participles, and nominalizations. (4) Explanations are causal or qualifying subordinate clauses that are embedded in simple, complex, or compound fashion within an independent clause.

Many of our categories (eg. onomatopoeia, stress, elongation, gratuitous terms, words per se, facts per se, repetition, negatives, compulsion words, and causal explanations) are similar to the parallel categories of Labov et al. We have deleted some of theirs (eg. foregrounding, rituals, futures, modals, quasi-modals, and all subtypes of extensives), generally because of rarity in our sample. We considered our categories of intentions, purposes and desires, of internal emotional states, and of hypotheses, guesses, inferences, and predictions to be explanations semantically akin to causal explanations, in spite of most not being embedded subordinate clauses as required by Labov et al., and thus the contents of our 'explanations' differ greatly from theirs. Other of our categories have no obvious parallel to specific subtypes of theirs (eg. results of high point action, objective and subjective judgments, tangential information, and exaggeration and fantasy) in spite of their explicit recognition of their evaluative nature in most cases.

Labov and his colleagues found an increase with age in the use of all four major types of evaluation, most sharply for the categories of extensives and explanations. More specifically, they found almost no instances of the complex syntactic constructions required by these latter two categories in their 10- to 12-year-olds. Nor did we find such syntactic constructions to be numerous. However, the non-comparability of our respective categories makes a more detailed comparison with their age trends difficult.

Other investigators have also used Labov's system. We will not compare our findings with those of Watson (1975) and Watson-Gegeo and Boggs (1977) since their narratives are collective ones that interweave real events with fantasy, and with two or more narrators who generally alternate in contrapuntal style. They bear little resemblance to our narratives in delivery, form, or content.

Kernan (1977) analyzed 18 narratives from girls, six each from 7- to 8-year-olds, 10- to 11-year-olds, and 13- to 14-year-olds. He found an increasing tendency to demarcate narrative boundaries, that is to say, to begin the narrative with an abstract or an introducer (a stylized way of signifying that a narrative is coming, such as "Let me tell you what happened to me"). This is consistent with our findings, of course. He also found that all children provided orientation to the context of their narratives as well as evaluation of the events that occurred, as we did.

Kernan's analysis of the kinds of orientation provided by his subjects both parallels and extends our work. He found that about half the time, his youngest sample introduced a character who played a role in their narratives with just a name. The other instances of character identification included both a name and the character's status or some other identifying characteristic (eg. 'my cousin Glen,') or even just the latter identification tags alone (eg. 'my neighbor'). Older children, however, almost never identify a character by name only. We found the same age-related shift in how characters are identified, and this is discussed at length in Menig-Peterson and McCabe (1978). We found that the identification of location undergoes a parallel shift toward inclusion of similar identifying tags. In fact, children get much better at answering all of the contextual questions of who, what, when, where, how, and why between 3½ and 9½ years of age. According to Kernan, that development (in character identification, at least,) continues to improve up to adolescence.

However, Kernan found an increase in the proportion of his children's narratives that are devoted to orientation, unlike our findings. More importantly, he found a shift in emphasis: his younger sample was more concerned with identification of specifics such as time, place, and characters (at which we found they get better with age - see Menig-Peterson and McCabe, 1978). In contrast, his older sample was more concerned with fitting their narratives into background information such as mood, motivation, and circumstance. To quote Kernan (1977, p.102):

> The younger children seem to assume that the communication of the events themselves will result in the same understanding and appreciation on the part of the audience that they themselves have. The older children, on the other hand, realize that the interpretation and appreciation of the narrative events will depend, at least in part, upon knowledge that is external to the narrative events themselves.

To summarize our respective findings, we suggest that children up to age nine get better at specifying and elaborating what happened in their narratives, ie. they become more internally

complete and comprehensible. Kernan suggests that a further development is an integration of the narratives within the speaker's social interaction as a whole.

While Labov and his colleagues and Kernan had narrators older than ours, Umiker-Sebeok (1979) studied the narratives of children who overlapped in age with our youngest children. She studied 3- to 5-year-old children's intraconversational narratives, that is, narratives that are embedded within their ongoing verbal interactions within their preschool. Such embedded narratives were relatively frequent, being found in a third of the conversations she recorded. Her definition of a narrative differed somewhat from the standard one in that she included narratives that consisted of only one clause. But, in keeping with everyone else, a narrative was defined as a description of past events. She found, however, that the remoteness of those events changes systematically with age. The majority of the narratives by 3-year-olds (specifically, 89%) were about events that had just occurred in their immediate environment, ie. within their nursery school and generally within the same play period. In contrast, those of 5-year-olds (53%) were more likely to describe events that occurred outside of the preschool. In our case, of course, all narratives were about remote events.

Umiker-Sebeok's results are parallel with ours in a number of ways. The narratives of the children get longer and more complex as they get older; introducers and abstracts are increasingly found with age; the number and variety of orientation clauses provided by the children increase with age, as well as the number and variety of evaluative devices. Furthermore, she found that the organization of narrative elements is the same as in our results. The normal order of elements is: Introducer - Abstract - Orientation - Complication - Evaluation - Resolution. As children get older, a greater number of these elements are found in their intraconversational narratives, directed at both adult and child listeners within the highly active nursery school environment. This is parallel to what we found in narratives directed to a lone adult bent upon eliciting such verbal productions. It should be noted, however, that the narratives directed at adults in Umiker-Sebeok's study are longer and more complex than those directed at other children. We would agree with this, since the average length of our narratives was substantially longer than hers (7.4 clauses long for our 3½ to 5½ year olds in comparison to 2.6 clauses for her sample, but note that she included narratives which were only one narrative comment long; this would significantly depress her average length in comparison with ours).

Umiker-Sebeok looked at the narrative within the ongoing dialogue in which it was embedded, something which we could not do. She found that narratives become a more interactive speech event as

children get older. The narratives of very few 3-year-olds (17%) got any response at all from other children, in contrast to 61% of the 5-year-olds' narratives eliciting a response. Furthermore, the responses of older child listeners are more relevant to the narrative they've just heard. They often ask for information on orientative context, evaluation, and results, suggesting that they too share some notions of how narratives are to be structured, ie. what elements are to be present.

Overall, children seem to structure their narratives in basically similar ways, whether they are talking to an interested adult giving them their full attention, or to other children actively playing in their preschool. However, as Umiker-Sebeok points out, this does not mean that the structure of the narrative is unaffected by the audience. Rather, she found that the listeners play a major role in shaping the narrative too, by asking for clarification or elaboration or adding a parallel piece of information from their own experience, and so on. It is a truism to say that speech is a social event; clearly more research needs to be done in the area of how narratives play a role in social interaction.

The high point analysis was tailored specifically to narratives of personal experience. But can these narratives be described in the same way as fictional stories have been? In other words, are these narratives good stories? In the following section we will analyze the same data according to an episodic grammar that was originally derived from standard fiction and later extended to stories produced by children.

6
Episodic Analysis

BASIC ASSUMPTIONS OF EPISODIC ANALYSIS: NARRATIVES AS ORGANIZED INFORMATION ABOUT PURPOSIVE BEHAVIOR

A basic assumption of episodic story grammars is that stories are well-organized structures (Glenn, 1978; Glenn and Stein, note 2; Mandler, 1978; Mandler and DeForest, 1979; Mandler and Johnson, 1977; Mandler et al. 1980; Rumelhart, 1975, 1977; Stein and Glenn, 1979; Stein and Nezworski, 1978; and Thorndyke, 1977). Most stories are seen as descriptions of purposive behavior. Thus, something happens to the protagonist that produces an internal response: ie. the development of a goal. Goals are internal motivating states, and they precipitate attempts to reach those goals, resulting in successful or unsuccessful consequences. Thus, the story unfolds logically from a motive to an attempt to a consequence. There may be other constituents in a story as well, such as settings or reactions by the story participants to events or consequences. These latter constituents are not as central to the kernal structure of the episode, however.

Story grammar proponents suggest that the constituents of the episode can be abstracted from most stories. That is, an infinitely diverse set of sentences can function in equivalent ways within the story: as precipitating events or internal motivating states, as aims or as consequences. Furthermore, these constituents are logically related to each other: motives (events or internal states) cause goal-directed actions and these actions cause consequences. Even quite complex stories are seen as complications and/or elaborations of this basic structure.

Glenn and Stein (Note 2) have suggested that an understanding of episodic structure may develop slowly in young children. They asked children to tell stories about various topics, and provided them with story stems such as "There was once a little girl named Alice. She lived in a big house by the beach." They analyzed the stories produced by kindergarten, third grade, and fifth grade children, and found that many stories, particularly of younger children, were not organized into episodes. Some were just general descriptions of the protagonist's environment, while others were merely chronological sequences of actions, without being purposive or goal-directed, or otherwise causally linked. Still others were lists of actions and external events that caused automatic, non-purposive reactions by the protagonist.

Some of the stories, however, were indeed organized into episodes. More complex stories were also found that entailed elaboration or complication of the basic story grammar described in the introduction. These included stories in which a complete episode functioned as, for example, an event that precipitated the goal-directed behavior of a new episode. In other words, two or more episodes were hierarchically organized, with one episode serving as a single constituent of another episode. In another type of complexity, the protagonist met with failure on his or her first attempt to reach a goal, and then made several different attempts to reach it. But even in such complex stories, the underlying structure of the story remained the same: events and motives precipitated aims that led to consequences. Some stories had two protagonists interacting with each other, but in these stories as well, purposes were described for each protagonist. In other words, the story consisted of different episodes (each from the perspective of one of the protagonists) that interacted with each other.

Most proponents of episodic grammar have studied people's recall or summarization of standard fictional stories (Glenn, 1978; Mandler, 1978; Mandler and DeForest, 1979; Mandler and Johnson, 1977; Mandler et al., 1980; Rumelhart, 1975, 1977; Stein and Glenn, 1979; Stein and Nezworski, 1978; and Thorndyke, 1977). Because Glenn and Stein (note 2) provide the only analysis of children's story productions and posit the existence of a developmental sequence of story structures, their grammar will be used in the following analyses.

In general, Glenn and Stein regard stories as logical sequences of information (statements), and these statements can be classified into informational categories such as goals, actions, etc. Furthermore, the passage as a whole can be classified as belonging to one of a number of patterns or story structures, depending upon what informational categories are present and the relationships between those categories. Their story grammar also

describes the connections which exist between statements within a structure, as well as the connections which exist between structures in stories with more than one structure. The following description of Glenn and Stein's grammar is summarized, and the reader is referred to them for a more complete description.

DEFINITION OF A STATEMENT

Glenn and Stein define statements as units that convey important distinctions. Most sentences or clauses are separate statements; however a single sentence could be parsed into more than one statement. For example, the sentence "We went out hunting for a deer" would be considered two statements: "We went out" is a goal-directed action, whereas "hunting for a deer" is the goal.

Glenn and Stein's statements in most cases correspond to Labov's clauses. However, when two informational categories can be found within the same sentence or clause, they parse it accordingly. Thus, their parsing is less tightly tied to syntax and more influenced by informational categories than are the clausal parsings of Labov's grammar.

CLASSIFICATION OF STATEMENTS

Statements were classified as informational units of the Glenn and Stein grammar. These include the functional categories of events, motivating states, attempts, consequences, reactions, and settings. (In this section, the word "event" is used more specifically than elsewhere.) For some stories, the content categories of actions, external states, internal states, and natural occurrences were used instead of the above functional categories. In addition, the present authors added two other categories: judgments and appendages. Events are defined as natural occurrences, actions, or environmental states resulting from actions. Motivating states are internal states, such as affects, cognitions, or goals, that motivate the protagonist. Attempts are actions initiated by an event or a motivating state and are preparatory to goal-attainment. Consequences are actions that directly achieve or fail to achieve a goal, or existing states once all attempts have failed. Reactions are either internal states that are precipitated by events, attempts, or consequences and do not motivate behavior, or they are purposeless actions that are precipitated by events, attempts, or consequences. Settings are internal states, external states, or habitual actions that serve to introduce the characters and the social and physical environment. Judgments are statements in which the child steps out of the time frame of the narrative and comments on the narrated events. These could be evaluative comments, such as "Boy, was that dumb!" or informational comments, such as "This

one here is the knee I hurt." Appendages are defined in the same manner as in the high point analysis above, and consist primarily of abstracts and codas here as there.

In general, settings and judgments correspond to orientation and evaluation in the preceding high point analysis, but many do not. Since the high point analysis differentiates both function and form of orientation and evaluation much more than the episodic grammar, settings and judgments will not be discussed further here, although equivalences of these four categories will be discussed further in Chapter 10. Neither will appendages be talked about further.

The above categories assume that a statement serves a function within the entire narrative and that the statement can only be classified in terms of its relationship to other statements. Some of the children's narratives, however, lacked any statements that could indicate purposiveness, nor were the statements even linked causally. Since their statements served no function, the above categories are clearly inappropriate. For the narratives lacking causal links or purposive behavior, one could only describe the content of each statement. Classification of this content included the following: Actions are the behaviors of a character. External states are descriptions of the story environment. Internal states are descriptions of a character's internal states, such as likes and dislikes, personality traits, and habitual feelings. Natural occurrences are changes in the environment.

Almost every statement potentially can be classified as one of the above content statements. However, in most narratives the content of any specific statement is less important than the function it serves within the narrative. For example, an action can serve many different functions: it can be an event, an attempt, a consequence or a reaction. Classification of statements on the basis of the functions they serve within a story takes precedence over classification on the basis of content.

ORGANIZATION OF STATEMENTS INTO STRUCTURES

Glenn and Stein found seven major types of story structures. These are: descriptive sequences, action sequences, reactive sequences, abbreviated episodes, complete episodes, complex episodes, and interactive episodes, and they are summarized in Table 10. Glenn and Stein have also suggested that the structures in the above list are logically ordered from least complex to most complex, since each structure includes all of the categories, functions and relationships between categories found in the previous structure plus at least one additional one (with the exception of the last two: complex and interactive stories). A story produced

Table 10. Structural Patterns of Narratives in Episodic Grammar

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Descriptive sequence: describes character(s), surroundings, and habitual actions with no causal relationships.

Action sequence: is a list of actions that are chronologically rather than causally ordered.

Reactive sequence: is a set of changes that automatically cause other changes with no planning involved.

Abbreviated episode: describes aims of a protagonist, but planning generally must be inferred.

Complete episode: also describes aims but exhibits more evidence of planning.

Complex episode: is an elaboration of a complete episode in one of four ways:
(1) by an embedded reactive sequence
(2) by an embedded complete episode
(3) by a multiple plan application (ie. repeated attempts)
(4) by a multiple plan application with an embedded complete episode

Interactive episode: describes one set of events from two perspectives, where both people have goals and influence each other. There are two primitive variants of this pattern that involve interchange between characters, although they are not truly interactive:
A shifting-perspective narrative describes contiguous, not coextensive, events from alternate perspectives.
An interactive reactive sequence describes extensive interactions with no evidence of planning.

(Incomplete episode: gives all components of a complete, complex, or interactive episode except the requisite consequence.)

(Multiple structure narratives may be complex or they may be compounds of simpler structures.)

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by a child can of course be comprised of more than one of the above structures, and hence termed a multiple structure story.

Descriptive Sequences

These stories are simply descriptions of the character, his or her surroundings and habitual actions, and include the content categories of external states, internal states, natural occurrences, and habitual actions of the character. The statements in a

descriptive sequence are not causally related; they are simply listed. The following example was produced by a 4-year-old girl, "C". This narrative as well as all others are from our data, and are chosen to illustrate the structural categories described by Glenn and Stein.

Narrative # 12

E: Did you ever get jabbed or stuck with anything?
C: A monster did. I saw a monster in the water. At the museum.
E: You saw a monster in the water at the museum.
C: Because it drowned.
E: It drowned? Oh.
C: It was gone. There was Indians over there.
E: Oh, I see. There were Indians over there?
C: Yeah. But they went to sleep. It's a statue.

Action Sequences

These stories focus on behavior, so the most common content category is that of actions, although external states, internal states, and natural occurrences also can be found. Furthermore, many of the action statements are logically ordered in that some actions necessarily preceded other actions in time. However, prior actions did not actually cause later actions to occur. The following example was produced by a 4-year-old girl, "J".

Narrative # 13

E: Have you ever been to Oberlin or Cleveland, or anyplace like that?
J: I been, been to, to Christ Jovah's right there.
E: You've been where?
J: Christ Jovah's house. Sometimes.
E: And?
J: I just said, I, I said, "Hi, hello, and how are you?" And then, and then, they go to someplace else and then, and then I had a party, with, with, with, with candy and ... hmm ... my, and my, um I don't know.
E: And you what?
J: I don't know what I did. I <u>sure</u> had a party.

Reactive Sequences

Reactive sequences focus on changes in the narrative environment, and furthermore, one change generally causes other changes. Thus, something happens that causes something else to happen,

although there is no evidence of goals. Statements are now no longer defined on the basis of their content, but rather on the basis of the function they serve within the story, and categories include events, reactions, and settings. The following example was produced by a 6-year-old boy, "L".

Narrative # 14

E: What happened in the accident that you saw?
L: Car got burned up.
E: A car got burned up? Tell me about what happened when the car burned up.
L: There was three kids in there. Everybody got out in, just in time, and, and, and then, my Dad didn't keep his eyes on the road and we were almost wrecked.
E: You were almost wrecked too?
L: Yeahhhhh. I wouldn't want that to happen. I'd be out of school about a week.

A sequence is a series of statements that may or may not be causally related, in contrast to an episode that requires causality of a particular sort; planning by the characters involved. This planning can be represented by an abbreviated, complete, complex, or interactive episode.

Abbreviated Episodes

Abbreviated episodes describe aims of the protagonist but planning generally must be inferred. Two components are required: (1) Some motive for action, either an event in the environment or an internal motivating state, must exist and lead to (2) a specified consequence that achieves or fails to achieve the protagonist's goal. That goal may be inferred rather than explicitly stated. In the following example, produced by a 7-year-old girl, "S", an event (getting hit by her friend) resulted in a clearly purposive consequence (her friend got a spanking), although no explicit goal was stated and no planning occurred.

Narrative # 15

S: I went to the hospital. And you know what? My friend Scotty, you know, ohhh, did that hurt.
E: What happened?
S: See, what was that round thing with the stick at the top that you hit a ball with, a hard ball?
E: A bat?
S: Yeah. And he hit me, you know, I was in back of him, and he hit me, and before I got in the house, it was bleeding so hard. Way down to my legs.

E: Way down to your legs? Uh huh. And?
S: Well, Scotty, you know, he got a spanking.

Complete Episodes

There is a quantitative rather than qualitative difference between abbreviated and complete episodes. Complete episodes also describe purposive behavior, but there is more evidence of planning. A complete episode must include at least three of the categories of events, motivating states, attempts, and consequences, with the consequence category obligatory. If consequences are omitted, the episode is incomplete. In addition, complete episodes may include the optional categories of settings, reactions, abstracts and judgments. Two examples of complete episodes follow. The first was produced by a 6-year-old boy, "B", and the second was produced by a 4-year-old boy, "L". Successive narrative comments are numbered in Narrative # 17.

Narrative # 16

B: I remember when my brother got a sliver, a sliver.
E: Oh, tell me about it.
B: We were playing outside. I don't know how it happened. We were playing outside and when we came in he had a sliver in his hand.
E: He had a sliver in his hand.
B: Just before he took a bath my Dad came up and took it out, and he was cry-ying, cry-y-ying, oow, oooh. He cried for a little while. He started and he didn't want to get into the tub. He started crying and crying.

Narrative # 17

1 L: I got a big dog.
2 Don't ever try and take a little cat by it.
3 Or don't ever take little stuffed animals.
4 Don't ever take little, bittle animals by it,
5 'cause it will eat them up.
E: Really? Did it ever eat anything up?
6 L: Yes. It ate an animal, a baby animal.
E: It did? How'd that happen?
7 L: Well, somebody took a baby puppy by her, a tan puppy.
8 Then he ate him up.
E: Then he ate him up?
9 L: Yeah (whispered). That was stupid.
10 I watched him.
E: You did?
11 L: Yeah, and I said,
12 "Don't no eat him,"
13 and he just still ate him, ate him up.

If the optimal complete episode (containing all four categories of events, motivating states, attempts, and consequences) is diagrammed, a hierarchy can be inferred: events and motivating states can be described as a motive for action, while attempts and consequences can be described as a plan application that results from that motive. The idealized structure of a complete episode is depicted in Figure 5. (This is simplified from the idealized structures depicted by Glenn and Stein, although it represents the same information; Glenn, personal communication.)

In the first example of a complete episode, Narrative # 16, several events (eg. getting the sliver), an attempt (Dad coming up), and consequence (he took out the sliver) occur, as well as a number of reactions to that consequence (eg., crying). Although no motivating state is explicitly given, it is easily inferred: the desire to remove the sliver.

In the second example, Narrative #17, the motive is provided by both event statements (the dog eating the puppy) and a motivating state (the content of the child's statement, "Don't no eat him"). The plan application consists of the child's attempt to carry out that goal (his expression of the goal, ie. the act of saying it), and the consequence (it didn't work). In addition, the child introduces the narrative with several judgments that are out of the time-frame of the narrative, and are addressed directly to the listener. Narrative # 17 is shown in Figure 6.

Complex Episodes

Complex episodes are complications of the basic complete episode. Four types of complex structures will be described. The first two types of complex episode have one structure functioning as a single unit in a higher order structure. For some narratives,

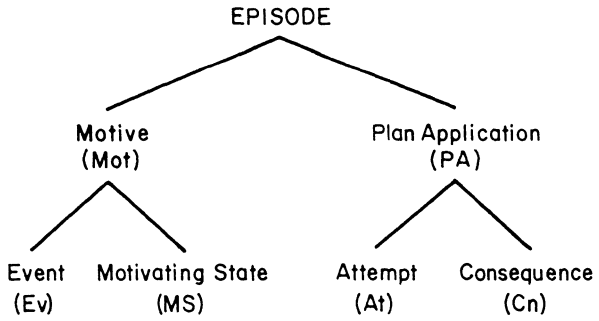


Fig. 5. Idealized structure of complete episode.

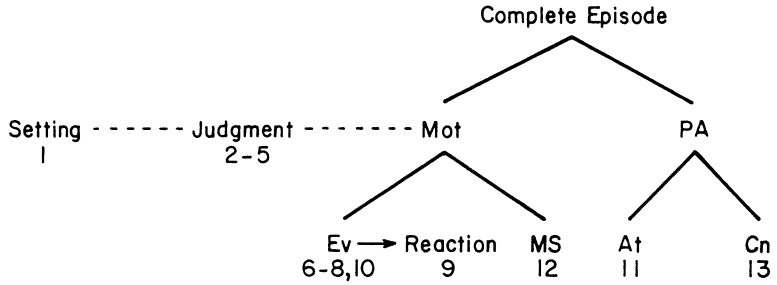


Fig. 6. Graph of Narrative # 17, a complete episode in episodic analysis.

a reactive sequence functions as a single unit in a higher order structure. This is illustrated by Narrative # 18, told by a 9-year-old boy, "P".

Narrative # 18

E: Have you ever been in the water?
1 P: Yeah, I almost drowned one time.
E: You did?
2 P: Yeah. My cousin was up
3 and, we had, went down to the Birmingham River,
4 and, that, it was far away from my house.
5 We went down there
6 and then we went, we was wading in the water,
7 then, there's this rock,
8 and I slid on the rock
9 and the water was over my head
10 and then it, I fell in
11 and then I started to drown.
12 My Mom said I could help it
13 but I was too scared to then.
14 It was up to her
15 when she was bending down
16 to get me.

In the above narrative, the experience of going to the river, wading in, slipping on a rock, falling and almost drowning is a reactive sequence. It also serves as an event that triggers the complete episode of the rescue. Narrative # 18 is depicted in Figure 7.

For a second group of complex episodes, a complete episode (or even a complex episode) functions as a single unit: as an event, an attempt, a consequence, or even as a setting. An example is Narrative # 19, produced by a 5-year-old boy, "P".

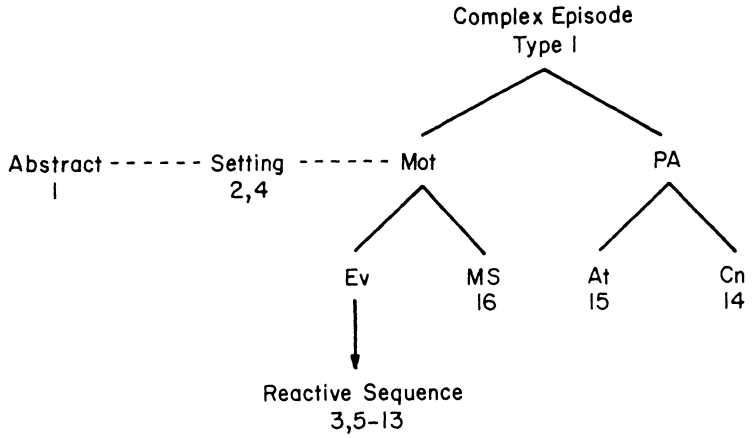


Fig. 7. Graph of Narrative # 18, a type 1 complex episode in episodic analysis.

Narrative # 19

P: Want to hear one bad one?
E: Yes.
1 P: Well, ah, we were in our garden tractor,
2 two wagons hitched on,
3 and I was gonna see if I could jump over to the other wagon,
4 while the garden tractor was running.
5 I fell off.
E: You were going to see if you could jump over to the other wagon while the garden tractor was running?
6 P: And while it was going,
7 and I fell down,
8 and I didn't need - wagon, the wheel of the wagon ran right over the bottom of my lip,
9 right at the top there.
10 And then I went to the Amherst hospital.
11 no, which before I went to the Amherst hospital, it was bleeding real bad.
E: Before you went to the hospital it was bleeding real bad? The Amherst hospital?
12 P: Yeah, the Amherst hospital. Have you been to the Amherst hospital?
E: No, uh-uh.
13 P: That's where we live, in Amherst, Ohio,
14 and I have to had stitches on my lips.
15 But, then when the operation was all over,
16 why, which she, she gave me a little toy shot.

E: She gave you a little toy shot?
17 P: Yeah, the man who did the operation was.
E: The man who did the operation?
18 P: Yeah, it was a man,
19 and, and he's the one who gave me the little toy shot.

Here the complete episode of trying to jump from one wagon to the other, falling off and cutting his lip, serves as the event precipitating another complete episode, that of going to the hospital and getting stitches. Narrative # 19 is graphed in Figure 8.

The third and fourth types of complex episodes involve some kind of complication in the pursuit of the goal. In the third pattern, the plan application is repeated, due to initial failure. Such a pattern is illustrated by Narrative # 20, produced by an 8-year-old girl, "M". It is represented in Figure 9.

Narrative # 20

1 M: I had this real bad rash.
2 My Mom thought it was a rash,

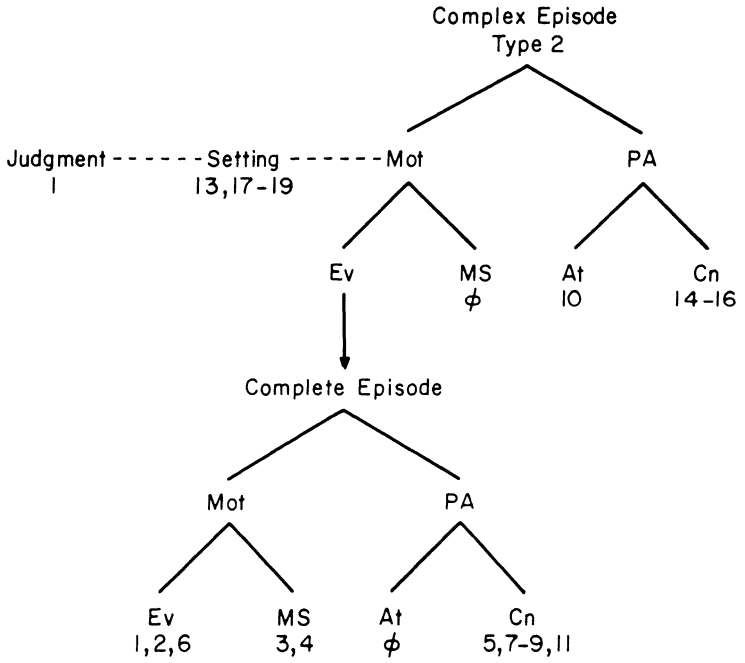


Fig. 8. Graph of Narrative # 19, a type 2 complex episode in episodic analysis.

3 and I think it was too.
4 My Mom didn't know what it is.
5 I had it when I first started kindergarten
6 so I was absent then.
E: Uh-huh. Then what?
7 M: My Mom had to look in the encyclopedia
8 but she couldn't find it,
9 and she went to the doctor's
10 and found out.
11 I had the measles.
12 So I got them.
13 Can you have the measles twice?
E: I think so.
14 M: Well, then I just got a shot against measles again.
15 Sheez. I hate measles.
16 They're dangerous too.

Above, the child had a rash (event) and her mother wanted to know what it was (motivating state). The mother looked in the encyclopedia (first attempt) and could not identify it (first consequence). So she took her child to the doctor (second attempt) and he successfully diagnosed the rash (second consequence).

The fourth type of complex episode not only has more than one plan application, it also embeds complete episodes (or complex episodes) as at least one of these multiple plan applications. Such a pattern is illustrated by Narrative # 21, produced by a 9-year-old girl, "M".

Narrative # 21

E: Have you ever been on a trip like that?
1 M: Yeah, I had to go to Michigan I think.
E: To Michigan?
2 M: Had to get up.
3 I don't know what time it was,
4 'cause I was so dizzy.
5 We went straight to the car
6 and we got packed our clothes
7 and I already had the clothes packed.
8 And, we went into the car.
9 She <u>forgot</u> something.
10 She went back up
11 and there was, she had to come back down
12 and get the keys
13 and unlock the door
14 Then she got what she needed
15 and come back down.
16 And then we had to go a1-1-1 the way there without
any food.

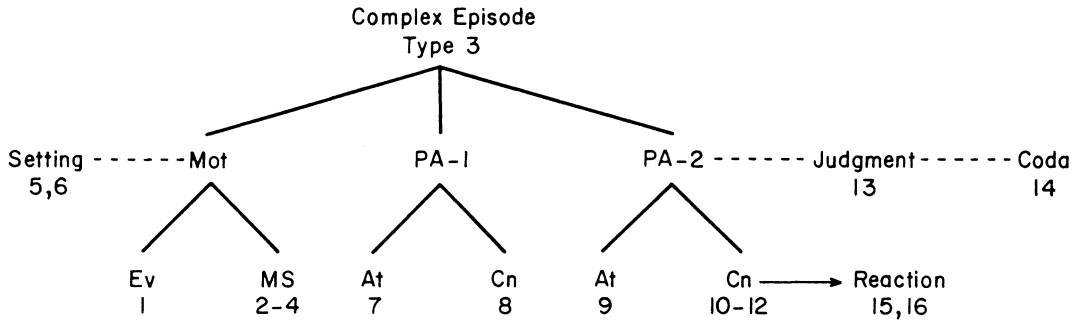


Fig. 9. Graph of Narrative # 20, a type 3 complex episode in episodic analysis.

E: Without any food?
17 M: Not a bite 'til we got there.

The event of going to the car and discovering that something was forgotten serves as the motive that initiates the plan application of going back upstairs. However, that attempt failed, and the mother needed to develop a new subgoal (getting a key) in order to successfully achieve her original goal - getting the item she had forgotten. Narrative #21 is depicted in Figure 10.

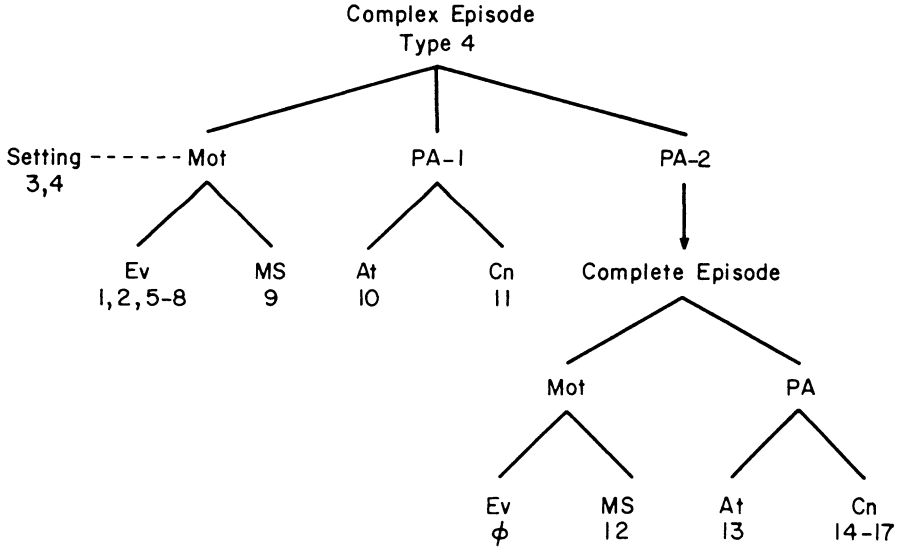


Fig. 10. Graph of Narrative # 21, a type 4 complex episode in episodic analysis.

Glenn and Stein classify narratives in which external events facilitate, hamper, or otherwise change the protagonist's efforts, causing his or her goal to be achieved or blocked or altered, as complex narratives, but the present authors do not think that they warrant such scoring. They are classified as complete episodes, although it might be argued that their sophistication lies somewhere between complete episodes and complex episodes.

Interactive Episodes

In the interactive episode, there are two people who have goals and influence each other. (Theoretically it is possible to have more, but neither Glenn and Stein nor the present authors ever encountered an example of this.) Thus, the narrative may be analyzed from the perspective of either person, and one can specify a complete episode for each. Individual statements usually serve multiple functions: for example, an attempt by one person might be seen as an event or a consequence from the perspective of the other. Not all narratives with more than one person involved were classified as interactive episodes. In fact, most were not, since only one character was developed, ie. only one had goals and aims. A second character usually served as merely an instrument of the major protagonist. However, if both characters worked towards goals and influenced each other, then the episode was classified as interactive. (Two other patterns that involved some interchange between different characters will be described later.) An example of an interactive episode is Narrative # 22, produced by a 7-year-old boy, "G".

Narrative # 22

E: Do you have any brothers or sisters?
1 G: Yeah, I got two sisters.
E: Do you ever fight with them?
2 G: Yeah, I fight with my big sister a lot.
E: Oh, tell me about one of the fights that you had.
3 G: Well, my little sister's cute,
4 but my big sister, she's awful and ugly.
5 She got freckles too.
E: She's got freckles? Tell me about one of those fights that you had.
6 G: One time, we were watching television.
7 And she got, she got real tired
8 and then she started saying,
9 "Georgie, would you go get me some milk?"
10 And she got thirsty.
11 And I said,
12 "Why don't you get yourself some milk?"
13 She covered up the television

14 and I punched her in the nose.
15 Its, her nose started bleeding.
16 And, then, then she, she went and told Mommy
17 and I, I, she said
18 she was gonna go tell Mommy.
19 I said,
20 "If you do, I'll, I'll, I'll break the milk bottle,
21 I, I'll hit, I'll pour the milk out on you."
22 Had, that I got for me,
23 that I was drinking,
24 and she, she went back
25 and sat down.
26 She got her milk
27 and she went back
28 and sat down.
29 That was ... Mom, Mommy was downstairs.

It is possible to graph interactive episodes, although the nature of their interaction is clearer if they are depicted vertically instead of horizontally. Narrative # 22 is represented in Figure 11.

In Narrative # 22, there are two people: the narrator and his sister. The sister is tired (her motivational state), and she asks her brother (attempt) to bring her some milk. Her request functions as an event for the narrator, who refuses (a consequence for the sister). She responds by blocking the TV - an attempt to get compliance on her part and simultaneously an event from the perspective of her brother; he responds in turn by hitting her (a consequence). She retaliates by threatening to tell their mother (a new attempt on her part and an event from her brother's point of view), and he responds with even more effective threats (a consequence for the sister). This interchange ends with the sister getting her own milk (a consequence precipitated by the narrator's potent threats).

The present authors identified two other patterns that involve some degree of interchange between people, although their interaction is much less sophisticated than described above. Some narratives simply have shifting perspectives. That is, there are different episodes from different points of view. The child clearly recognizes that other people have motives and aims. Such multiple structure narratives are appropriate where the events are contiguous but not coextensive. For example, if Grandpa's planned attempts to milk his cows lead to his granddaughter fortuitously hearing a kitten and searching it out, the two episodes are from different perspectives, but since they do not refer to the same set of events, they cannot be classified as interactive.

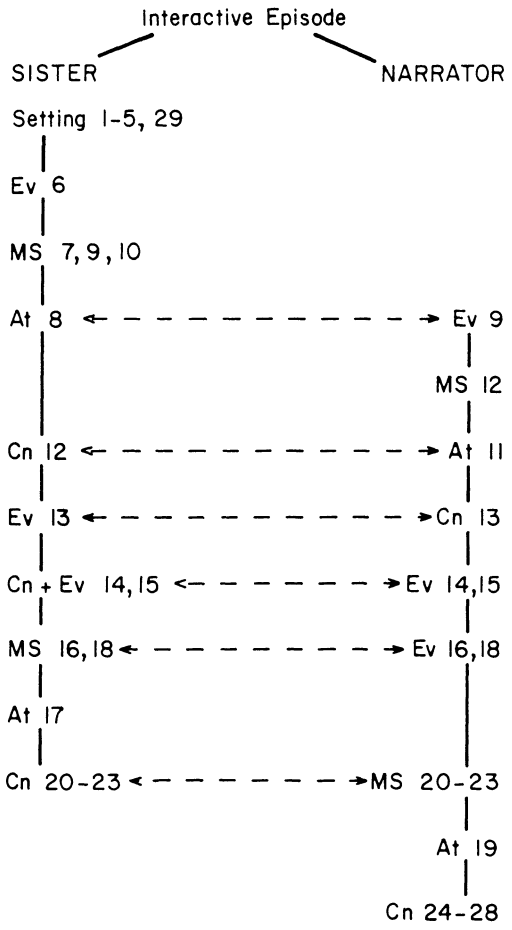


Fig. 11. Graph of Narrative # 22, an interactive episode in episodic analysis.

The other pattern is an interactive reactive sequence, and this is rare at all ages. In this pattern, two people respond extensively to each other, but there is no evidence of planning by either one. Each person can be described by a reactive sequence, with events from the perspective of one person functioning as reactions from the perspective of the other. These narratives are frequently dialogues that go roughly, "I said this, and then she said that, and then I said ...", or they are descriptions of reciprocal activity of the form "I did this, and then he did that, etc."

These latter two types of patterns, that demonstrated less sophisticated interchanges than the interactive pattern, will not be categorized as interactive episodes, but rather as complete episodes with multiple structures or as reactive sequences.

RELATIONSHIPS BETWEEN STRUCTURES

Multiple structure narratives necessitate some means of describing relationships between structures. For example, some complex episodes have other structures embedded within them: how should the relationship between the subepisodes or reactive sequences and the superordinate complex episodes be described? In some narratives one structure leads to another, and in others there are several structures related by no more than temporal progression. The relationships between these latter structures surely differ, and those differences should be captured in some way.

An example of a narrative that incorporates a number of different structures is Narrative # 23, produced by a 9-year-old boy, "J". It is a very complex narrative, and demonstrates what sophisticated narrators some of the children were.

Narrative # 23

(J has just completed a narrative about cutting his chin, that necessitated his getting stitches.)

J: And a month after that I was playing with my sister
and she had knocked her teeth out right here on the coffee table.
Oooooohhhhh.
She had leaned up against my shoulder
and blood running down it.
Ooooooooohhhhhhh.
Daddy picked her up
and blood run down him there,
and Daddy said,
"Get that girl out of here and get her to the hospital."
So we went to the hospital
and went in Elyria Memorial,
so she had stayed there for a week or two
and they had brought her home,
laying in bed with her
and two teeth were knocked out,
and Daddy was sitting down there
trying to figure out what we could get her.
Daddy was thinking,
"What about a fishing pole?"
And I said,

"No, we gotta think of something better than that."
And I thought a camera,
and he couldn't even afford that eleven dollars for one.
He was just about to start work
so he had finally remembered
that she had wanted a dish at a

E: A what?

J: A dish at a, not a play but it is glass, little Chinese set,
and Daddy bought her a Chinese set,
it cost around five or six dollars.
Sooo, I asked him
what he was gonna get me,
and he said,
"Didn't you get anything?"
And I said,
"No."
I said,
"You didn't get me anything when I cut my chin open,"
and he said,
"That ain't as bad as your sister."
And I said,
"You don't care for me, do you?"
And he said,
"Yeah, I do."
And I said,
"No you don't."
So we started fussing.
So I got mad at him
and hit him in the mouth.

E: And you hit him in the mouth?

J: Hit him right in the mouth.
I turned around, I turned around,
and went like that.
So he said he'd chase me around the house
and he chased me around the house eleven times.

E: Eleven times?

J: See, he had to go, he had to go up a great big tall stairs
and down a short stairs,
and I went right beside them.
He couldn't fit beside them.
Yeah, and he had went down these long stairs
and he couldn't fit through the prickers.
So I went down all the stairs,
the little stairs went down like this.
And he went up the stairs,
and down the stairs,
so all these cars were squished in,
so I went, ah, through the cars,

and he went up the stairs
and down the stairs.
He got so excited,
he said, "I'm gonna go one way."
So I kept on running that-a-way,
and he that-a-way,
and I stopped at the corner
when he was at that corner,
and he started coming back there,
and he went around there,
and he went around there,
and on in the house,
and kept going round and round and round.
Finally I was up on there,
and here he come.
He had went behind the cars
and I had had a bucket of water
and threw the bucket of water at him.
Oooooooohhhhh.
It was cold that day too.
He went brrrrrrr,
'cause this hot water I threw at him.

E: Hot water?

J: Yeah, <u>hot</u>. It burned my finger.
He thought for sure he was gonna get it,
and it landed right on top of him.
And then he was this cold for a minute
and then that hot water it got him
and he went <u>"Oooooooohhhhhhh."</u>
He thought he was having a bath out there,
and he went all over.

The above narrative begins with a complete episode from the point of view of the father: the narrator's sister injures herself, and her father demands that she receive medical attention. After she is home, her injury precipitates her father's desire to buy her something to cheer her up. An interactive episode (conversation about choosing a gift) is embedded within his attempt to think of an appropriate gift. Dad's intention of buying a gift for his daughter reminds the narrator that he had received nothing after his injury a month previously, and he expresses his anger and hurt to his father. This sets off another interactive episode, with the father playfully chasing him and the child administering a rather surprising finale. (This father seems exceedingly tolerant.)

Glenn and Stein describe a number of relationships between structures. (They also describe relationships between statements within structures, but these will not be discussed here.) One of the major relationships between structures is <u>temporal</u>. That is, two structures are only related to each other by virtue of when they occur; one structure in no way causes or influences the other.

One temporal relationship is the AND relationship, where two structures either occur simultaneously or else there is no clear way of ordering one structure with respect to the other, ie. either could have preceded the other.

A SIMPLE THEN relationship indicates that one structure clearly precedes the other structure, but does not influence it in any way.

An EMBEDDED THEN relationship suggests that one set of events (ie. structure) begins, and while it is in progress another set occurs. This is followed by the end of the first structure. However, the first set of events do not cause the second: the second set merely occurs while the first is ongoing.

A second major relationship is causal. One set of events causes a second. There is a direct link between structures.

A SIMPLE CAUSE relationship indicates that one structure is the necessary and sufficient cause for a subsequent, temporally distinct one to occur.

An EMBEDDED CAUSE relationship indicates that one structure is embedded within a second, and one set of events causes the other, ie. provides the necessary and sufficient pre-conditions for its occurrence. This relationship exists when a complex episode incorporates a complete episode as a setting, an event, an attempt, or consequence.

Another relationship indicates some causal link between structures, but it is decidedly a weaker link. This is the ENABLE relationship. In this relationship, an event or consequence in one structure creates the necessary pre-condition for another; however, the first occurrence is not a sufficient pre-condition for the second. The first does not directly cause the second, but only makes it possible.

Another relationship which is restricted to setting information is the ALLOW relationship. This describes narratives in which one structure comprises the setting in which the second structure occurs. The second structure then describes some change in that situation.

Glenn and Stein describe one additional relationship between structures: a PARALLEL relationship, indicating that two structures are highly similar in form and content. The present authors, however, merely focus on similarity in content.

The last relationship was devised by the present authors: a REPETITION relationship. This exists when a second structure repeats the first, and generally elaborates or expands it in some way.

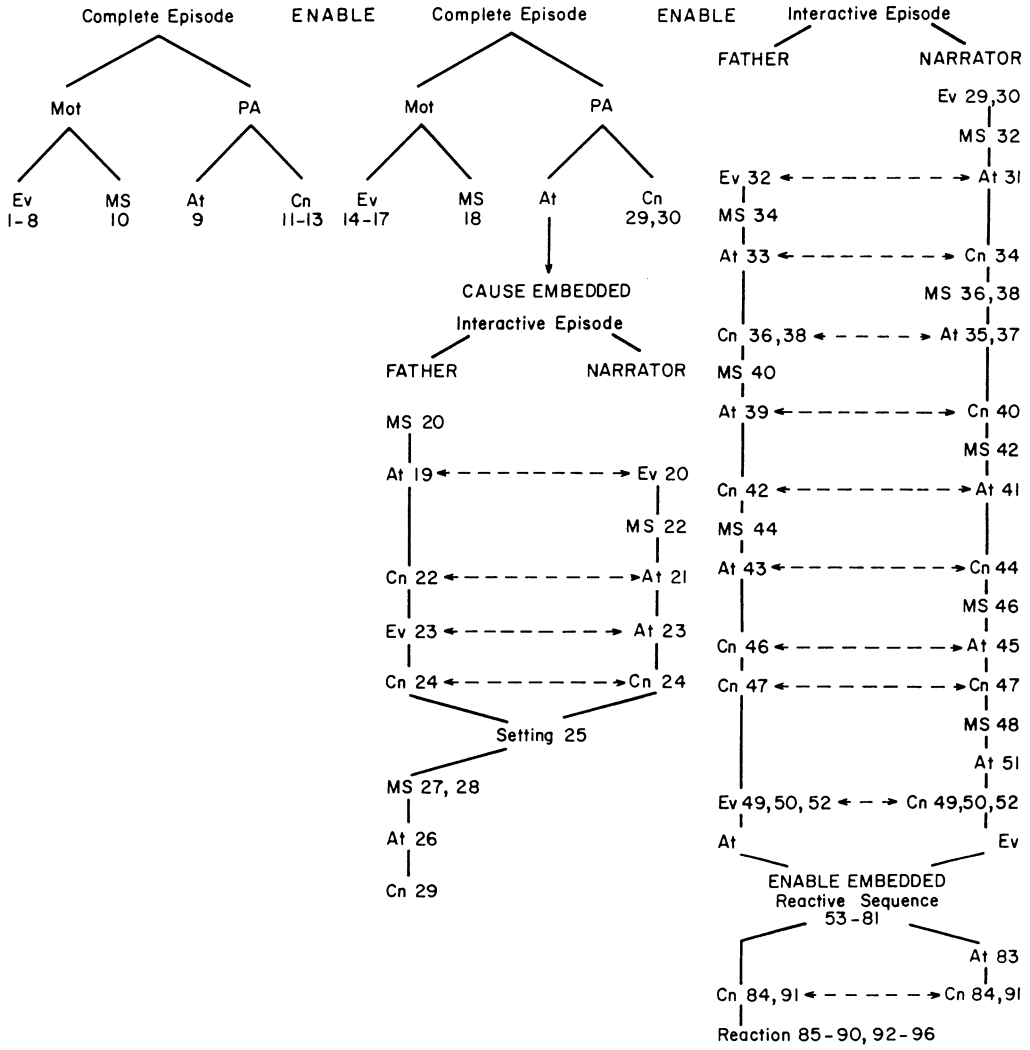


Fig. 12. Graph of Narrative # 23, a multiple structure narrative in episodic analysis.

Returning to Narrative # 23, the first complete episode (the sister's injury) created a necessary pre-condition for the father's desire to give her a present. The father obviously would not have felt this way if that injury had not happened. Thus, an ENABLE relationship connects the first two structures. The second structure is a complex episode, with an interactive episode embedded in it by an EMBEDDED CAUSE relationship, since the father's motive of trying to think of an appropriate gift (COMPLEX EPISODE) was the necessary and sufficient pre-condition for the interaction with his son (INTERACTIVE EPISODE). The last structure, an interactive episode, is again connected by an ENABLE relationship, since the father's decision to buy his daughter a present provided the necessary pre-condition for his son's angry and hurt response, and the father's playful reaction to it. However, there is no direct causal link between them: the father's decision was not a sufficient pre-condition for the episode which followed. Narrative # 23 is sketched in Figure 12.

The above narrative is also interesting because it incorporates both episodes of action and episodes of conversation, as well as both interactive and non-interactive episodes. In conversation, numerous episodes easily and naturally follow each other, since every utterance of each participant usually functions as an event or consequence for the listener and simultaneously as an attempt for the speaker. (Here, 'speaker' does not necessarily refer to the narrator; it refers to the person whose utterance is reported by the narrator. Of course, often the narrator quotes him- or herself.) Subjectively, these episodes of conversation seem quite different from episodes of action, where consequences are more laboriously achieved. Both types of episode, however, fit the structure of events leading to goals which precipitate attempts and result in consequences; thus, they will not be considered separately here - nor have they been separated by Glenn and Stein. A correlative impression is that treating conversational episodes as equivalent to action episodes artificially inflates the real complexity of the narrative. Such is the case with Narrative # 23 above, where dialogue consisting of four episodes is embedded within another episode as an attempt. The dialogue doesn't seem to merit the number of episodes that it in fact entails. In addition, eight episodes are embedded within the final interactive episode prior to the chase description. Treating conversation no differently than action neglects the fact that speakers often have superordinate goals, to which individual utterances are subservient. These superordinate goals in conversation are more parallel to the goals of episodes of action, such as people engaged in treating injuries, or going hunting, or obtaining a desired toy, than are the more short-sighted goals in conversational episodes.

7
Results and Discussion
Episodic Analysis

THE IMPORTANCE OF CAUSALITY

Before discussing our findings, reiteration of the major difference between the various structures proposed by Glenn and Stein is in order: namely, whether or not there are causal relationships between different statements. Other research has investigated children's understanding of causality, and our results profitably can be viewed within the context of this literature.

In Glenn and Stein's system, reactive sequences and episodes (abbreviated, complete, complex and interactive) are quite different from descriptive and action sequences because they entail causal relationships between events, even though these need not be made explicit by use of causal connectives such as 'because' or 'so.' Episodes differ from reactive sequences in that they entail causal relationships of a particular sort: goal-directed, planful behavior by a protagonist. Piaget (1928) first suggested that children have difficulty understanding causal relationships between events. He claimed that the belief that causes temporally precede their effects develops rather late, specifically during the period of concrete operations. Before this, the child's conception of relations among phenomena is one of juxtaposition, where logical, temporal, causal, and other relationships co-exist in a diffuse, syncretic schema. His conclusions, and that of supportive research done by others, were primarily based upon children's inability to understand or correctly use linguistic causal connectives.

Recently, a number of researchers who have looked at children's understanding of causality irrespective of their use of language have demonstrated that children <u>do</u> seem to understand

causal relationships between events, ie. that causes must precede effects in time. Bullock and Gelman (1979), Kun (1978), and Green (1977) all found that children at ages 3, 4½, and 5, respectively, readily identify a preceding event rather than a succeeding event as a cause of a specific occurrence. For example, Kun (1978) showed 4½- to 8-year-old children three pictures that depicted the relationship "A caused B caused C", eg. "Scott pulled the dog's tail, the dog bit Scott, Scott cried." She then showed the children the picture of event B, and all of the children consistently selected the antecedent event in response to the question, "Why did the second event happen?" whereas they consistently selected the consequent event in response to the question, "What happened next (ie. after the second event)?" (However, Shultz and Mendelson, 1975, found that 3- to 3½-year-olds tended to identify a subsequent event as causal, rather than a preceding event.)

Even younger children have been shown to have some notion of causality. Keil (1979) investigated 1½- and 2½-year old children's understanding of physical causality by building simple structures made of blocks and removing one or both bottom blocks that provided support. Half of the time there was a trick condition (induced by hidden magnets) in which the structures did not collapse. Even 1½-year-olds show surprise at the non-collapse of totally (but not partially) unsupported blocks, demonstrating an understanding of physical causality where the relationship between cause and effect is simple enough.

Interestingly, most investigators studying children's use of causal connectives (such as 'because') in language have come to quite different conclusions about children's understanding of causality. A number of studies show that children misrepresent causal relationships as simple temporal sequences. Bebout, Segalowitz, and White (1980), Corrigan (1975), Emerson (1978), Ferriero and Sinclair (1971), Katz and Brent (1968), Kuhn and Phelps (1976), Menyuk (1969), and Werner and Kaplan (1967) all found that children do not understand the meaning of 'because', and tend to interpret 'because' connectives as 'and' or 'then.' Thus, they interpret 'A because B' sentences as 'A then B' sentences, which reverses the real temporal order between events, or else they respond randomly. Above-chance performance on comprehension tasks using 'because' does not occur until children are 7 or 8 years of age, and consistently correct interpretation of this causal connective does not occur until as late as 10 or 11 years.

Of constrained experiments, then, those that look at children's understanding of causality irrespective of linguistic expression conclude that children have an incipient understanding of causality as early as age 1½, while those that look at language (specifically causal connectives) conclude that children do not understand causality until age 7 or beyond. The only investigators

who have found correct use of causal connectives prior to this relatively late age are Hood and Bloom (1979), whose 2½- to 3½-year-old children consistently used 'because' and 'so' connectives appropriately in their everyday conversations. However, the children talked exclusively about psychological causation as well as about immmediately imminent or ongoing events, such as "I left it (the TV) open because I want to watch it," "There's no more juice for you cause I drink it all," and "Could you read this to me cause I don't know how." Their study differed in a number of ways methodologically from the others: they were studying naturalistic speech, and the children were talking about real events occurring in their immediate context rather than hypothetical events happening to strangers. To what extent these factors influence children's use of causal connectives has yet to be explicitly investigated.

Overall, the conclusion that young children have little or no notion of causal relationships between events seems unwarranted, irrespective of their frequently-cited inability to appropriately use causal connectives. In the present analysis, it is clear that the majority of the children's structures at all ages involve events that are causally linked, although this is increasingly true with age and these causal links are increasingly found within goal-directed episodes. Our tactic throughout this work has been to discuss children's representation of events, rather than their understanding of those events per se. The story grammar approach reveals the fact that children increasingly narrate events that are linked causally, but we do not wish to conclude that younger children do not understand causal relationships as well as older children because they don't express them as often. Moreover, as far as fine-grained representation of causality is concerned, the episodic analysis discussed here does not require the explicit presence of causal connectives between events for categorization of a structure as a causally-linked sequence, and thus nothing can be said here about the development of the use of causal connectives in natural language.

AGE CHANGES

Number of Structures

As in the first analysis, the three longest narratives of each child were selected and scored as one or more of the structural categories described above. All scoring was done by the senior author. However, she was trained by Glenn, who also scored the protocols of 25% of the children for reliability estimates. Agreement between scorers on type of structure was 84%.

Many of the children's narratives could not be classified as a single category, but rather were multiple structure narratives.

The total number of narrative structures produced by the children in each age group is shown in Table 11. Overall, a total of 595 structures were produced. Each child produced a minimum of three structures, since three narratives were scored, but many children produced more since multiple structure narratives contained at least two structures. The total number of structures produced by the children was subjected to an analysis of variance calculation, with the crossed factors of age and sex. The older children produced significantly more structures than the younger children, $F(5,84) = 6.99$, $p<.001$.

Types of Structures

Older and younger children not only differ in the number of structures they produce, but also in the types of structure they prefer (see Table 11). In order to analyze age differences in children's production of different narrative structures, a discriminant function analysis was computed on the proportion of structures of each type that the children produced. One significant function was found, $\chi^2(35) = 109.18$, $p<.001$. Age changes in the incidence of all of the structures contribute to this effect, although descriptive sequences, action sequences, and abbreviated episodes stand out as particularly important. The significant function distinguishes 4-year-olds and 9-year-olds from the other age groups, who fall intermediate to these two extreme age groups.

Descriptive and Action Sequences. Younger children are more likely to produce descriptive and action sequences than are older children. Over 40% of the total number of structures produced by 4-year-olds are descriptive or action sequences. In contrast, less than 5% of the total structures produced by the three oldest age groups are of these sorts. Descriptive and action sequences are both primitive structures with few or no inter-statement relationships. In neither structure do events cause other events to happen, nor is there evidence of purposiveness. A static environment or a series of temporally-related actions are merely described.

Reactive Sequences. These structures are produced frequently by children of all ages. A child must at least represent causal relationships between events in order to produce a reactive sequence. There is some variation in the number produced at different ages, but little consistent age progression. One point to note is that there is a larger proportion of reactive sequences than complete episodes in 4-year-olds.

By itself, the presence of a greater proportion of reactive sequences is ambiguous. In reactive sequences there are causal relationships between events, but there is no clearly specified goal that motivates behavior. It is possible that younger children

Table 11. Total Number of Structures, and the Percent of Structures of Each Type

Mean Age	4	5	6	7	8	9
Total	54	72	63	103	119	179
Descriptive Sequence	18	6	6	1	0	2
Action Sequence	24	6	14	3	0	1
Reactive Sequence	30	38	25	27	20	14
Abbreviated Episode	15	10	14	7	3	2
Complete Episode	13	28	38	48	51	52
Complex Episode	0	4	2	10	5	14
Interactive Episode	0	10	0	4	20	14

Not included are an additional five structures that were classified as incomplete episodes.

have more difficulty in perceiving purposive behavior than do older children, since the latter produce many complete episodes. A second possibility pertains to a young child's lack of power over his or her environment. Many experiences happen to all of us over which we have little or no control. Children are no exception; they get taken places and have things done to them, are ordered around and watch domestic catastrophies. In many of these experiences, there may be no plans involved (such as being in a car wreck) or the plans may not be evident to the child (as is the case on a vacation trip). The child nonetheless perceives events as causing other events or reactions and describes them with reactive sequences. Thus, the greater proportion of reactive sequences either may be evidence that they do not understand planning, or that the younger they are the more they are manipulated by the environment. Because of their powerlessness, they may not see the purposes behind the actions of other (older) people.

But we should not dramatize the decrease of reactive sequences in our oldest children. They appear less often, numerically, in the narratives of the older children tabulated in Table 11 largely because of an artifact of quantification. Episodes have boundaries: they are more circumscribed, and one can identify their beginning and their end. On the other hand, reactive sequences do not signal their termination through changes in their internal structure in the same way. Thus, an identical number of narrative statements may be counted as, for example, five episodes, but only one reactive sequence.

The fact that older children have more multiple structure narratives that incorporate several complete episodes, as we shall discuss later, means that looking at the proportion of structures that are reactive sequences is misleading. A better way of assessing the incidence of reactive sequences is to look at the pro-

portion of narratives that incorporate this structure, either alone (ie. the whole narrative is classified as a reactive sequence) or amongst other structures (ie. a reactive sequence is one structure in a multiple-structure narrative). Table 12 does just this.

As Table 12 clearly shows, reactive sequences are an important structure in one-third to one-half of all narratives produced by children at all ages. The decrease in the number of narratives that are classified as solely reactive sequences merely reflects the increase in multiple structure narratives noted above.

Abbreviated Episodes. These are the most primitive structures that describe aims. They consist of only two units: a motive, given by either an environmental event or an internal motivating state (but not both), and a consequence. When a motivating state and a consequence are given (eg. "he wanted to go home so they left"), the goal is explicit and it is easy to characterize the episode as purposive, albeit rather impoverished. However, when the episode consists of an event and a consequence, one must make a judgment about whether or not the consequence is planned. This can be particularly difficult here, since the child is describing actual events, as opposed to making them up (as in Glenn and Stein, Note 2). When the child talks about being out in a boat and running out of gas, is the subsequent action of someone rowing back to shore merely an accurate reporting of what occurred (and therefore part of a reactive sequence), or a recognition of the planful nature of that action (and thus part of an abbreviated episode)? It is often not clear. All of the abbreviated episodes produced by 4-year-olds consisted of physical events and consequences, while older children are more likely to produce both types of abbreviated episodes. Thus, we can be more certain of the purposiveness of the abbreviated episodes in older children. Such episodes are also less common in the two oldest age groups, as well as more likely to be embedded within complex or interactive episodes when they do occur.

Complete Episodes. One can be more confident that the child sees behavior as goal-directed when the child produces a complete episode. The child must specify a minimum of two constituents from the following three possible constituents - event, motivating

Table 12. Percent of Narratives with Reactive Sequences

Mean Age	4	5	6	7	8	9
Alone	29	44	21	21	25	13
Amongst Other Structures	6	6	14	27	19	27
Total	35	50	35	48	44	40

state, and attempt - as well as an obligatory consequence. Thus, there is a description of a motive and some evidence of planning, as well as a consequence of that aim.

It can be seen in Table 11 that there is a substantial age change in the number of complete episodes produced by the children. Around 16% of the structures produced by 4-year-olds were of this sort. Following a steady increase in this proportion with age, 60% of all structures were complete episodes for the 8- and 9-year-olds. Nevertheless, it is important to note that children at all ages produce them, and such purposive sequences are not beyond the ability of even 4-year-olds. If we look at the number of children who produce at least one complete episode among their three longest narratives, rather than at the proportion of their narratives which are episodic, we find that approximately one-third of the 4-year-olds produce at least one complete episode. Of course, the percentage of children producing at least one complete episode increases steadily with age to 100% of the 8- and 9-year-olds.

The types of complete episodes produced by the children appear in Table 13, and two developmental trends appear. Younger children have a greater tendency to omit the protagonist's attempts to reach his or her goal, while older children have a greater tendency to omit the precipitating event. But more importantly, children at all ages most often specify all four parts of a complete episode. That is, they tell what happened to set things off, what the protagonists wanted to do, how they tried to do it, and whether they accomplished it.

Reactions are not one of the basic constituents of an episode, since they were present in only about one-third of all narratives. Not surprisingly, they are generally caused by consequences, although they can follow any constituent, and older children increasingly insert reactions to precipitating events. Thirty percent of the reactions produced by 9-year-olds followed precipitating events, while 63% were caused by consequences. Younger children, in contrast, clustered over 85% of their reactions around consequences.

Table 13. Total Number of Complete Episodes, and the Percent of Complete Episodes of each Type

Mean Age	4	5	6	7	8	9
# Complete Episodes	9	15	25	45	36	68
% Omitting Events	0	7	16	22	8	29
% Omitting Motivating States	11	27	24	27	17	12
% Omitting Attempts	22	27	16	16	6	1
All 4 parts Present	67	40	44	36	69	59

Complex Episodes. These structures are wholly lacking in the narratives of the youngest children, and become increasingly abundant with age. Nine-year-olds, in particular, produce a large number of complex episodes; over 80% produced at least one. In contrast, less than half (38%) of the 7- and 8-year-olds produced a complex episode, and only four of the 48 children at the three youngest ages produced one.

Four patterns of complex episodes are described above (see Figures 7-10), and the incidence of these four patterns is given in Table 14. The total number of patterns produced can be larger than the total number of complex episodes found in Table 11, since a single complex episode may be an example of more than one pattern. For example, a complex episode may both have a reactive sequence embedded as an event and have multiple plan applications, and thus it may be a cross between the patterns depicted in Figures 7 and 9.

The three oldest age groups produce all four patterns of complex episodes, but little can be said about the pattern preferences of the 7- and 8-year-olds because their narratives are seldom complex. Nine-year-olds produce a substantial number of all of the patterns, and markedly prefer to embed episodes (see Figure 8). Most of these complex structures have complete (or other complex) episodes embedded as events or consequences, although some have them embedded as attempts or settings. Thus, the kernal structure remains an episode. Older children explicitly talk about developing goals and attempting to achieve them. Moreover, they elaborate one part of their whole episode, and this elaboration is an episode in itself.

Interactive Episodes. The incidence of interactive episodes also shows a developmental change. In an interactive episode, the child must recognize that not only does he or she have aims, but that other people do too. Furthermore, two people can influence each other in their attempts to carry out their goals, and thereby change each other's behavior and motivation.

Table 14. Incidence of Each Pattern of Complex Episode

Mean Age	4	5	6	7	8	9
Reactive Sequences Embedded as Constituents	0	0	0	1	2	6
Episodes Embedded as Constituents	0	1	1	4	1	13
Multiple Plan Applications	0	2	0	1	2	7
Multiple Plan Applications with Embedded Sub-Episodes	0	1	0	4	1	7

Three different structural patterns show some recognition of multiple perspectives, although only one of them is truly an interactive pattern: (1) shifting perspective narratives, (2) interactive reactive sequences, and (3) interactive episodes. The incidence of narratives containing these three patterns is shown in Table 15. The discrepancy between Tables 11 and 15 is due to Table 15 showing the number of narratives that have multiple perspectives of the various types, whereas Table 11 shows the total number of episodes that each interaction produced.

Not surprisingly, shifting perspective narratives are rarely obtained from children at the three youngest age groups. Children at these ages seldom produce complete episodes or narratives that contain multiple structures, so this finding is derivative. However, one cannot infer that even the youngest children are incapable of recognizing other people's planning, since half of their complete episodes are from the perspective of another person. This is consonant with reports in the literature that suggest that young children are capable of placing themselves in the perspective of another person, that is, to take another's role. (See, for example, Blank, 1975; Hoy, 1975; Maratsos, 1973; Menig-Peterson, 1975; Menig-Peterson and McCabe, 1978; and Shatz and Gelman, 1973.) Our children often represent the goals and efforts to achieve their goals of other people as well as of themselves, indicating an ability to role-take.

Only the 8- and 9-year-olds produce many truly interactive narratives. Approximately one-third of the children at these two ages produced such an episode. These children not only recognize goals of people other than themselves, they also describe how people's plans affect themselves.

Incomplete Episodes. Very seldom did a child produce an incomplete episode. Only five children (two girls and three boys) failed to complete the episodes that they had begun by omitting consequences. These children ranged in age from 5 to 9 years.

Table 15. Number of Narratives that Contain Multiple Perspectives or are Interactive

Mean Age	4	5	6	7	8	9
Narratives with Structures having Multiple Perspectives	1	2	1	6	6	16
Narratives with Interacting Reactive Sequences	1	1	0	1	1	0
Narratives with Interactive Episodes	0	2	0	2	5	6

Summary of Structure Types. When they narrate, children at younger ages tend to tell merely what happened. They do this with descriptive sequences, action sequences, and reactive sequences. But there is an increasing tendency for older children to focus on planning. They begin to pattern their descriptions of experiences consonant with the problem-solving episode delineated by story grammars. Several investigators (eg. Glenn, 1978; Glenn and Stein, Note 2; Mandler, 1978; Mandler and DeForest, 1979; Mandler and Johnson, 1977; Mandler, Scribner, Cole, and DeForest, 1980; Rumelhart, 1975, 1977; Stein and Glenn, 1979; Stein and Nezworski, 1978; and Thorndyke, 1977) have suggested that the goal-directed, problem-solving episode may have psychological reality. It may be an important underlying pattern that is used by people in processing and producing both fictional stories and narratives about actual life experiences. However, the present research suggests that it may not be the only one, since reactive sequences are common at all ages and cannot be described as goal-directed behavior. It is inevitable that important things occur in the lives of children that are not planned, although they elicit reactions. Reactive sequences seem to be the best way of capturing the sense of these important externally imposed events.

Most of the narratives produced by the oldest children fit the basic pattern of problem-solving episodes: events and/or motivating states trigger attempts to reach goals, and the consequences of these aims are described. However, they elaborate on this basic pattern in two ways. First, they put more structures together linearly. In other words, they are less inclined to allow a single structure to stand alone than are the younger children. In fact, for 4-year-olds, 83% of their structures were found in isolation, whereas only 20% of those produced by 9-year-olds were single structure narratives. Thus, the narratives of younger children are less elaborated than those of older children.

Secondly, they embed more structures within other structures, ie. their narratives are more complex. The complexity is apparent if one calculates the percentage of their structures that are embedded. An analysis of variance was calculated for the crossed factors of age and sex, and the only significant effect was age, $F(5,84) = 10.99$, $p<.001$. Four-year-olds produced no embedded structures, while fully 50% of the structures produced by 9-year-olds were constituents of complex or interactive episodes.

Taken together, the findings suggest that older children pay more attention to psychological causality by specifying goals, and they also encompass more of their experience within a single narrative. When they give an entire episode or reactive sequence as a component of a larger episode, they are pulling away from a simple chronological recapitulation of events. Thus, they give a more fine-grained analysis of their experience. Their characters are

more fleshed out and their narratives show more understanding of the roles people play with respect to each other.

Relationships Between Structures

Since many narratives are composed of multiple structures, it is interesting to look at the relationships between these structures. To recapitulate, there are three major relationships: (1) Temporal relationships (including AND, SIMPLE THEN, EMBEDDED THEN, and PARALLEL), (2) ENABLE relationships are weakly causal; one structure provides the necessary but not sufficient conditions for another structure, (3) Strong causal relationships require that one structure be a necessary and sufficient cause of another structure (including SIMPLE CAUSE and EMBEDDED CAUSE). Other relationships include the following: (4) In ALLOW relationships, one structure serves as the setting for a second one, (5) In REPETITION relationships, one structure repeats and elaborates upon another structure. The incidence of various relationships are found in Table 16, excluding the relationships between interacting episodes. These latter are too intertwined to be meaningfully tabulated.

Table 16. Total Number and Percent of Relationships Between Structures of Each Type in Multiple-Structure Narratives

Mean Age	4	5	6	7	8	9
Total	5	10	15	41	25	74
Temporal						
And	40	10	13	8	12	5
Simple Then	20	20	20	27	4	11
Embedded	0	20	7	8	0	0
Parallel	0	0	20	5	4	8
Total	60	50	60	48	20	24
Enable	20	10	27	15	28	16
Causal						
Simple Cause	20	10	0	12	12	12
Embedded Cause	0	20	7	17	32	42
Total	20	30	7	29	44	54
Allow	0	10	7	2	0	3
Repetition	0	0	0	5	8	3

Since older children produce more multiple-structure narratives, it is not surprising that we can identify a larger number of interstructure relationships for them. Of more interest is the nature of those relationships. Older children produce a larger absolute number of relationships of almost all types than do younger children. Also, there is an age-related shift in the proportion of relationships that are temporal, weakly causal (ie. ENABLE relationships), or strongly causal. These proportions are given in Table 16 in the total TEMPORAL, the ENABLE, and the total CAUSAL relationship columns.

Most relationships produced by young children are temporal. That is, the events in different multiple-structure narratives do not influence each other in any way: they merely occur successively or simultaneously. Although older children produce a larger number of temporal relationships than do younger children (simply because they produce so many more multiple-structure narratives), these temporal relationships form a progressively smaller proportion of the total. On the other hand, there is a complementary age change in the proportion of relationships that are strongly causal. For 4-year-olds, the events of one structure seldom cause the events of another structure to occur, whereas the majority of structures for 9-year-olds are causally connected. Thus, older children's narratives incorporate larger chunks of their experience into integrated, causally related wholes.

The ENABLE relationship stands intermediate between a temporal relationship and a causal relationship. One structure does indeed influence another structure, in that the events of the first structure provide the necessary prerequisites for the events of the second structure. However, the events of the first structure do not cause the events of the second; although the latter events happened, they need not have. There was no consistent age change in the proportion of relationships that were enable relationships.

SEX DIFFERENCES

No significant sex differences were found. In their narratives, boys and girls at all ages studied provide similar abstract information and connect it in similar ways.

COMPARISON WITH GLENN AND STEIN: CHILDREN'S STORIES VS THEIR NARRATIVES

The present analysis uses the system developed by Glenn and Stein to analyze children's fictional tales when provided with a story stem such as "once there was a boy named Alan who had many different kinds of toys" and asked to make up an appropriate story.

Thus, it is profitable to compare our analysis of children's personal narratives with their analysis of children's fictional stories.

Although the present authors' data are similar to Glenn and Stein's data and are amenable to episodic analysis, there are some differences between the two sets. First, our age range is more finely graded and begins with younger children; we had six groups of children, aged 4, 5, 6, 7, 8, and 9, with a total of 96 children, whereas Glenn and Stein had three groups of children roughly aged 5, 8, and 10, for a total of 54 children. Secondly, our children produced many more structures: 595 total structures, compared to 222 structures.

These differences have led us to different but complementary conclusions. Like Glenn and Stein (Note 2), we found increasing representation of planfulness with age. But those authors only found substantial developmental changes in stories that were too abortive to have a structure, in complex episodes, and in multiple structure stories. Seven stories generated by their kindergarteners had no structure; this led them to conclude that "generating any story was therefore difficult for many kindergarteners" (p.24). In contrast, none of the narratives produced by our 5- and 6-year-olds drawn from a kindergarten class were so poorly expounded that they had no structure, leading us to conclude that these children indeed are proficient at generating narratives. We, like Glenn and Stein, also found increases in complex and multiple structure narratives.

However, they did not find any statistically significant differences between the types of structures produced by kindergarteners and third graders; rather, they only found differences in complexity between the stories of fifth graders and those produced by both younger age groups. In fact, they found that their third graders tended to produce somewhat more simple sequence stories consisting of descriptive sequences, action sequences, and reactive sequences than did their kindergarteners. We, of course, found just the opposite. The narratives of our third graders (our 9-year-olds) were notably more complex than those produced by our kindergarteners. In addition, we found a clear proportionate decrease in descriptive and action sequences and in abbreviated episodes, most precipitously from 4 to 5 years.

Of greatest importance, our larger age range allowed us to show that the complete episode was not the dominant structure in the narratives of preschool-aged children, but became the predominant structure for children at age 6 and thereafter. Moreover, children did in fact shift from temporal to causal relationships between structures in their narratives. Glenn and Stein suggest the possibility of such a shift, but were unable to support it with their data.

Overall, then, our data are consistent with that of Glenn and Stein, although we were able to amplify their conclusions.

COMPARISON WITH MEMORY RESEARCH ON THE EPISODIC STRUCTURES OF STORIES

The majority of the research investigating story structure has used a memory paradigm: children and/or adults hear a story and are then asked to recall it (eg. Glenn, 1978; Kintsch and Green, 1978; Kintsch and van Dijk, 1975; Mandler, 1978; Mandler and DeForest, 1979; Mandler and Johnson, 1977; Mandler, et al. 1980; McClure, Mason, and Barnitz, 1979; Stein and Glenn, 1979; Stein and Nezworski, 1978; and Thorndyke, 1977). Recall of subjects at all ages has matched hypothesized story structures relatively well in that stories are recalled episodically, and that, within episodes, some sorts of information are more important than others. Although the task demands of the present investigation are quite different - production of personal narratives rather than recall of fictional stories - it is interesting to compare findings. The structural categories included by our children in their complete episodes will be compared with the memory data of Glenn and Stein and of Mandler and her colleagues.

To recapitulate our findings (see Table 12), virtually all narratives include orientation and consequences. However, the inclusion of initiating events, motivating states, and attempts is less central. For older children, attempts are almost always included, and explicit goals and initiating events generally are as well. Younger children are more likely to omit attempts and include initiating events than are older children, but in general all three categories are perceived as important types of information by children of all ages. On the other hand, reactions are generally not present.

Glenn and Stein also found setting and consequence information to be among the most crucial, but unlike our findings, initiating events were just as important. Our data here may differ from theirs due to the contents of the narratives and stories. Environmental initiating events were central to all of Glenn and Stein's stories, whereas there was often no initiating event in our narratives. The trigger for many of our narratives instead was self-generated: the child wanted something, and then set about to get it. Thus, our children were more concerned about explicating their motivating states and their attempts than were Glenn and Stein's children.

Our children produced far fewer reactions than any other kind of information, whereas Glenn and Stein's children produced reactions just as frequently as they produced motivating states and attempts. That is, reactions are moderately frequent amongst the

kinds of information children recall. The placement of reactions is an additional source of disagreement. Stein and Nezworski (1978) assert that reactions logically follow consequences (p.178-9), but it is apparent from our data that this is not necessarily so, and older children are more likely to scatter them at various locations. For example, they tag them after initiating events and attempts with some frequency.

In part, this disagreement may be due to a discrepancy in categorization in that they have a different name for reactions that occur after precipitating events. That is, affective states and cognitions are called motivating states rather than reactions when found there. One can question to what degree these affective states and cognitions differ from reactions, and Glenn (personal communication) has suggested that they may not. However, this discrepancy in categorization does not wholly explain our differences. Our data suggests that reactions may follow any category, and categorization discrepancies cannot account for reactions following attempts.

To summarize our differences, we find that motivating states displace initiating events so that both of these are almost equally present. Furthermore, unlike Glenn and Stein, we find that reactions are markedly less frequent than any other kind of information, but when these are present, they can occur anywhere.

A comparison with Mandler and her colleagues is less direct since their story grammar differs somewhat in form, though the basic units are very similar to those of Glenn and Stein, and to those scored here. The subjects of Mandler and her colleagues - both American and Liberian children and adults - were most likely to recall settings, beginnings, and outcomes. Attempts were less well recalled, and complex reactions even less so. Settings, beginnings, attempts, and outcomes appear to be similar to our orientation, initiating event, attempt, and consequence categories, respectively; however, complex reactions appear to incorporate aspects both of our internal motivating state and reaction categories. Barring notational differences, Mandler's findings are similar to Glenn and Stein's, with the exception that reactions are much less frequently recalled.

Our major difference with Mandler, like our difference with Glenn and Stein, is in how frequently goals are represented. Again, goals are far more common in our children's narratives than they seem to be in Mandler's recall protocols. This difference is attenuated because Mandler does not have a separate category for goals.

See Figure 13 for a comparison of recall and production patterns for the various units of an episode in Glenn (1978) and

Mandler and Johnson's (1977) data. The percent of propositions recalled from each informational category present in the recall protocols of first and fourth graders is plotted for Mandler and Johnson; for Glenn, the percent of story statements recalled by the children from each category is plotted, but Glenn's data on stories composed of only one statement per category was selected so that for her, as well as for us, the presence of only one statement from a story grammar category is sufficient. The results cannot be compared in terms of absolute numbers, but only in terms of general patterns of frequency for the different categories. Remember, too, that some categories of Mandler differ in definition from those of ourselves and Glenn and Stein, so that any comparison is tentative.

Overall, our children's narrative productions are parallel to the recall protocols of memory researchers in that most of the narratives are organized around episodes. Furthermore, within an episode, certain kinds of information are most salient: a context for a story or narrative is provided, within which initiating events occur, triggering some sort of response from a protagonist, usually the formulation of a goal. The protagonist's efforts to achieve his or her goal results in some kind of outcome: success or failure. However, it should be remembered that many narratives do not fit this pattern. Some excellent narratives do not incorporate purposive action to achieve goals, and thus we suggest that episodic structure is not the only way for children to represent their experiences.

IS THERE A KERNAL STORY STRUCTURE?

Recall Mandler et al's (1980, p.21) assumption that "the organization of simple stories is a cultural universal and, furthermore, that it is consistent with daily modes of comprehension and remembering that are also universal, regardless of type of culture or amount of schooling." In line with their assumption, Mandler and Johnson (1977) found that recall of stories was highly similar from Liberian children and adults (some literate and some not, some exposed to schooling and some not) and American children and adults.

Kintsch and his colleagues (Kintsch and Greene, 1978; Kintsch and van Dijk, 1975), however, are less sure of the universality of specific story structures. Rather, they suggest that story schemata are culturally specific, and that the story structures hypothesized by Mandler and her colleagues, Glenn and Stein, and others, are appropriate for stories from a European cultural background and perhaps some other cultures. But they may be less appropriate for structuring stories from different cultural heritages, eg. American Indian cultures such as the Apache. To test their notions of cultural differences in story structures, they asked American

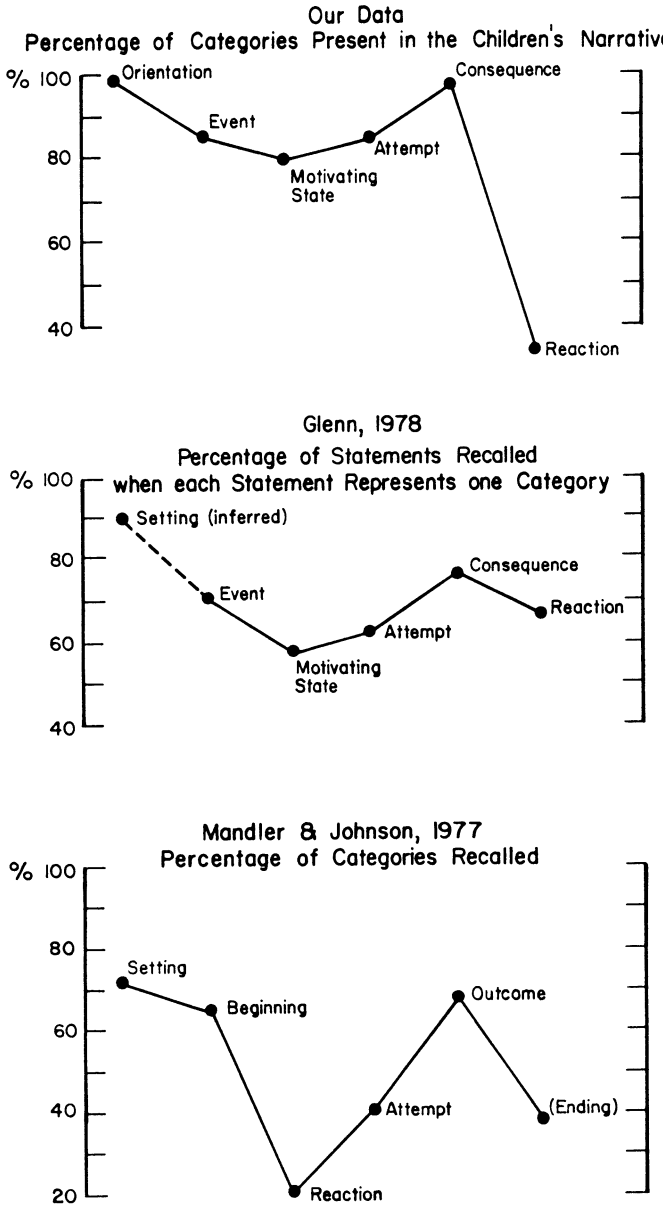


Fig. 13. A comparison between ourselves, Glenn (1978), and Mandler and Johnson (1977), of the incidence of different categories of episodic structure.

adults to summarize or recall stories fitting both European traditions and Apache folktales, and found substantial differences in their recall and summary writing. Subjects recalled more and wrote better summaries for stories that matched the appropriate schema for their culture.

Pollard-Gott, McCloskey, and Todres (1979) suggest that even within one culture, there may be more than one way of structuring stories. They adapted some of Glenn's (1978) and Mandler and Johnson's (1977) stories and derived subjective story structures from people by having them sort sentences together into groups that "seemed to go together naturally in the structure of the story" (p.251). They found that, in general, the episodic story structures hypothesized by the above investigators matched people's subjective ratings of the structure of these stories. However, a significant number of people developed an alternative structure for one of Mandler and Johnson's stories, leading Pollard-Gott et al. to conclude that alternative structures for simple stories may exist, and that a story grammar ideally should represent these schematic alternatives.

Our data support the conclusions of Pollard-Gott et al. (1979) in that we find reactive sequences to be a structure that is alternative to the episode rather than a primitive forerunner of it. Recall that children at all ages produce approximately the same percentage (c. 42%) of narratives containing reactive sequences. The fact that there is no developmental trend in production, added to the fact that this is such a high percentage of narratives to be called primitive, led us to reconsider Glenn and Stein's (Note 2) conclusions about the nature of these structures. We consider them to reflect the inevitable truth that not all things that happen to one require or even permit planned responses. A reactive sequence is an appropriate structure for narrating events that are linked by physical and/or psychological causes, equal in sophistication to that of the episode.

SUMMARY

The story grammar development by Glenn and Stein is an effective way of analyzing narratives of actual experiences; the usefulness of their system is not limited to recall of tales made up by the experimenter. The present children produced narratives that fit each type of structure described by Glenn and Stein, and all of their three longest narratives could be classified by this system.

Episodic grammar stresses impersonal, generic information. It investigates the child's cognition of events and the role of themselves and other people in causing those events. When there is the possibility for planning, children increasingly represent that.

However, some events can not be described as planful, and reactive sequences capture all the possible causality behind such events. Children from the age of 3½ on are capable of such narration. Children's narratives become more detailed as they grow older: they incorporate more structures within their narratives and increasingly show how the events of one structure cause the events of another.

The episodic and the high point analyses are similar ways of dealing with similar data. In contrast, dependency analysis is much more attuned to the syntactic complexity of a narrative, and we shall turn to it next.

8
Dependency Analysis

BASIC ASSUMPTIONS OF DEPENDENCY ANALYSIS: THE SYNTAX OF NARRATIVES

In both the high point analysis and the episodic analysis, narratives are analyzed primarily with respect to their content - what information they convey and the order of that information. In the third analysis - a dependency analysis developed by Deese (Note 1) - narratives will be examined primarily with respect to their syntactic form.

DEFINITION OF A PROPOSITION

Recall that the episodic analysis is only loosely tied to linguistic form, relying upon statements of important distinctions as its unit of analysis. The high point analysis takes the independent clause as its unit of analysis but concentrates on categorizing the semantic function of that syntactic form. Deese's dependency analysis takes the syntactically defined proposition, corresponding roughly to Chomsky's (1965) base phrase marker, as its unit of analysis. Since an independent clause is frequently comprised of a number of propositions, defined this way, the dependency analysis is far more discerning of syntactic complexity than is the high point analysis.

Deese's stress on syntax is unusual among propositional analyses of discourse. Fredericksen (1975) and Kintsch (1974), among others, concentrate on the structure of knowledge and relations in knowledge that exist in a particular discourse - irrespective of the form of that discourse. A Fredericksen grammar is not only

independent of the (syntactic) form, or style, of a particular discourse, it is not dependent upon language at all. As Fredericksen himself says (Fredericksen, 1975), one could write a Fredericksen analysis of "information structures presented...as physical events," as in, say, a pantomime. In contrast, Deese's dependency analysis concentrates on the relations among syntactic forms in a particular discourse - irrespective of the knowledge it conveys (Deese, Note 1). In doing such an analysis, one must know the semantic content of a proposition in order to make inferences about syntactic dependencies. But the analysis accepts any content and is responsive only to the dependency of one proposition on another in a particular discourse. In a different discourse, the relationship between propositions could be reversed, a reversal that would be captured by a dependency analysis. For example, compare the following two (truncated) discourses and their respective analyses:

A. "I bought a new car yesterday. Today I drove it to work, and I damaged it on the way home."
   X. I bought a new car yesterday.
      X.1. I drove it.
         X.1.1. (drove it) today.
         X.1.2. (drove it) to work.
      X.2. and I damaged it on the way home.

B. "I damaged the new car that I bought yesterday. I had just driven it to work."
   X. I damaged the car.
      X.1. new (car).
      X.2. (car) that I bought yesterday.
      X.3. I had just driven it (= car) to work.

While the purchase of the car is the most dominant proposition in the first discourse, with the damage to it functioning as a comment upon that purchase, the relationship between those two propositions is reversed in the second discourse. But we jump ahead of ourselves to the intricate machinery of dependency analysis and must retrace our steps.

BASIC SYNTACTIC PROPOSITIONS AND THEIR TRANSFORMATIONS

To begin with, we must know something of the theory of grammar upon which dependency analysis is based. With some modifications, Deese makes use of Chomsky's (1965) theory of grammar, which involves a syntactical base and a set of transformations that modify that base. There are six forms of <u>basic syntactic propositions</u>:

(1) Intransitive propositions consist of a subject noun phrase and a verb phrase with its auxiliary, eg. "The cat has arrived."

(2) Transitive propositions consist of a subject noun phrase, a verb and its auxiliary, and an object noun phrase, eg. "The cat has clawed the chair."

(3) Transitive propositions with indirect objects consist of a subject noun phrase, a verb and its auxiliary, an object noun phrase, and a prepositional phrase, which is the basic form of the indirect object in English, eg. "I have given some milk to the cat."

(4) Transitive propositions that take two prepositional phrases consist of a subject noun phrase, a verb and its auxiliary, an object noun phrase, and two prepositional phrases, eg. "I will trade my dog to you for a cat," or "I will buy that cat from you for five dollars."

(5) Nominal copulas consist of a subject noun phrase, a copula, and a predicate noun phrase, eg. "My pet is a cat."

(6) Adjectival copulas consist of a subject noun phrase, a copula, and a predicate adjective, eg. "My cat is grey."

Transformations interrelate such basic propositions and/or comment on those propositions. Transformations such as the passive or negative transformations in and of themselves do not interrelate basic propositions. But they certainly comment on the single basic proposition they modify (Johnson, 1967). Other transformations interrelate propositions, with that interrelationship itself a comment on the basic propositions involved. These transformations that interrelate propositions are the transformations of interest to Deese's dependency analysis. Some common transformations that interrelate propositions are the following:

(1) Transformation of predicate adjectives (and predicate nominals) to attributive adjectives (and nominal modifiers), eg. "The cat is grey" transformed into "The grey cat;" or "The cat is my pet" transformed into "My pet cat."

(2) The nominalization transformation, eg. "The cat was fed" transformed into "The feeding of the cat."

(3) Relative clause transformations, eg. "I told you about a cat" transformed into "The cat that I told you about."

(4) Conjoining transformations of words, phrases, clauses, sentences, eg. "The old cat" and "The sick cat" transformed into "The old and sick cat;" or "The cat is clean now" and "The cat was bathed" transformed into "The cat is clean now because it was bathed."

(5) Parenthetical embeddings, eg. "That cat clawed me" and "That cat is ferocious" transformed into "That cat (he's ferocious) clawed me."

(6) Recursive embedding of complete sentences, eg. "I think something" and "My cat probably eats too much" transformed into "I think that my cat eats too much." Note that although Deese treats this recursive embedding of complete sentences as a transformation that interrelates basic syntactic propositions, Chomsky (1965) treats it as a basic syntactic proposition, or base phrase marker, itself. Since recursive embedding of complete sentences clearly involves more than one basic syntactic proposition, Deese's treatment seems a more consistent one. Furthermore, aspects of the first verb phrase reveal the attitude of the speaker towards the embedded second statement, or, in other words, the recursive embedding of complete sentences, like other transformations, comments on the embedded sentence (see Deese, McCabe, and Wright, Note 3).

What aspects of grammar are not dealt with by this syntactic base and set of transformations? The complex class of genitives (see Stockwell, Schacter and Partee, 1973) is not explicitly treated, for one thing. Deese generally treats genitives as nominal modifiers. Now any treatment of genitives as a single category will spawn problems in theory since they simply are not a unified class. Even a subclass of genitives, possessives, involves a number of different deep structures lurking behind a deceptively identical surface structure. But these theoretical problems seldom produce difficulties in the actual practice of dependency analysis. As we will see, possessives often contrast with other nominal modifiers and hence are broken out as separate propositions.

What of adverbials? Deese treats adverbials as though they were adjectives. Again, this treatment has problems in theory. In such cases as "Marie's beautifully-made afghan," you do not know whether a transformation of "Marie made an afghan; It was beautiful," or a transformation of "Marie made an afghan in a beautiful manner," is involved. Again, adverbials are not a unified class, so that any attempt to treat them consistently will run into some problems. However, again these theoretical problems are of less consequence in the actual practice of dependency analysis, where adverbs do not always separate from that which they modify, as we shall see.

CLASSIFICATION OF PROPOSITIONS

With this sketch of the grammar in mind, we may turn now to the actual practice of dependency analysis. An analysis of the dependency in texts involves what might be called the de-transformation of certain propositions, or the breaking down of surface

discourse into its component functional syntactic propositions according to certain rules. Only transformations that interrelate propositions are subject to de-transformation.

Transformations that interrelate propositions have one of three functions in discourse: They identify propositions, or, in other words, make equivalences between propositions. They coordinate propositions. Or they subordinate propositions. What is coordinate versus what is subordinate depends on the structure of discourse. That is to say, in dependency analysis the structure of discourse is revealed by what is coordinate and what is subordinate. Coordination and subordination are the stuff of organization in dependency analysis. In short, this analysis identifies the kinds of relations among propositions that specify the way the narrative is told. It is an explicit and formal way of doing the kind of analysis of the structure of text familiar to rhetoricians (see Christensen and Christensen, 1976).

Outlining the Propositions of a Discourse

A dependency analysis amounts to outlining discourse. As in outlining, functional propositions exist only contrastively. That is, elements are perceived as wholes unless some contrast is made. If someone says, "The ugly dog bit me," you consider it one functional proposition. However, should someone say, "That big, ugly dog from next door bit me," you consider "big" in contrast to "ugly" and "from next door," and you break them out of the sentence - de-transform them - and subordinate them to that sentence:

X. That dog bit me.
  X.1. (dog was) big.
  X.2. (dog was) ugly.
  X.3. (dog was) from next door.

Note that Deese's requirement of contrast for de-transformation means that functional propositions in dependency analysis are often not equivalent to the basic syntactic propositions described above. This nonequivalence emphasizes subtle dependency differences. Consider the difference between saying "two groups of individuals" and "two populations," two ways of saying seemingly the same thing. Dependency analysis would portray the former thusly:

X. groups.
  X.1. Two (groups).
  X.2. (groups) of individuals.

Dependency analysis would portray the other formulation simply as: X. Two populations. Dependency analysis depicts the greater isolation and emphasis of "groups" when it is multiply modified.

More pertinent to children's speech, there is no reason to suppose that children parse language the same way adults do (Gill, Note 4), no reason to suppose that a child who says, "ugly dog," perceives "ugly" to be a separable description of "dog." There is more reason to suppose that a child who multiply modifies a word has distinguished at least some of the components of the phrase from the other components.

This requirement of contrast for the de-transformation of propositions means that there must be at least two coordinate parallel propositions at any level of complexity, as in outlining, with one exception. Also as in outlining, dependency analysis presumes that there is one proposition that dominates all other propositions in any given discourse and that this proposition stands alone, not parallel to, and not contrastive with any other propositions. Since this most dominant proposition organizes the rest of the discourse, it must be isolated first.

To isolate the most dominant proposition is in some sense to crack the organizational code of a particular discourse. Thus it is important to realize that the most dominant proposition - the proposition that organizes an entire discourse - is not necessarily the main point or essential message of that discourse. Nor is it necessarily the topical sentence of the discourse, though it often is. Sometimes the most dominant proposition is really unobtrusive, almost a throw-away line, such as a statement of the existence of something:

Discourse: "There is something important about to happen in our society. We are going to draft women into our army."

Dependency analysis:
1. There is something.
  1.1. (something is) important.
  1.2. (something is) about to happen in our society.
  1.3. We are going to draft women into our army.

Here the most dominant proposition (1.) organizes the (truncated) discourse as a whole, while a subordinate proposition (1.3.) presents the topic of the discourse, and presumably a later subordinate proposition would present the speaker's main point about drafting women.

In short, the procedure of dependency analysis is to (1) isolate the most dominant proposition; (2) determine the propositions, if any, that are contrastive within that (dominant) proposition, break them out, and subordinate them to the dominant proposition so that they are parallel and coordinate with each other; and (3) repeat this process with every segment of the discourse until all contrastive propositions have been de-transformed.

Dependency analysis displays discourse as a hierarchy. Theoretically, there is no limit to the number of levels of propositions. Note also that parallel propositions may differ widely in simplicity. That is, you may have three parallel adjectives parallel also to a complex sentence with a single subordinate clause, as we shall see.

Implicit Propositions

Sometimes speakers leave substantive things out of their discourse. Such gaps must be filled in with inferences by their listeners. These inferences required from listeners are implicit propositions that are exposed in the course of dependency analysis. For example, take the following narrative from a 5-year-old boy:

Narrative # 24

E: Have you ever been in a car wreck?
M: Once my Mom did. My, once we had a Corvair and a Volkswagen. When one of my, one of, my biggest sister was born. My Mom went shopping, and where those guys go through this parking lot. See, she has the Corvair. My Dad wouldn't let, my Dad was still in the Volkswagen. And the police came, even, so they could decide who did it. That, all is my Dad has to do, pound out where they put a little paint on it. My Dad had to pound out, pounded out where they're going to put paint on it.

Dependency analysis of Narrative # 24

1. Once my Mom did (HAVE A CAR WRECK - E's question).
  1.1. We (=FAMILY) had (2 cars).
    1.1.1. a Corvair
    1.1.2. and a Volkswagen.
    1.1.3. once (had cars).
    1.1.4. (had cars) when...my biggest sister was born.
  1.2. My Mom went shopping.
  1.3. (THERE ARE SOME GUYS.)
  1.4. and (MOM WENT) where those guys go through this parking lot.
  1.5. See she has the Corvair.
  1.6. My Dad was still in the Volkswagen.
  1.7. (THERE WAS A SMASH-UP.)
  1.8. And the police came even.
  1.9. So they (=police) could decide who did it.
  1.10. (MOM'S CAR WAS SMASHED.)
  1.11. My Dad had to pounded out where they're going to put paint on it.

There are two orientative inferences required of listeners to this narrative (ie. 1.3. and 1.7.). Proposition 1.10. is an even more crucial unspecified implication. In the process of dependency analysis it is apparent that listeners must infer 1.10. in order to go sensibly from 1.9. to 1.11. These implicit propositions are a potential wealth of information. (In this work, implicit propositions are set off from explicit propositions by enclosing the former in parentheses and typing them in capital letters.)

Note that implicit propositions made explicit in the course of dependency analysis are only those implicit propositions that are necessary to complete the structure of the discourse, propositions that are necessary to make sense of what is said. Such necessary implicit propositions must be distinguished from other implicit propositions that are invited by a discourse but that are not necessary to complete the structure and sense of that discourse. In the previous example, we are invited to infer that someone was to blame for the accident, that the accident upset the mother and other occupants of both cars, that there was a lot of noise and confusion when the smash-up occurred, etc. But we need not infer any of that to make sense of the narrative. Such invited inferences are in principle infinite in number and therefore we could not specify them exhaustively even if we deemed it advisable to do so.

Necessary implicit propositions must be distinguished from other things as well. Necessary implicit propositions do not include the naming of antecedents modified by subordinate propositions, such as "had cars" in 1.1.3. and 1.1.4. above. And necessary implicit propositions also are distinguished from dummy superordinates - artifacts of the method of dependency analysis, as in the following example.

Discourse: "They went to Jamaica and Grand Cayman."

Dependency analysis:

X. They went to (two places).
  X.1. Jamaica.
  X.2. and Grand Cayman.

In this case, "two places" is simply a device for completing proposition X so that the contrastive place propositions may be broken out and subordinated to proposition X.

False Starts

False starts (eg. "my" prior to 1.1. in the original narrative) and internal corrections (eg. "pound out, pounded out" in the middle of 1.11.) are ignored by this stage of dependency analysis,

but are attended to separately. That is, they are ignored here unless they provide information crucial to other propositions, in which case they are entered into the hierarchy and noted as false starts or internal corrections.

Repetition

Sometimes speakers repeat propositions. They do so in a number of different ways for a number of different reasons. We already have seen in high point analysis that children will occasionally say the exact same thing several times for the purpose of evaluation (eg. "He cried and cried and cried."). At other times, speakers will repeat propositions within more complicated statements for the purpose of elaboration or correction. Or people will reiterate propositions by way of summary. Or they will express the same idea in different words for the sake of clarification. None of these sorts of repetition jeopardize the organization of a discourse. But some speakers will repeat propositions recursively. That is, a proposition will be repeated on a different level. Such recursive repetition endangers the organization of a discourse, as we shall see. For example, consider the following discourse:

"There is a cabin in Ontario belonging to an old hermit named Thomas, who follows Thoreau in believing that most luxuries are not indispensable and in fact are even 'hindrances to the elevation of mankind,' as Thoreau said. Thus Thomas owns only a cabin, a sleeping bag, a knife, and a saucepan."

A dependency analysis of this discourse is the following:

1. There is a cabin.
  1.1. (cabin) in Ontario.
  1.2. (cabin) belonging to a hermit.
    1.2.1. old (hermit).
    1.2.2. (hermit) named Thomas.
    1.2.3. (hermit) who follows Thoreau in believing that most luxuries are (two things).
      1.2.3.1. not indispensable.
      1.2.3.2. and are 'hindrances to the elevation of mankind.'
        1.2.3.2.1. in fact.
        1.2.3.2.2. even.
        1.2.3.2.3. as Thoreau said.
    1.2.4. Thus Thomas owns only (some things).
      1.2.4.1. a cabin. (Repeats 1.)
      1.2.4.2. a sleeping bag.
      1.2.4.3. a knife.
      1.2.4.4. and a saucepan.

Note that proposition 1.2.4.1. repeats the base proposition (# 1.) in an awkward way. The discourse proves to be about the old hermit rather than his cabin. A more straightforward way to organize this discourse would be to confine the mention of the cabin to 1.2.4.1., where it functions as a comment on the topic of the hermit. In such a version, proposition 1. should be eliminated, proposition 1.1. should be combined with 1.2.4.1., and proposition 1.2. should be reworded to read "There is a hermit..." and function as the base proposition. The discourse that would give rise to such a dependency analysis would read:

"There is an old hermit named Thomas, who follows Thoreau in believing that most luxuries are not indispensable and in fact are even 'hindrances to the elevation of mankind,' as Thoreau said. Thus Thomas owns only a cabin in Ontario, a sleeping bag, a knife, and a saucepan."

1. There is a hermit.
  1.1. old (hermit).
  1.2. (hermit) named Thomas.
  1.3. (hermit) who follows Thoreau in believing that most luxuries are (two things).
    1.3.1. not indispensable.
    1.3.2. and are 'hindrances to the elevation of mankind.
      1.3.2.1. in fact.
      1.3.2.2. even.
    1.3.3. as Thoreau said.
  1.4. Thus Thomas owns only (some things).
1.4.1. a cabin in Ontario.
1.4.2. a sleeping bag.
1.4.3. a knife.
1.4.4. and a saucepan.

In this way, we see the possibility for using dependency analysis as a pedagogical device. Be that as it may, the problem of the first discourse was recursive repetition, a type of repetition that diminishes the coherence of a discourse by damaging its hierarchical organization.

In the course of dependency analysis, all repetitions of more than one word are noted by citing the original proposition along with the label 'repetition' in parentheses after the proposition. (Repetitions of single words are counted as false starts or internal corrections.) Adjacent verbatim or corrective repetitions of propositions are counted singly, unless they are clearly for the purpose of evaluation. In the case of evaluative repetitions and all other cases, repetitions are counted as distinct from each other. The function of a repetition in a discourse determines whether it will be coordinate or subordinate with the original proposition it repeats.

The Ideal Discourse Hierarchy

Dependency analysis has its ideal structure, comparable to the classic narrative in high point analysis or the complete episode in episodic analysis. This ideal structure is what is termed an ideal hierarchy. Discourse tends toward ideal hierarchy. The more ideal the hierarchy, the more coherent the discourse. An ideal hierarchy has a number of features that distinguish it from less ideal hierarchies.

First of all, as we have said, recursive repetition endangers the organization of a discourse. That is to say, a given proposition is never duplicated at a subordinate level in an ideal hierarchy. To talk about the same thing at different (non-adjacent) times is annoying since listeners/readers must pull the separated information together themselves.

Secondly, in an ideal hierarchy, a given proposition is never subordinate to more than one proposition at any given level. A violation of this aspect might be:

Discourse: "I have a dog. My cousin has two cats. They are nice."

Dependency analysis:

X.1. I have a dog.
X.2. My cousin has two cats.
  X.1.1. and X.2.1. They are nice.

We have assumed for the sake of illustration that "they" refers to both the speaker's own dog and his cousin's cats. In order to make this discourse unambiguous and coherent, one must specify an implicit proposition:

X. (THERE ARE SOME PETS.)
  X.1. I have a dog.
  X.2. My cousin has two cats.
  X.3. They (= pets in X.) are nice.

Thus the defect of multiply subordinating single propositions registers as implicit propositions in the course of dependency analysis.

Which brings us to the third feature of an ideal hierarchy: it is fully explicit. Now, in actual experience, a discourse that specifies everything would probably be both unnecessarily cumbersome and boring. Legal writing probably epitomizes such cumbersome, boring explicitness, though there it serves the function of precluding ambiguity as much as possible. Nonetheless, in theory, a hierarchy is ideal to the extent that it is explicit. A poor discourse requires too many inferences from its listeners/readers.

What of ordering within dependency analysis? Logic is paramount in the order with which propositions are presented at a given level in dependency analysis. However, unless a speaker violates logic in saying one thing before another, propositions in a dependency analysis are placed in the same order as they were uttered. Of course, such staging order is looser than strict logical order, since sometimes meaning or sense would survive some rearrangement of the staged order of propositions. To the extent that propositions may not be rearranged without sacrificing logic, the order of propositions is complete and the hierarchy ideal. Whenever logic does demand a departure in dependency analysis from the order with which propositions were originally staged, this departure should be noted.

Structures exposed by dependency analyses may also be depicted as tree diagrams, with the most dominant proposition represented by the vertex of the diagram. Theoretically, such tree diagrams are read from top to bottom, and then from left to right. Thus, Narrative 24 above would be depicted as in Figure 14. Clearly, this is a simple coordinate sequence or stack of propositions rather than an ideal hierarchy. An ideal hierarchy takes a form similar to that illustrated in Figure 15, where a number of branches are elaborated deeply.

How well does a given discourse approach ideal hierarchy when subjected to dependency analysis?

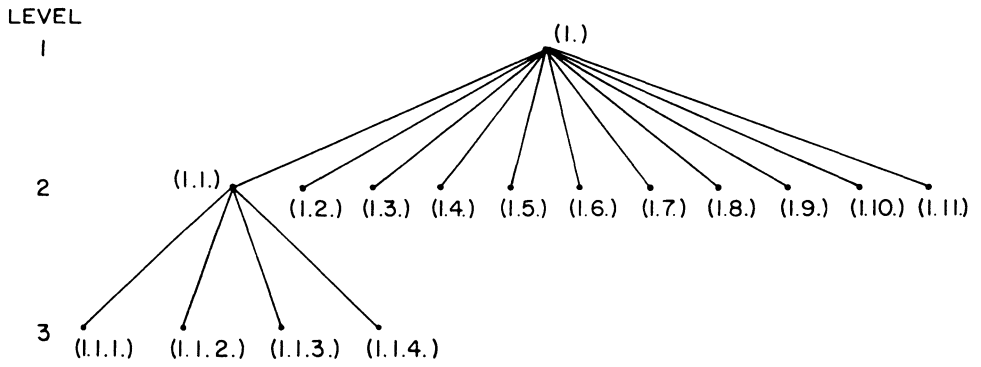


Fig. 14. Graph of Narrative # 24, a simple coordinate sequence in dependency analysis.

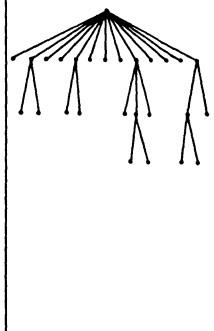
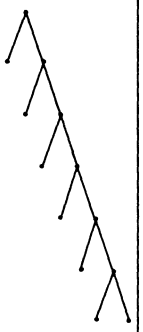
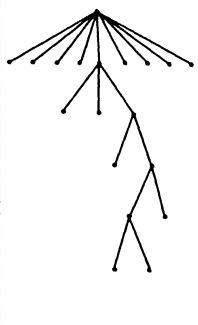
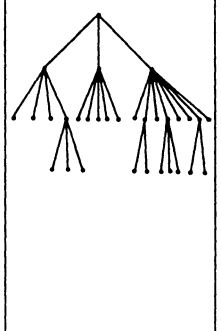
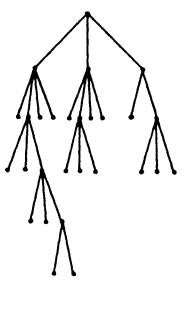
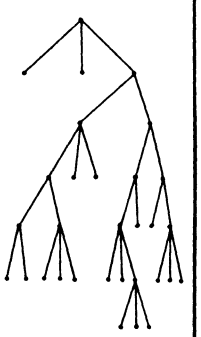
LABEL	SIMPLE COORDINATE SEQUENCE	SIMPLE SUBORDINATE SEQUENCE	COMBINATION OF SIMPLE COORDINATE WITH SIMPLE SUBORDINATE SEQUENCE	MIXED COORDINATE SEQUENCE	MIXED SUBORDINATE SEQUENCE	IDEAL HIERARCHY
LEVEL 1 2 3 4 5 6 7						
DENSITY RATIO (Propositions)	$\frac{13 \text{ subordinate}}{13 \text{ at level } 2} = 1{\cdot}0$	$\frac{10 \text{ subordinate}}{2 \text{ at level } 2} = 5{\cdot}0$	$\frac{9 \text{ subordinate}}{9 \text{ at level } 2} = 1{\cdot}0$	$\frac{27 \text{ subordinate}}{3 \text{ at level } 2} = 9{\cdot}0$	$\frac{24 \text{ subordinate}}{3 \text{ at level } 2} = 8{\cdot}0$	$\frac{27 \text{ subordinate}}{3 \text{ at level } 2} = 9{\cdot}0$
PROLIFERATION	level 2	0	level 2	lower levels	lower levels	lower levels
ELABORATION	0	1 branch	1 branch	0	1 branch	many branches

Fig. 15. A comparison of the properties of the different structures of dependency analysis.

Absolute Measures of a Discourse Hierarchy

One must count the following items:

(1) False starts = each distinct abandoned effort to make a sentence.

(2) Internal corrections = each distinct word or phrase that replaces another word or phrase within a complete sentence.

(3) Explicit propositions = propositions at any level that were actually spoken by a narrator. Do not include dummy superordinates, since of course these were never spoken by the narrator. Also do not include propositions that are only partially explicit; these will be included in the following category.

(4) Implicit propositions = propositions at any level that were implied by the narrator. Do not include specifications of antecedent or dummy superordinates, since these are not the implicit propositions of interest. But include among implicit propositions those propositions that are only partially implicit.

(5) Repeated propositions = propositions at any level that were actually repeated by the speaker. This is not equivalent to the measure of repetitions that were evaluative in high point analysis; here propositions can count as repeated propositions even when they are embedded in sentences that were not verbatim repetitions as sentences.

(6) Total level # 2 propositions = explicit plus implicit propositions at the second level of hierarchy (above). Do not include dummy superordinates.

(7) Subordinate propositions = explicit plus implicit propositions at all levels below # 2 (ie. # 3 through # 9, # 9 being the deepest level attained by anyone in our sample, and only attained by one narrator). Do not include dummy superordinates.

All seven measures above are absolute numbers. Since we already know that older children talk more, we would expect these measures to increase with age simply due to the fact that older children are more talkative. Of greater interest therefore are some ratio measures, derived from the absolute measures above, which would reflect relative qualitative changes in narration with age.

Ratio Measures of a Discourse Hierarchy

(8) The total number of false starts and internal corrections divided by the total number of explicit propositions yields a

measure of the dysfluency of a speaker. It indicates how much planning a speaker does ahead of time. A high ratio of dysfluency means that a person makes a lot of corrections and is thus a poor planner. A low ratio of dysfluency means either that a person plans well and makes few corrections or that he or she is a poor monitor of his or her performance and simply lets stand whatever is said regardless of its accuracy.

(9) The ratio of implicit to explicit propositions gives some indication of the relative burden placed on the listener. A high ratio of implicit to explicit propositions indicates that the listeners must do a great deal of work filling in what the speakers imply. A low ratio of implicit to explicit propositions indicates that the speakers have done much of the work for their listeners by making explicit the structures in their heads. (Recall that this ratio involves propositions at any level in both numerator and denominator, and that it excludes dummy superordinates.)

(10) The ratio of repeated propositions to the total explicit propositions gives some indication of the overall redundancy of the speaker, although no indication of the purpose of that redundancy is provided (eg. evaluation, or to reinstate a topic for further discussion).

(11) The total subordinate propositions (level # 3 - # 9) divided by the total level # 2 propositions yields a rough measure of where expansion occurs in a hierarchy, or in other words it tells where propositions are dense. Both numerator and denominator include implicit propositions that are not dummy superordinates. A low density ratio indicates that many of the propositions are on the simplest level of discourse, level # 2, reflecting a structure like the simple coordinate sequence or the combination of a simple coordinate with a simple subordinate sequence pictured in Figure 15. A high density ratio is somewhat more ambiguous, but it always indicates that many propositions are on higher levels of discourse, those beyond level # 2, such as in the mixed coordinate sequence, the mixed subordinate sequence, and the ideal hierarchy in Figure 15.

(12) Of those structures, note that the mixed subordinate sequence and the ideal hierarchy but not the mixed coordinate sequence are deeper than the simple coordinate sequence; the mixed coordinate sequence involves expansion touching only on level # 4, as in the simple coordinate sequence (although the mixed coordinate sequence involves more extensive linear expansions on level # 3). To distinguish among structures with high density ratios, then, we need a measure of absolute <u>depth</u>, namely, the highest level of proposition attained. This distinguishes an ideal hierarchy with a highest level of 7 and a mixed subordinate sequence with a highest level of 6 from a mixed coordinate sequence which has a highest level of 4.

Note that the highest level of proposition is an absolute, not a ratio, measure.

If the highest level of proposition is the most direct indicator of the depth of hierarchy attained, then why use the ratio of subordinate to level # 2 propositions at all, since it also deals with depth but less directly? Because the ratio of subordinate to level # 2 propositions not only tells where density occurs in a hierarchy, it also gives us an indication that density does in fact occur. That is, it indicates whether a hierarchy is sparse or fully branched out, - dense. Compare the ideal hierarchy with the simple subordinate sequence in Figure 15. While both the ideal hierarchy and the simple subordinate sequence are elaborated to a depth of 7, the ideal hierarchy is much denser than the simple subordinate sequence, and this is captured by their density ratios: the simple subordinate sequence has a density ratio of 5, while the ideal hierarchy has a density ratio of 9.

Graphic Properties of a Discourse Hierarchy

But while these twelve numerical measures afford an indirect overview of progression towards ideal hierarchy, one must eventually directly address the graphic properties of a given discourse that has undergone dependency analysis. Graphic expansion of discourse takes one of two forms: proliferation or elaboration. Proliferation is expansion of width, and, unless otherwise specified, is a flattened rake of propositions at some level. Elaboration is expansion of depth, and, unless otherwise specified, is a hierarchical staircase of propositions to successive depths. Elaborate proliferation is a conjunction of the two forms and resembles a wire mesh fence.

Elaboration may be right- or left-branching, or it may vacillate between the two, leaving it undifferentiated in terms of direction. For example, the structure of the following sentence is left-branching and is illustrated in Figure 16: "The exceedingly, painfully vivid and unusual red and white canvas circus tent is here."

Left-branching elaboration:

X. The tent is here.
  X.1. canvas (tent).
    X.1.1. red (canvas).
      X.1.1.1. vivid (red).
        X.1.1.1.1. exceedingly (vivid).
        X.1.1.1.2. painfully (vivid).
      X.1.1.2. unusual (red).
    X.1.2. and white (canvas).
  X.2. circus (tent).

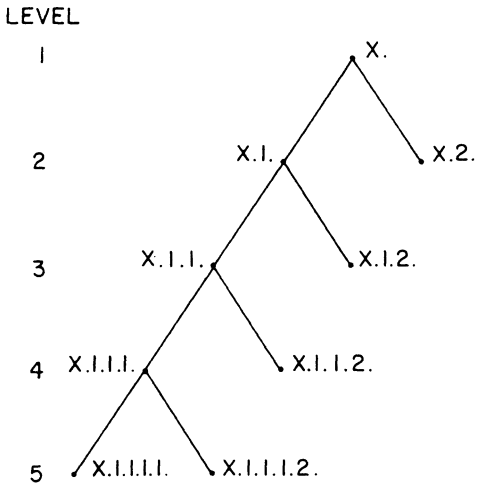


Fig. 16. Left-branching elaboration, as depicted by dependency analysis.

Right-branching elaboration would demand much less of the speaker's planning and the listener's memory and should be far more common than left-branching elaboration. For example, the structure of the following sentence is right-branching and is depicted in Figure 17: "The Browns are that man and the woman over there who is wearing the blue dress I helped pick out in Macy's yesterday."

Right-branching elaboration:

X. The Browns are (two people).
  X.1. that man.
  X.2. and the woman.
    X.2.1. over there.
    X.2.2. who is wearing the dress.
      X.2.2.1. blue (dress).
      X.2.2.2. (dress) I helped pick out.
        X.2.2.2.1. (pick out) in Macy's.
        X.2.2.2.2. (pick out) yesterday.

ORGANIZATION OF PROPOSITIONS INTO STRUCTURES

With these concepts in mind, we isolated six structures, which successively approximate ideal hierarchy (see Figure 15). To

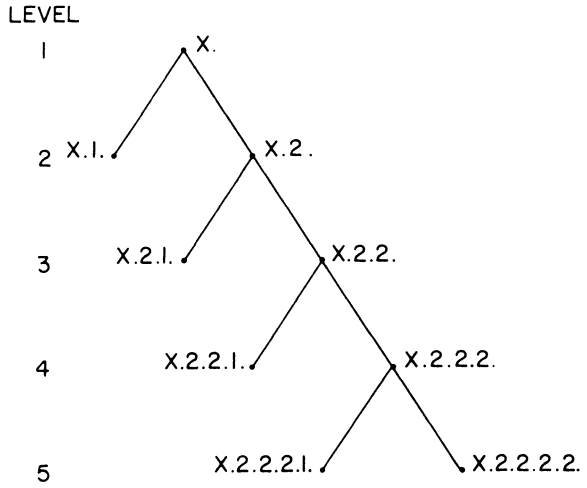


Fig. 17. Right-branching elaboration as depicted by dependency analysis.

describe these structures, we will draw on the rhetorical structures described by Christensen and Christensen (1976), as well as a jungle of metaphors. Throughout this discussion, we will provide narratives exemplifying each of the structures first in their original form, followed by a dependency analysis of each one and then a tree diagram depicting this structure.

Simple Coordinate Sequence

The first and simplest structure is a simple coordinate sequence of propositions (Christensen and Christensen, 1976, p.143). Here expansion is only in the form of proliferation, primarily at the second level of discourse, with relatively few touches on the third and fourth levels of discourse. There is no real elaboration. It resembles nothing so much as grass in the inverted vegetative kingdom of tree diagrams. The previous narrative, # 24, is a simple coordinate sequence of propositions. And the following narrative by a 9-year-old boy is also a simple coordinate sequence of propositions.

Narrative # 25

1 J: We's having fun the other night.
2 We's playing baseball last night at our cousins'.

3 My cousin came over.
4 So we had our next-door neighbor play with us.
5 And he started to get ready.
6 He started throwing a ball fast.
7 So I'm waiting for one of them fast balls.
8 And I knocked it, the ball right out of the, my front yard.
9 We's just playing then.
10 He thought I couldn't hit it because I kept on striking.
11 And then I finally hit it.
12 And his eyes got as big as a tomato.
13 I think that was cool.
14 He went, "Oooooohhhh."
15 He laughed.
16 He thought that I wouldn't hit it.
17 And when I did hit it, his, I don't know, he fell.
18 It must have hit him in the head because he fell.
19 It hit my cousin right in the head.
20 Oooooohhhhh!
21 Knocked him right out.
22 Knocked him right out cold.
23 Cause I must have not, I can't hit so well.
24 So when I get mad at people for throwing fast balls at me, I just pop them.
25 So Andy got mad at me when I was throwing him fast balls.
26 And I had just threw a fast ball.
27 And he had hit it.
28 And it almost hit me in the head.
29 I ducked.
30 And here it come after my cousin Mike.
31 So he got hit in the head again.
32 Twice in a row.
33 I was hit five times.
34 I was catcher.
35 And I raised up.
36 But he got a fast ball.
37 and threw that fast ball right in the air,
38 and hit me right in the nose.
39 Oooooohhhhh.
40 I almost had a bloody nose.
41 I thought it'd get bloody.
42 Every time I get hit in the nose, I don't get a bloody nose.
43 All's I get is a runny nose.

Dependency analysis of Narrative # 25

1. We was having fun the other night.
  1.1. We was playing baseball.
    1.1.1. last night.
    1.1.2. at our cousins' (YARD).

1.2. My cousin came over.
1.3. So we had our next-door neighbor play with us.
1.4. And he started to get ready.
1.5. He started throwing a ball fast.
1.6. So I was waiting for one of them fast balls.
1.7. And I knocked it, the ball right out of the yard.
  1.7.1. (Contradicts 1.2.2.) my (yard).
  1.7.2. front (yard).
1.8. We was playing.
  1.8.1. just (playing).
  1.8.2. (playing) then.
1.9. He thought (something).
  1.9.1. I couldn't hit it.
  1.9.2. because I kept on striking.
1.10. And I hit it.
  1.10.1. then.
  1.10.2. finally.
1.11. And his eyes got as big as a tomato.
1.12. I think that was cool.
1.13. He went ooooohhhhh.
1.14. He laughed.
1.15. He thought that I wouldn't hit it.
1.16. And when I did hit it.
1.17. his, I don't know (WHAT OR HOW IT HAPPENED).
1.18. He fell.
1.19. It must have hit him.
  1.19.1. in the head.
  1.19.2. because he fell.
1.20. (Partially redundant) It hit my cousin.
  1.20.1. right in the head.
  1.20.2. Ooooohhhhh (IE. EVENT WAS BAD).
1.21. (It) knocked him right out.
1.22. (Partially redundant: It) knocked him right out cold.
1.23. Cause I must have not, I can hit.
  1.23.1. (can)'t (hit).
  1.23.2. so well.
1.24. So when I get mad.
  1.24.1. at people.
  1.24.2. for throwing fast balls at me.
1.25. I just pop them.
1.26. (NEIGHBOR WAS NAMED ANDY).
1.27. So Andy got mad.
  1.27.1. at me.
  1.27.2. when I was throwing him fast balls.
1.28. I had just threw a fast ball.
1.29. And he had hit it.
1.30. And it hit me.
  1.30.1. almost (hit).
  1.30.2. (hit) in the head.
1.31. I ducked.

1.32. And it come.
  1.32.1. here.
  1.32.2. after (a) cousin.
    1.32.2.1. my (cousin).
    1.32.2.2. (cousin was named) Mike.
1.33. So he got hit.
  1.33.1. in the head.
  1.33.2. again.
  1.33.3. twice.
  1.33.4. in a row.
1.34. I was hit five times.
1.35. I was a catcher.
1.36. And I raised up.
1.37. But he (did 3 things).
  1.37.1. got a fast ball.
  1.37.2. and threw that fast ball right in the air.
  1.37.3. and hit me right in the nose.
  1.37.4. Ooooohhhhh. (EVENT WAS BAD).
1.38. I almost had a bloody nose.
1.39. All's I get is a runny nose.
1.40. Every time, all's I get is a runny nose.
  1.40.1. (Every time) I get hit in the nose.
  1.40.2. (Every time) I don't get a bloody nose.

Simple Subordinate Sequence

The second structure is a simple subordinate sequence of propositions (Christensen and Christensen, 1976, p.147). Here expansion is only in the form of elaboration. There is no real proliferation at any level. It resembles nothing so much as a solitary shoot of growth. The following narrative by a 5-year-old boy is a simple subordinate sequence.

Narrative # 26

E: Have you ever had a shot? You've never had a shot?
M: I forget, yeah, I have, in my shoulder.
E: In your shoulder? Well, tell me about it. What happened?
M: It hurt.
E: It hurt?
M: Yeah.
E: Right in your shoulder, huh?
M: Then I had to drink something. It was red and
E: It was red? Then what?
M: Red. Then I forget what. It was in a small thing. This here is, how, how small the top was.
E: You what?
M: This here is how small, how tall, small the top was. It was about small as that. Maybe bigger.

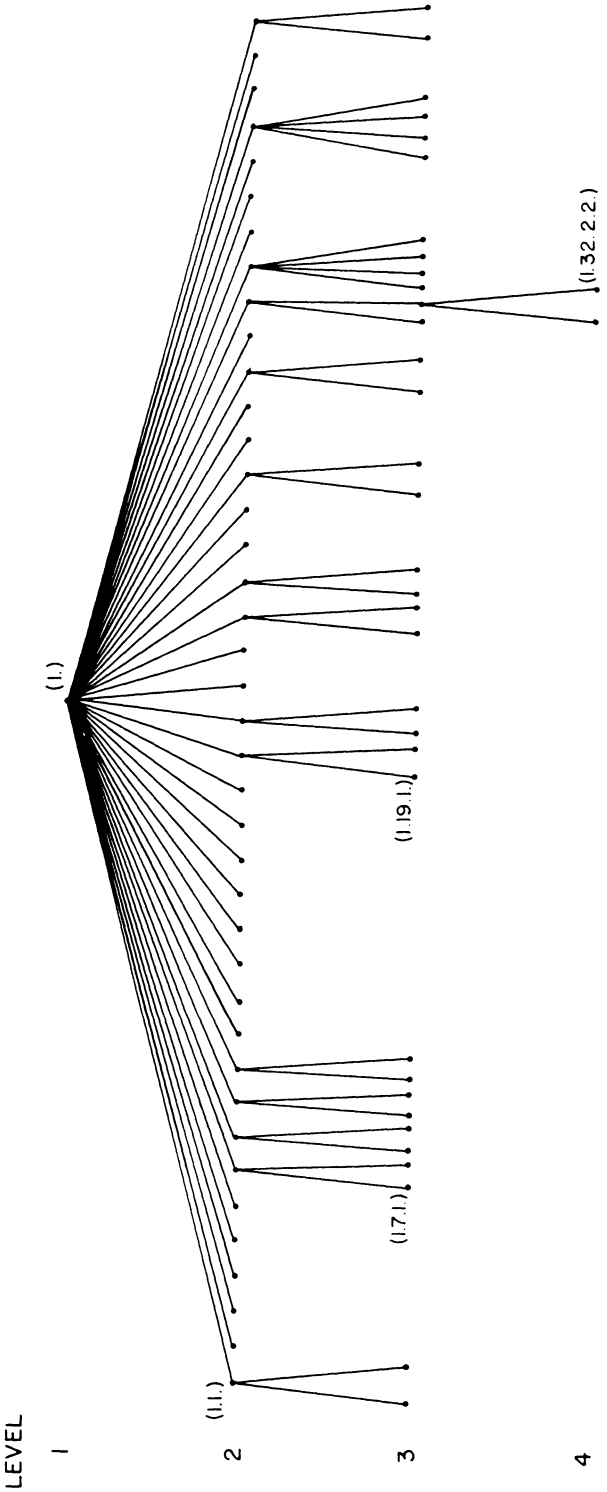


Fig. 18. Graph of Narrative # 25, a simple coordinate sequence in dependency analysis.

Dependency analysis of Narrative # 26

1. I have (had a shot - previous discourse) in my shoulder.
  1.1. (SPEAKER WAS AT A DOCTOR'S OFFICE).
  1.2. It hurt.
  1.3. Then I had to drink something.
    1.3.1. It was red.
    1.3.2. It was in a small thing.
      1.3.2.1. This here (gestures) is how small the top was.
      1.3.2.2. It was (a size).
        1.3.2.2.1. as small.
          1.3.2.2.1.1. about (as small).
          1.3.2.2.1.2. (as small) as that. (again gestures)
        1.3.2.2.2. (OR) maybe bigger.

Combination of a Simple Coordinate Sequence With a Simple Subordinate Sequence

In this third structure, expansion is in the form of proliferation, primarily at level # 2, plus a solitary shoot of elaboration

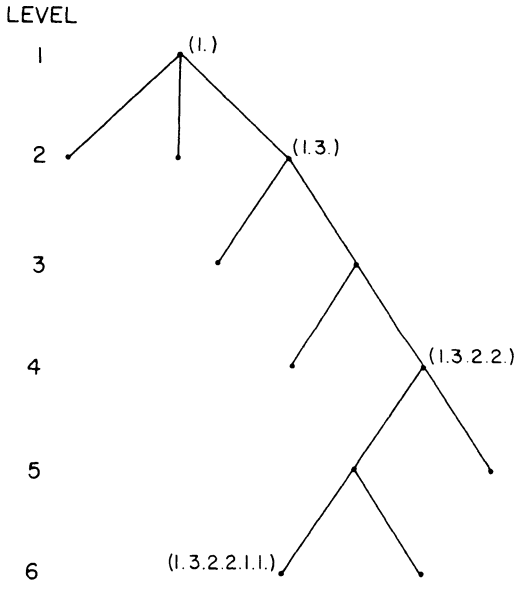


Fig. 19. Graph of Narrative # 26, a simple subordinate sequence in dependency analysis.

of one of those propositions. In other words, one level # 2 proposition serves as a subtopic sentence that is successively elaborated. This resembles grass with a solitary long shoot of growth. In the following narrative by an 8-year-old girl, the bulk of the narrative is a simple coordinate sequence that is combined with a shoot of elaboration describing the narrator's sister.

Narrative # 27

E: Have you ever been in a car accident?
M: Nearly once.
E: Nearly once. Tell me about it.
M: See, our tire blew up and we went skidding down the road and it wouldn't stop so my Mom had to hurry and the brakes wouldn't work either and my Mom had to hurry and this was her car and she had to hurry and take out the keys and it stopped right in the ditch. At least the baby was safe and so were we. At least Coleen was safe. I could take care of myself and other ones but Coleen can't take care of herself so.

Dependency analysis of Narrative # 27

1. (SPEAKER WAS IN CAR ACCIDENT).
  1.1. Nearly.
  1.2. Once.
  1.3. (SPEAKER WAS IN CAR.)
  1.4. (SPEAKER WAS WITH FAMILY.)
  1.5. (MOTHER WAS DRIVING.)
  1.6. See our tire blew up.
  1.7. And we went skidding down the road.
  1.8. And it (ie. car) wouldn't stop.
  1.9. So my mom had to hurry.
  1.10. And the brakes would work.
    1.10.1. (would)n't (work).
    1.10.2. either.
  1.11. And my mom had to hurry (redundant with 9.1.)
  1.12. And this was her car.
  1.13. And she had to (do 2 things).
    1.13.1. hurry (redundant with 1.9. and 1.11.)
    1.13.2. and take out the keys.
  1.14. And it stopped.
    1.14.1. right.
    1.14.2. in the ditch.
    1.14.3. At least the baby was safe.
      1.14.3.1. (BABY'S NAME IS COLEEN.)
      1.14.3.2. At least Coleen was safe.
    1.14.4. And so were we (THE REST OF US, SAFE).
    1.14.5. (THERE WAS A CONTRAST.)
      1.14.5.1. (CONTRAST WAS BETWEEN COLEEN AND OTHERS.)

1.14.5.2. (CONTRAST WAS WITH RESPECT TO WHAT WOULD HAVE HAPPENED HAD THEY NOT BEEN SAFE.)
1.14.5.3. I could take care of myself.
1.14.5.4. And (SO COULD THE) other ones (TAKE CARE OF THEMSELVES).
1.14.5.5. But Coleen can take care.
1.14.5.5.1. (can)'t (take care).
1.14.5.5.2. of herself.
1.14.5.5.3. so (ie. LIKE THE OTHERS).

Mixed Coordinate Sequence

The fourth structure is a mixed coordinate sequence (Christensen and Christensen, 1976, p.150), involving elaborate proliferation primarily at levels of discourse below level # 2 (usually levels # 3 and # 4). There is no pure elaboration here, though there may be a flat rake of pure proliferation in amongst the wire mesh fence of elaborate proliferation. The tree diagram taken as a whole resembles a bush. The following narrative, by an 8-year-old girl, epitomizes a mixed coordinate sequence.

Narrative # 28

E: Have you ever seen a car wreck like that?
A: One, one wrecked in, ah, wrecked into our telephone pole. Wrecked in, right into our telephone pole. We didn't have no electricity for a long time. It was because of our dog. But we was going to save
E: Because of your dog?

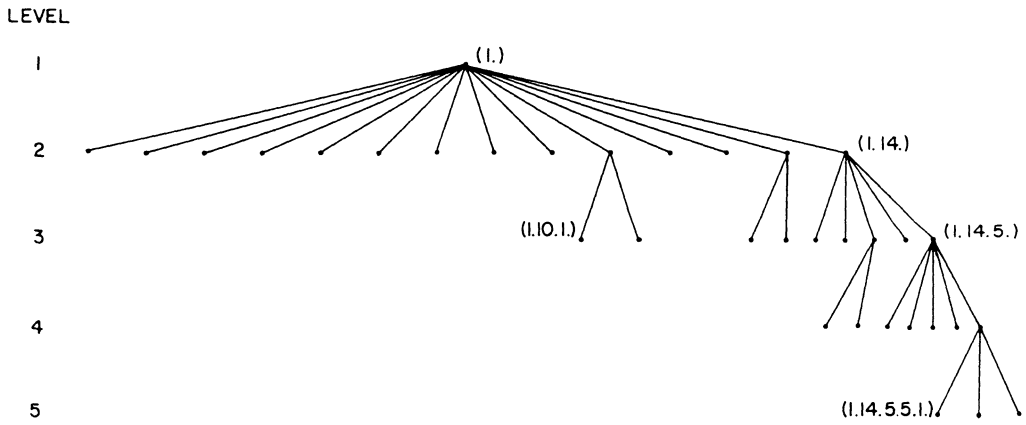


Fig. 20. Graph of Narrative # 27, a combination of a simple coordinate sequence with a simple subordinate sequence in dependency analysis.

A: Yeah, he always used to chase cars, so we got him tied up and everything. And, uh, one night my brother says, "Why don't we let," and it was a, and it was a, one of these, it was a, I know it wasn't a weekend. It was in the summer time. My brother goes, "Why don't you let, why don't you let Max loose?" And so my Dad goes, "All right, you can go let him loose for once." And so he went out and let him loose and my Dad was going out there, um, tie him up. Uh, he got hit. Right as soon as my Dad walked out.

E: He got hit right as soon as your Dad walked out?

A: My Dad had, he got hit three or four times 'fore that. He was, his back was broken and everything. He was crying and everything. Soon as he saw my, soon as he saw my Dad come out he started, he had and his leg was broken and everything. All his legs were broken. My Dad goes, "I don't want to keep the dog round here, he'll just suffer, you know." So my Dad goes, "We'll have to kill him cause I don't want him to suffer." So, so we shot that dog.

Dependency analysis of Narrative # 28

1. (Event happened) because of our dog.
  1.1. (Event was) One (car, given in previous discourse) wrecked.
    1.1.1. into our telephone pole (MEANS "ELECTRICAL POLE" BELOW).
    1.1.2. wrecked right into our telephone pole.
      (repetition for emphasis).
    1.1.3. We did have no electricity.
      1.1.3.1. (did)n't (have).
      1.1.3.2. for a long time.
  1.2. (NARRATOR WAS WITH FAMILY.)
  1.3. It was because of our dog.
  1.4. He always used to chase cars.
  1.5. So we got him (in a state).
    1.5.1. tied up.
    1.5.2. and everything.
    1.5.3. One night (SOMETHING HAPPENED).
      1.5.3.1. I know it wasn't a weekend.
      1.5.3.2. It was in the summer time.
    1.5.4. (DOG = MAX.)
    1.5.5. My brother goes, "Why don't you let Max loose?"
    1.5.6. And so my Dad goes, "All right, you can go let him loose for once."
    1.5.7. And so he (BROTHER did things).
      1.5.7.1. went out.
      1.5.7.2. did let him loose.
    1.5.8. And my Dad was going (somewhere).
      1.5.8.1. out there.
      1.5.8.2. (LATER.)

1.5.8.3. (TO) tie him up.
1.6. And he (DOG) got hit, right as soon as my Dad walked out.
1.7. He got hit (other) times.
1.7.1. three (times).
1.7.2. or four (times).
1.7.3. before that.
1.7.4. His back was broken and everything.
1.7.5. He was (doing something).
1.7.5.1. crying.
1.7.5.2. and everything.
1.7.5.3. Soon as he saw my dad come out.
1.7.5.4. He started.
1.7.5.5. He had (things).
1.7.5.5.1. tears coming out of his eyes.
1.7.5.5.2. and everything.
1.7.6. So my Dad felt his leg.
1.7.7. And his leg was (in a state).
1.7.7.1. broken.
1.7.7.2. and everything.
1.7.8. All his legs were broken.
1.7.9. My Dad goes (something).
1.7.9.1. "I don't want to keep the dog around here."
1.7.9.2. "He'll just suffer, you know."
1.7.10. So my Dad goes, "We'll have to kill him."
1.7.11. "Because I don't want him to suffer."
1.7.12. So we shot that dog.

Mixed Subordinate Sequence

The fifth structure may be termed a mixed subordinate sequence (Christensen and Christensen, 1976, p.153). Expansion is primarily

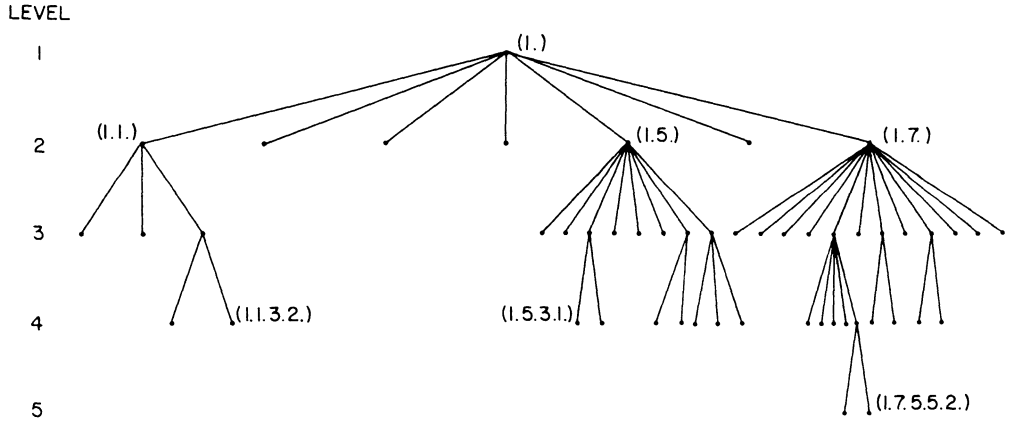


Fig. 21. Graph of Narrative # 28, a mixed coordinate sequence in dependency analysis.

in the form of both pure, flat proliferation and elaborate proliferation, but somewhere in the structure there is also a solitary shoot of elaboration. In the jungle of tree diagrams, this structure resembles a bush with a shoot to a depth at least two levels below the depth of most of the narrative. Narrative # 15 (p. 73) epitomizes the mixed subordinate sequence. This 7-year-old girl expands her narrative evenly and primarily at the fourth and fifth levels of discourse, but she elaborates to an unusual depth on the blood rolling down her legs.

Dependency analysis of Narrative # 15

1. I went to the hospital.
  1.1. You know what my friend Scotty.
  1.2. (There was a bat; narrator forgets name of it.) What was that thing?
    1.2.1. Round (thing).
    1.2.2. (thing) with the stick at the top.
    1.2.3. (thing) that you hit a ball with.
    1.2.4. (thing that you hit) a hard ball (with).
    1.2.5. I was in back of him.
    1.2.6. And he hit me, you know.
    1.2.7. And he hit me. (repetition to restore staging order)
    1.2.8. Oh did that hurt!
    1.2.9. (NARRATOR WAS WOUNDED.)
    1.2.10. It was bleeding.
      1.2.10.1. (THERE WAS A HOUSE.)
      1.2.10.2. Before I got in the house.
      1.2.10.3. (bleeding) so hard.
      1.2.10.4. (bleeding) down.
        1.2.10.4.1. way (down).
        1.2.10.4.2. (down) to my legs.
    1.2.11. (NARRATOR WAS TAKEN TO HOSPITAL AS A RESULT OF INJURY.)
    1.2.12. Well, Scotty, you know, he got a spanking.

Ideal Hierarchy

The sixth structure is what we have termed the ideal hierarchy. It primarily involves elaborate proliferation on the third, fourth, and fifth levels of discourse, and often flat proliferation on one or many levels as well. It may also involve more than one shoot of pure elaboration to unusual depths. Overall, it resembles a fully-branched tree. See Narrative # 23 (p. 84) told by a 9-year-old boy - an ideal hierarchy. The dependency analysis and tree diagram of that narrative follow.

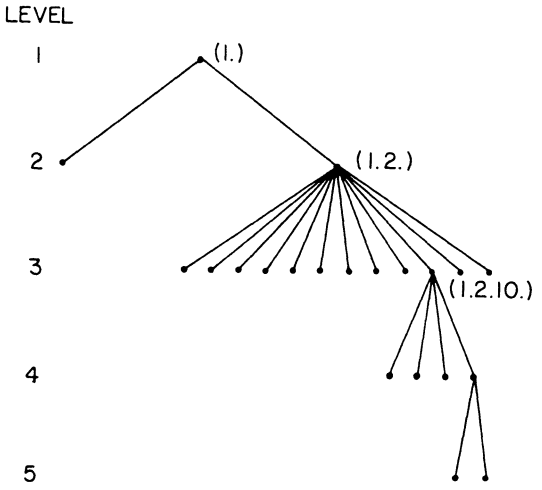


Fig. 22. Graph of Narrative # 15, a mixed subordinate sequence in dependency analysis.

Dependency analysis of Narrative # 23

```
Staged  1.  (THERE WAS A CONTRAST.)
Order     1.1.  (CONTRAST WAS IN TREATMENT OF INJURY.)
          1.2.  (CONTRAST WAS BETWEEN TWO PEOPLE.)
            1.2.1.  (SPEAKER'S SISTER WAS ONE PERSON.)
 1            1.2.1.1.  I was playing.
                1.2.1.1.1.  A month after that (=day previously
                            mentioned).
                1.2.1.1.2.  with my sister.
              1.2.1.2.  (THERE WAS A COFFEE TABLE.)
 2            1.2.1.3.  She had knocked her teeth.
                1.2.1.3.1.  out.
                1.2.1.3.2.  right here.
                1.2.1.3.3.  on the coffee table.
 3              1.2.1.3.4.  Oooooohhhh (IE. EVENT WAS BAD).
16              1.2.1.3.5.  Two teeth were knocked out.
 4            1.2.1.4.  She had leaned up against my shoulder.
                1.2.1.4.1.  and blood (was) running down it.
 6              1.2.1.4.2.  Oooooohhhhh (IE. EVENT WAS BAD).
              1.2.1.5.  (DADDY WAS THERE OR CAME IN.)
 7            1.2.1.6.  Daddy picked her up.
 8            1.2.1.7.  and blood run.
                1.2.1.7.1.  down him.
```

1.2.1.7.2. there.
9 1.2.1.8. Daddy said (two things).
10 1.2.1.8.1. "Get that girl out of here."
1.2.1.8.2. "And get her to the hospital."
11 1.2.1.9. So (WE) went to the hospital.
12 1.2.1.10. And (WE) went in Elyria Memorial.
1.2.1.11. (HOSPITAL = ELYRIA MEMORIAL.)
13 1.2.1.12. So she had stayed.
1.2.1.12.1. there.
1.2.1.12.2. for a week.
1.2.1.12.3. or (for) two (weeks).
14 1.2.1.13. And they had brought her home.
1.2.1.14. (THERE WAS SOMEONE NAMED JOANNE.)
15 1.2.1.15. Joanne's laying.
1.2.1.15.1. in bed.
1.2.1.15.2. with her.
1.2.1.16. And Daddy was (doing two things).
17 1.2.1.16.1. sitting down there.
18 1.2.1.16.2. trying to figure out.
1.2.1.16.2.1. (figure out) what we could get her.
19,20 1.2.1.16.2.1.1. And Daddy was thinking, "What about a fishing pole?"
21 1.2.1.16.2.1.2. And I said (two things).
22 1.2.1.16.2.1.2.1. "No."
1.2.1.16.2.1.2.2. "We got to think of something better than that."
23 1.2.1.16.2.1.3. And I thought a camera (WOULD BE GOOD).
24 1.2.1.16.2.1.4. He couldn't afford.
1.2.1.16.2.1.4.1. even (afford).
1.2.1.16.2.1.4.2. (afford) dollars.
1.2.1.16.2.1.4.2.1. that eleven (dollars).
1.2.1.16.2.1.4.2.2. (dollars) for one.
25 1.2.1.16.2.2. He was about (to do something).
1.2.1.16.2.2.1. just (about).
1.2.1.16.2.2.2. (about) to start work.
26 1.2.1.17. So he had remembered.
1.2.1.17.1. finally.
27 1.2.1.17.2. that she had wanted a dish.
28 1.2.1.17.2.1. not a play (dish).
1.2.1.17.2.2. but it is (A) set.
1.2.1.17.2.2.1. (SET IS REAL.)
1.2.1.17.2.2.2. glass (set).
1.2.1.17.2.2.3. little (set).
1.2.1.17.2.2.4. Chinese (set).
29 1.2.1.18. And Daddy bought her a set.
1.2.1.18.1. (set was) Chinese.
30 1.2.1.18.2. It (=set) cost dollars.

1.2.1.18.2.1. around 5 (dollars).
1.2.1.18.2.2. or (around) 6 (dollars).
1.2.2. (SPEAKER WAS THE SECOND PERSON.)
31,32 1.2.2.1. I asked him what he was going to get me.
33,34 1.2.2.2. And he said, "Didn't you get anything?"
35,36 1.2.2.3. And I said, "No."
37,38 1.2.2.4. I said, "You didn't get anything."
1.2.2.4.1. (for) me.
1.2.2.4.2. when I cut my chin open.
39,40 1.2.2.4.3. And he said, "That ain't as bad as your sister's (injury)."
1.3. (SPEAKER OBJECTED TO CONTRAST.)
41,42 1.3.1. And I said, "You don't care for me do you?"
43 1.3.2. And he said (two things).
44 1.3.2.1. "Yeah."
1.3.2.2. "I do."
45 1.3.3. And I said (two things).
46 1.3.3.1. "No."
1.3.3.2. "You don't."
47 1.3.4. So we started fussing.
1.3.4.1. So I (did two things).
48 1.3.4.1.1. (I) got mad at him.
49 1.3.4.1.2. and (I) hit him.
1.3.4.1.2.1. in the mouth.
50 1.3.4.1.2.2. hit him right in the mouth.
51 1.3.4.1.2.3. I turned around.
1.3.4.1.2.4. I (did two things).
1.3.4.1.2.4.1. turned around.
52 1.3.4.1.2.4.2. and went like that. (gestures)
1.3.4.2. (THEY WERE AT HOME.)
53 1.3.4.3. So he said he'd chase me around the house.
54 1.3.4.4. And he chased me.
1.3.4.4.1. around the house.
1.3.4.4.2. eleven times.
1.3.4.4.3. (THERE WERE SOME STAIRS.)
55 1.3.4.4.4. He had to go (somewhere).
1.3.4.4.4.1. see.
1.3.4.4.4.2. up a stairs.
1.3.4.4.4.2.1. great big (stairs).
1.3.4.4.4.2.2. tall (stairs).
56 1.3.4.4.4.3. and down a short stairs.
57 1.3.4.5. and I went right beside them.
58 1.3.4.6. He couldn't fit beside them.
59 1.3.4.7. Yeah (IE. PROPOSITION(S) REAFFIRMED). (Ambiguous)
1.3.4.8. And he had went down these long stairs.
1.3.4.9. (THERE WERE PRICKERS THERE.)
60 1.3.4.10. And he couldn't get through the prickers.

61 1.3.4.11. So I went down all the stairs.
62 1.3.4.11.1. The (stairs were) little.
1.3.4.11.2. (the) stairs went.
1.3.4.11.2.1. down.
1.3.4.11.2.2. like this.
63 1.3.4.12. And he went (somewhere).
1.3.4.12.1. up the stairs.
64 1.3.4.12.2. and down the stairs.
1.3.4.13. (THERE WERE SOME CARS.)
65 1.3.4.13.1. So all these cars were squished in.
66 1.3.4.13.2. So I went through the cars.
67 1.3.4.14. And he went (somewhere).
1.3.4.14.1. up the stairs.
68 1.3.4.14.2. and down the stairs.
69 1.3.4.15. He got so excited.
70 1.3.4.16. He said, "I'm going to go one way."
1.3.4.17. So (we went in different directions).
71 1.3.4.17.1. I kept on running thata way.
72 1.3.4.17.2. And he (kept on running) thata way.
1.3.4.18. (THERE WAS A CORNER.)
73 1.3.4.18.1. And I stopped.
1.3.4.18.1.1. at the corner.
74 1.3.4.18.1.2. when he was at that corner.
75 1.3.4.18.2. And he started coming back there (=corner).
76 1.3.4.18.3. And he went around there.
77 1.3.4.19. And he (did two things).
1.3.4.19.1. went.
1.3.4.19.1.1. around there.
78 1.3.4.19.1.2. and on in the house.
79 1.3.4.19.2. and kept going (somewhere).
1.3.4.19.2.1. round.
1.3.4.19.2.2. and round.
1.3.4.19.2.3. and round.
1.3.4.20. (SPEAKER DEVISES AMBUSH.)
80 1.3.4.20.1. I was (somewhere).
1.3.4.20.1.1. finally.
1.3.4.20.1.2. up on there.
81 1.3.4.20.2. And here he comes.
82 1.3.4.20.3. He had went behind the cars.
1.3.4.20.4. And I (did something).
83 1.3.4.20.4.1. (I) had had a bucket of water.
84 1.3.4.20.4.2. and (I) threw the bucket.
1.3.4.20.4.2.1. of water.
1.3.4.20.4.2.2. at him.
85 1.3.4.20.4.2.3. Oooooohhhhh (IE. EVENT WAS BAD).
86 1.3.4.20.5. It was cold.
1.3.4.20.5.1. that day.
1.3.4.20.5.2. too.

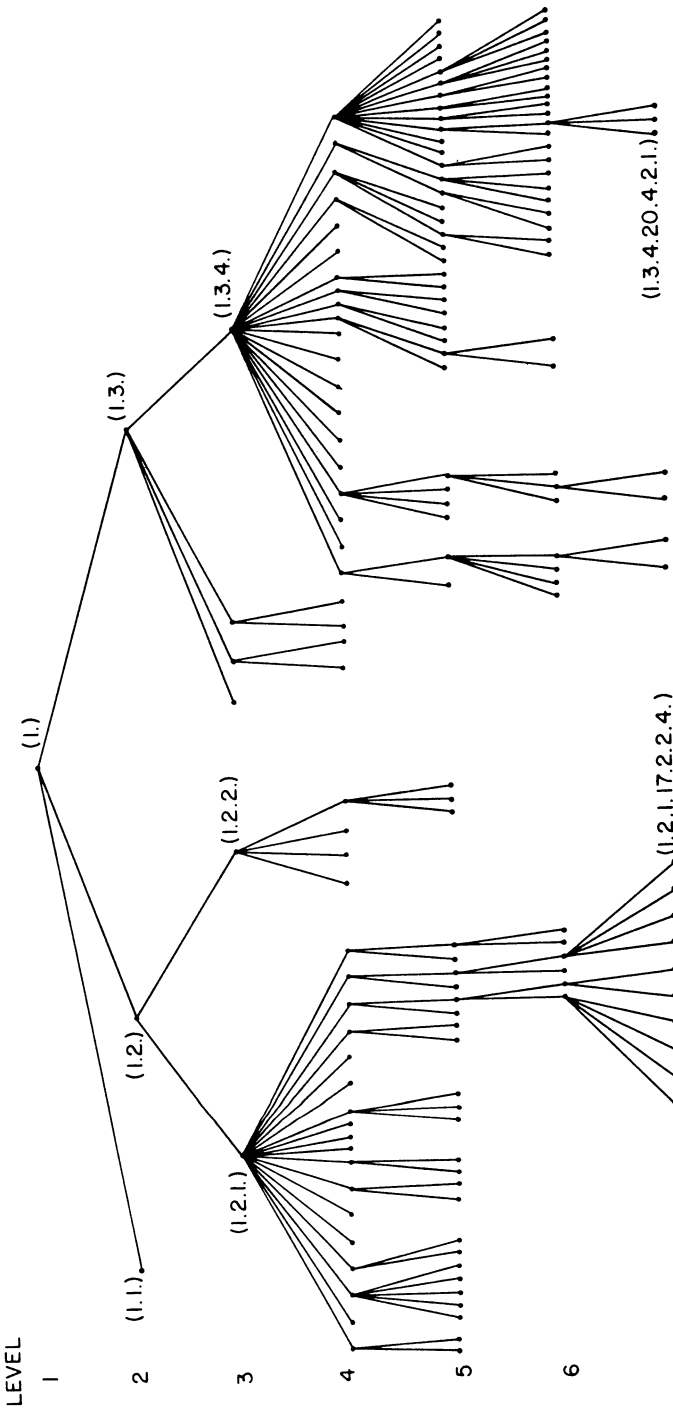


Fig. 23. Graph of Narrative # 23, an ideal hierarchy in dependency analysis.

90	1.3.4.20.6. He thought.
	1.3.4.20.6.1. for sure.
	1.3.4.20.6.2. he was gonna get it.
91	1.3.4.20.7. and it landed.
	1.3.4.20.7.1. right.
	1.3.4.20.7.2. on top of him.
87,88	1.3.4.20.8. He went brrrr because of this water.
	1.3.4.20.8.1. Hot (water); yeah hot. (in response to E)
	1.3.4.20.8.2. (water that) I threw at him.
89	1.3.4.20.8.3. It (=water) burned my finger.
92	1.3.4.20.9. And he was cold.
	1.3.4.20.9.1. then.
	1.3.4.20.9.2. this (cold).
	1.3.4.20.9.3. for a minute.
93	1.3.4.20.10. And then that hot water, it got him.
94	1.3.4.20.11. And he went, "Oooooh hhhh."
95	1.3.4.20.12. He thought he was having a bath out there.
96	1.3.4.20.13. And he went (gestures) all over.

This narrative involves two spates or rakes of proliferation at the fourth level of discourse, the first recounting the sister's injury, the second recounting the "fuss" between the narrator and his father. There is elaborate proliferation about the gift to be chosen for his sister - the flint that ignites the fight between the narrator and his father. And other elaborate proliferation deals with the speaker's hot water ambush of his father. There are two shoots of elaboration, one dealing with the narrator's punch to his father, a right-branching shoot, and one dealing with the chase around the house, which is undifferentiated in direction.

Note that these six structures were induced from our particular narrative structures. Those narratives we categorize as ideal hierarchies are ideal relative to other narrative structures here. However, these ideal hierarchies amongst our narratives perhaps would not seem to be so good if they were compared to other structures such as those to be found in adult expository oral discourse, let alone adult written discourse.

We turn now to the results of our analysis of the dependency of syntactic structures in children's narratives. How ideal are their hierarchies? What shape do these hierarchies take? In other words, how coherent are the children's narratives? And does this coherence develop with age?

9
Results and Discussion
Dependency Analysis

AGE CHANGES

Absolute and Ratio Measures of Narratives

We applied the dependency analysis developed by Deese to the same three longest narratives of each child as were subjected to both high point and episodic analysis. The second author was trained by Deese and scored all 288 narratives under his supervision. That is, whenever there was any question about the mechanical application of the analysis, he was consulted. He checked parts of over half of the narratives, and he checked approximately 12% of the narratives completely, including the most complex ones.

Two multivariate analyses of variance were performed on the measures, one on the seven absolute measures of propositions or mistakes and one on the five remaining measures. Thus the first multivariate analysis of variance had seven dependent variables: the numbers of level # 2, subordinate, explicit, implicit, and repetitive propositions, and false starts and internal corrections. It had two independent variables: age and sex. See Table 17 for average means and standard deviations of these absolute numbers of propositions in the narrative discourses.

As can be seen from Table 17, there was a main effect of age in this first multivariate analysis of variance (Wilks λ Approximate $F(35, 1138) = 3.21$, $p<.001$). Judging from the univariate tests of these dependent variables, this main effect of age appears to result from changes on the following five variables: total level # 2 propositions ($F(5, 276) = 4.83$, $p<.001$); total subordinate propositions ($F(5, 276) = 10.17$, $p<.001$); total explicit prop-

Table 17. Means and (Standard Deviations) of Absolute Numbers of Propositions Per Narrative Discourse.

Mean Age	4	5	6	7	8	9	Adult
Level # 2	7.2 (4.7)	8.4 (4.1)	9.1 (5.0)	10.4 (5.0)	11.7 (7.2)	12.3 (8.7)	3.9 (1.7)
Subordinate	12.4 (8.4)	10.9 (7.8)	16.9 (11.8)	21.9 (14.3)	18.9 (11.3)	31.0 (27.6)	32.2 (13.9)
Explicit	16.8 (8.8)	15.8 (8.7)	21.6 (12.5)	27.2 (14.9)	24.3 (11.8)	36.2 (26.9)	35.0 (11.8)
Implicit	2.9 (2.2)	3.5 (2.3)	4.3 (3.0)	5.1 (3.1)	6.3 (3.9)	7.1 (5.3)	2.1 (2.0)
Repetitions	1.9 (2.4)	1.2 (1.5)	2.3 (3.1)	1.6 (2.1)	1.3 (1.6)	1.6 (1.4)	0.9 (2.2)
False Starts	2.2 (2.0)	2.0 (1.9)	1.9 (1.7)	2.4 (2.6)	2.0 (2.8)	3.4 (3.9)	0.9 (0.9)
Internal Corrections	0.5 (0.8)	0.6 (1.0)	0.4 (0.8)	0.7 (0.9)	0.5 (0.8)	1.2 (1.7)	1.2 (1.0)

ositions ($F(5, 276) = 11.37$, $p<.001$); total implicit propositions ($F(5, 276) = 8.66$, $p<.001$); and total internal corrections ($F(5, 276) = 3.37$, $p<.01$). There was no significant main effect of age on the univariate analyses of variance of the remaining two dependent variables. Thus, older children talk more: they produce more level # 2 and more subordinate propositions, more explicit and more implicit propositions. But children repeat as many propositions and utter as many false starts when they are nine years old as when they are four, and make slightly more internal corrections, possibly a function of their greater talkativeness.

There was no main effect of sex in this multivariate analysis of variance (Wilks λ Approximate $F(7, 270) = 1.36$, n.s.). Nor was there any age by sex interaction on this multivariate analysis of variance (Wilks λ Approximate $F(35, 1138) = 1.04$, n.s.).

The second multivariate analysis of variance had five dependent variables: the ratio of subordinate to level # 2 propositions, the highest level of proposition, the ratio of implicit to explicit propositions, the ratio of repeated to explicit propositions, and the ratio of false starts and internal corrections to explicit propositions. It had two independent variables: age and sex. See Table 18 for the average means and standard deviations for these measures.

Table 18. Means and (Standard Deviations) of Ratios and Highest Level Per Narrative Discourse.

Mean Age	4	5	6	7	8	9	Adult
Subordinate (Density) Level #2	3.0 (3.4)	1.9 (2.0)	2.4 (3.0)	2.9 (2.9)	2.7 (3.5)	3.2 (3.9)	10.5 (6.6)
Highest Average Level (Depth)	3.7 (0.9)	3.7 (0.8)	3.9 (1.0)	4.3 (1.0)	4.0 (0.9)	4.5 (1.1)	6.4 (0.9)
Implicit / Explicit	0.24 (0.26)	0.27 (0.20)	0.27 (0.24)	0.25 (0.29)	0.30 (0.26)	0.24 (0.21)	0.05 (0.07)
Repetitions / Explicit	0.10 (0.13)	0.08 (0.11)	0.09 (0.11)	0.07 (0.09)	0.05 (0.06)	0.04 (0.05)	0.03 (0.06)
False Starts and Internal Corrections / Explicit (Dysfluency)*	0.16 (0.14)	0.18 (0.16)	0.10 (0.09)	0.12 (0.12)	0.09 (0.11)	0.11 (0.10)	0.06 (0.06)

* Dysfluency refers to this whole ratio

As can be seen from Table 18, there was a main effect of age in this second multivariate analysis of variance as well as in the first one (Wilks λ Approximate $F(25, 1012) = 2.63$, $p<.001$). Judging from the univariate tests of these dependent variables, this main effect of age appears to result from changes on the following three variables: the ratio of repetitions to explicit propositions ($F(5, 276) = 2.39$, $p<.05$); the average highest level of proposition ($F(5, 276) = 5.19$, $p<.001$); and the ratio of false starts and internal corrections to explicit propositions ($F(5, 276) = 4.17$, $p<.001$). There was no significant main effect of age on the univariate analyses of variance of the remaining two dependent variables. Thus, children are relatively less dysfluent with age. As they grow older, they also reach a significantly deeper average level of proposition. But surprisingly, older children do not have denser narratives, nor is the density of their narratives to be found at higher, deeper levels of discourse. Furthermore, children do not make their narratives relatively more explicit as they grow older.

As in the first multivariate analysis, there was no main effect of sex in this second multivariate analysis of variance (Wilks λ Approximate $F(5, 272) = 1.48$, n.s.). Nor was there any age by sex interaction on this second multivariate analysis of variance (Wilks λ Approximate $F(25, 1012) = 0.89$, n.s.). Thus, in all twelve dependent variables involved in both multivariate analyses of variance, girls and boys perform equally well across all ages.

Individual Differences. The absence of a significant main effect of age in the ratio of subordinate to level # 2 propositions

(breadth) and the ratio of implicit to explicit propositions alerts us to the possibility that there are large individual differences in one or both of these aspects. Note for example the large standard deviations in the ratio of subordinate to level # 2 propositions. (The standard deviations are not large for the ratio of implicit to explicit propositions.)

The magnitude of these individual differences is best captured by comparing one of the most complex narratives of one 9-year-old boy, Narrative # 29, with two preceding narratives by another 9-year-old boy, Narratives # 23 (p. 84) and # 25 (p.126).

Narrative # 29

E: Have you ever been in a car wreck?
B: Yeah. Everybody except my Dad.
E: What happened?
B: Oh, um, my Mom worked, um, got back to the stoplight and it, um, she, um, ran into the Chevy car. We had to get a new car.

Dependency analysis of Narrative # 29

1. (SPEAKER WAS IN A CAR WRECK.)
  1.1. (FAMILY WAS IN CAR.)
    1.1.1. Everybody.
    1.1.2. except my Dad.
  1.2. (MOM WAS DRIVING THE CAR.)
  1.3. Oh my Mom worked, got (somewhere).
    1.3.1. back.
    1.3.2. (THERE WAS A STOPLIGHT.)
    1.3.3. to the stoplight.
  1.4. (THERE WAS A CHEVY.)
  1.5. She ran into the Chevy car.
  1.6. (THEIR CAR WAS DEMOLISHED.)
  1.7. We had to get a new car.

Here the speaker even leaves unsaid the two most important facts of his narrative - that he was in a car wreck and that his family's car was demolished.

What needs comment are the reasons for these large individual differences. We have previously noted that children may talk more about certain prompts than about others. Yet the narrator of Narrative # 30 did not talk much about anything. We will discuss the fact that narratives need not be hierarchical to be good, but while both Narrative # 30 and # 25 are simple coordinate sequences of propositions, # 25 is far better than # 30. This leaves us with two further possible causes of wide individual differences. Of course we are looking at the emergence of structure with increasing chronological age, and it could well be that the ratio of subordi-

nate to level # 2 propositions is more sensitive to mental age than are our many other measures. In addition to this explanation, or perhaps instead of this explanation, people seem to differ widely in the style of their self-presentation. That is, some people talk expansively about what happens to them while others do not - for whatever reason. Too much explanation of null results, our readers may feel? But if the fault does not lie in our data, then it may lie in the density measure itself, and our conceptualization of an ideal hierarchy.

Comparison with Adult Expository Speech

Thus it is interesting to compare these data from children with some data that are available from adults. Deese has collected data from a number of adults speaking expositorily at various functions. The data we have here are from a city council meeting and a discussion by a women's group - both in Charlottesville, Virginia. We have looked at discourses from 8 males and 8 females, as in each of our children's age groups. The length of each adult discourse is approximately one paragraph, roughly equivalent to a child's narrative in terms of number of sentences and of being a simple coherent semantic unit of discourse. As can be seen in Tables 17 and 18, there are slightly fewer explicit propositions in the adult discourses than in those of the 9-year-olds' narratives. This equation of length allows for a clearer picture of other, qualitative differences between children and adults; that is, such differences as we find cannot be simple artifacts of increased length per se. But keep in mind that the adults' discourses here are excerpts from coherent discourses that are longer, while the children's discourses are wholes. (To make these comparisons, we must divide by three the absolute measures of the children's narratives, since they were summed over each child's three longest narratives - three distinct discourses - and we want to look at numbers per discourse. We also collapsed over sex here since there were no sex differences in our data.)

These comparisons of adult and child data are tentative because our developmental data are of narrative speech, while Deese's adult data are of expository speech. Narrative speech even from adults is likely to produce less ideal hierarchies than expository speech since narratives are by definition primarily concerned with a sequence of presumably parallel events. That is, the typical narrative need only have the form: This happened, then this, then this - a simple coordinate sequence of propositions.

Perusal of Tables 17 and 18 supports the common sense view that adults' speech is more expansive and coherent than children's in a number of ways. Adults are less dysfluent than children; adults produce fewer false starts and internal corrections relative

to the number of explicit propositions they produce. This is the extension of a significant decline in dysfluency from the age of four through the age of nine. Thus we may conclude that dysfluency is the result of a decline in ex post facto monitoring of mistakes that is the opposite side of an increase in planning. In other words, at first the child goes, "Oops, I goofed," and corrects his or her mistake, but later he or she simply plans ahead better and has no need to correct him- or herself.

Adults are less repetitious than children in both absolute and relative terms. As the children get older, their repetitions decline relative to the number of explicit propositions they produce, though they produce the same number of repetitions at nine as they do at four. This decline eventually results in a decrement even in absolute terms in maturity.

While children produce more level # 2 propositions as they grow older, this measure drops off for adults because they expand their discourses more; adults produce more ideal hierarchies. For one thing, adults' hierarchies are denser, having many more subordinate propositions relative to level # 2 propositions and therefore having most of the propositions in their discourses at levels deeper than the second one. Thus even though this measure did not show a significant main effect of age in our analysis of the children's data, clearly there is a trend in the developmental data that results in denser hierarchies and hierarchies with propositions clustered at levels deeper than the second level of discourse. And for another thing, adults' hierarchies are deeper per se. Here the significant main effect of age in the children's data continues into adulthood, as people elaborate to increasingly deeper levels of discourse.

Adults have fewer implicit propositions than do the children in both absolute and relative terms. Recall that there is no decline at all in the relative number of implicit propositions in our developmental data. We also believe that there is a developmental change in the nature of implicit propositions. Compare the dependency analyses of Narrative # 7 (p.148) by a 4-year-old girl and of Narrative # 23 (p.137). The dependency analysis of Narrative # 7 follows:

Dependency analysis of Narrative # 7

1. My sister had, she's had (to have a cast - previous conversation).
  1.1. (SPEAKER WAS WITH SISTER.)
  1.2. (THERE WAS A MINI-BIKE.)
  1.3. (SISTER WAS ON MINI-BIKE.)
  1.4. (SPEAKER DID SOMETHING.)
    1.4.1. (TO SISTER.)
    1.4.2. (TO MAKE SISTER FALL.)

1.5. When she fell in these (=from this) mini-bike.
1.6. She broke a arm.
1.7. She broke her arm. (Redundant with 1.6.)
1.8. She had, she went to the doctor.
1.9. So my Dad gave me (A) spanking.
1.10. (BECAUSE OF WHAT SHE DID TO SISTER.)
1.11. She (=SISTER) has (A) cast on.
1.11.1. when she was home.
1.11.2. when she came back (FROM DOCTOR'S).
1.12. And she (SISTER) had to go to the doctor.
1.13. She had to go get it off.
1.14. And she had to (do two things). (Redundant with 1.12. and 1.13.)
1.14.1. go back.
1.14.2. and take off the cast.
1.14.3. (SHE HAD TO GO TO) the doctor.
or 1.14.3. The doctor (TOOK OFF CAST).
1.15. And it didn't break again.
1.16. She still got it off.
1.17. She can play.
1.18. She can't play anymore. (Contradicts 1.17.)
1.19. She can't play. (Redundant with 1.18.)
1.20. She can play. (Contradicts 1.18. and 1.19.)
1.20.1. (WITH THE) rest of us.
1.20.2. now.

Now it is true that the 4-year-old requires a minimum of 12 implicit propositions compared to her 18 explicit propositions, while the 9-year-old requires only 23 implicit compared to 144 explicit propositions - a substantial decrement in the relative number of implicit propositions. But what we wish to point to here is the difference between implicit propositions like 1., 1.1., 1.2., 1.2.1., 1.2.2., and 1.3. in the dependency analysis of the 9-year-old's narrative and propositions like 1.1., 1.2., 1.3., 1.4., 1.4.1., 1.4.2., and 1.10. in the dependency analysis of the 4-year-old's narrative. Had the former been specified, the narrative would have struck us as cumbersome, heavy-handed. We are not suggesting that all implicit propositions from older children are of this unsuitably explicit sort; clearly some of the implicit propositions in the 9-year-old's narrative (eg. 1.3.4.9. and 1.3.4.13.) would better have been specified. What we do suggest is that as we grow older, we learn what sorts of necessary propositions appropriately, reasonably, and safely may be left up to our listeners to infer. Our listeners still must infer these propositions in order to make sense of what they hear. (Were these propositions not necessary, dependency analysis would not reveal them as implicit.) But our listeners can be expected to infer this sort. In fact we may bore our listeners or even insult them by demanding nothing of their inferential abilities, by making such propositions explicit. The implicit propositions to which we refer

control subordinate explicit propositions in much the same way as a puppeteer's stick controls a marionette - both work best by remaining offstage. We plan to explore this issue in greater depth in the future.

As far as the content of implicit propositions is concerned, they are predominately orientative. That is, children tend to omit pertinent information about who, what, when, and where in their narratives. These implicit propositions were not more specifically scored and counted because they have indeterminate final form. Implicit propositions point merely to the absence of some sort of information; they cannot capture definitely the missing information, for obvious reasons. Moreover, we have dealt with children's problems of orientation elsewhere (Menig-Peterson and McCabe, 1978).

Staged Order of Propositions

Recall that one of the features of an ideal hierarchy is that the staged order of propositions is a logical one. In a narrative this amounts to saying that the staged order of propositions should be a chronological one. Dependency analysis rearranges staging order only where a violation of chronology is involved. Even some of our best oldest narrators had trouble adhering to strict temporal sequence in their experiences. Compare the following narrative by one of our two best narrators, a 9-year-old boy, with its dependency analysis. The number indicating the location of a given proposition in the original narrative appears to the left of the proposition as it takes its logical place in dependency analysis.

Narrative # 30

1 B: Well, see, one, once when we, I was just in first, no, I was in second grade,
2 me and my Dad went,
3 it was at night.
4 We were going to get pizza and visit my cousin
5 and, we were on, on our way there
6 and all of a sudden we were half way to Ayres for the pizza.
7 You know where that old home, haunted house is out there?
E: Old haunted house? Uh huh.
8 B: Yeah, well, we had a, we got a flat right by that.
E: Got a flat right by that.
9 B: Right, right in front of it
10 and we had to, we stopped along the road by that next to that night turnpike light
11 and, we stopped.
12 My Dad got out it,

13 we usually carry a flashlight
14 and we started looking for the, the part you know to jack it up.
15 (Whispers) Couldn't find it.
E: Your Dad couldn't find it.
16 B: He just found half of it
17 and then we had to drive all the way to Manners into this gas station.
18 They had some, they had a jack.
19 My Dad had to use their jack.
20 You wouldn't believe it.
21 My Dad went to this place where he bought it.
22 My Dad had a, they said he had it up with him all along.
23 He had it right in the hood.
24 He didn't even know it.
25 They never told him he had it all the time right in the hood.
26 I didn't even know that they had those in the hood.
27 I thought they have them in the back cause I seen most part, most of the jack there, most of the jack behind there.
28 I thought all of it was there.
29 And it wasn't.
E: Yeah, it wasn't huh?
30 B: I don't know how they can play tricks like that.
31 I wish they would put them in the front
32 but it was sitting there bolted right to the hood.
33 My Dad thought there was something wrong with the engine.
34 He opened it.
35 He didn't see nothing.
36 He checked around.
37 He goes, he didn't even see the jack.
38 And so he then he looked around,
39 and his tires, he heard, heard something went pop,
40 went pop,
41 so checked the tires.
42 Sure enough it was a tire.
43 Started looking for the oth we found the one half.
44 Started looking for the other half
45 and couldn't find it.
46 So we had to drive into Mann get the gas, got the gas station.
47 We got the tire fixed,
48 We got the pizza,
49 We visited my cousin,
50 we told him about, told them about it,
51 and we went home.
52 Mom asked us what took, took us so long,
53 so we told her we couldn't find it.
E: You couldn't find it.
54 B: No, we didn't find it yet.

Dependency Analysis of Narrative # 30

Staged Order	
	1. (NARRATOR HAS HAD EXPERIENCE WITH BAD TIRE.)
	1.1. Once.
1	1.2. when I was in second grade.
	1.3. (TWO PEOPLE WERE THERE.)
	1.3.1. Me.
2	1.3.2. and my dad.
3	1.4. It was at night.
	1.5. (THEY WERE IN A CAR.)
4	1.6. We were going to (do things).
	1.6.1. get pizza.
	1.6.2. and go and visit my cousin.
5	1.7. We were on our way there.
6	1.8. We were (somewhere).
	1.8.1. halfway to Ayre's for the pizza.
7	1.8.2. you know (something) is out there.
	1.8.2.1. old home.
	1.8.2.2. haunted house.
8	1.9. We got a flat.
	1.9.1. right by that.
9	1.9.2. right in front of it.
10	1.10. We stopped.
	1.10.1. along the road.
	1.10.2. next to that light.
	1.10.2.1. night (light).
	1.10.2.2. turnpike (light).
	1.11. And we stopped. (=repetition for staging)
	1.12. My Dad got out it.
	1.13. We usually carry a flashlight.
	1.14. (EITHER THEY DID OR DID NOT HAVE A FLASHLIGHT THIS TIME.)
33	1.15. My dad thought there was something wrong with the engine.
34	1.16. He opened it (=HOOD).
35	1.17. He didn't see nothing.
36	1.18. He checked around.
37	1.19. He did see the jack.
	1.19.1. (did)n't (see).
	1.19.2. (did) even (see).
38	1.20. So he looked.
	1.20.1. around.
	1.20.2. then.
39	1.21. And his tires, he (did things).
40	1.21.1. heard something went pop, went pop.
41	1.21.2. so checked the tires.
42	1.21.3. Sure enough, it was a tire (THAT BUSTED).
	1.22. And we (did things).
14	1.22.1. (We) started looking for the part you know to jack it (=CAR) up.

15 1.22.2. (We) couldn't find it (=JACK).
16 1.23. He just found half of it (=JACK).
43 1.24. We (did things).
1.24.1. found the one half. (=repetition for staging)
44 1.24.2. started looking for the other half.
45 1.24.3. and couldn't find it.
17 1.25. We had to drive (somewhere).
1.25.1. all the way to Manner's.
1.25.2. into this gas station.
1.25.3. then.
46 1.26. So we had to drive into Mann(ers), got the gas station.
18 1.27. They had a jack.
19 1.28. My Dad had to use their jack.
47 1.29. We got the tire fixed.
48 1.30. We got the pizza.
49 1.31. We visited my cousin.
1.32. (THERE WERE OTHERS AT COUSIN'S HOUSE.)
50 1.33. We told him about it, told them about it.
51 1.34. And we went home.
52 1.35. Mom asked us what took us so long.
53 1.36. So we told her we couldn't find it (=JACK).
54 1.37. No, we did find it.
1.37.1. (did)n't (find).
1.37.2. yet. (TO EXPLAIN APPARENT CONTRADICTION BETWEEN THIS AND UPSHOT OF COMMENTS BELOW, "YET" MUST MEAN TIME FROM FLAT TIRE TO ARRIVING HOME: SEE 1.38.9.)
20 (You wouldn't believe it.)
21 1.38. My Dad went to this place.
1.38.1. (LATER.) (Particularly bad staging here)
1.38.2. where he bought it (=VEHICLE).
22 1.38.3. They said he had it (=JACK).
1.38.3.1. up.
1.38.3.2. with him.
1.38.3.3. all along.
23 1.38.3.4. He had it right in the hood.
24 1.38.3.5. He did know it.
1.38.3.5.1. (did)n't (know).
1.38.3.5.2. (did) even (know).
25 1.38.4. They told him (something).
1.38.4.1. never (told).
1.38.4.2. (told him) he had it.
1.38.4.2.1. all the time.
1.38.4.2.2. right in the hood.
26 1.38.5. I did know (something).
1.38.5.1. (did)n't (know).
1.38.5.2. (did) even (know).
1.38.5.3. that they had those in the hood.

27 1.38.6. I thought (something).
1.38.6.1. they had them (=JACKS) in the back.
1.38.6.2. because I seen most.
1.38.6.2.1. of the jack.
1.38.6.2.2. behind there.
28 1.38.6.3. I thought all of it was there.
29 1.38.6.4. and (=BUT) it wasn't.
30 1.38.7. I do know (something).
1.38.7.1. (do)n't (know).
1.38.7.2. how they can play tricks like that.
31 1.38.8. I wish they would put them (=JACKS) in the front.
32 1.38.9. But it was sitting (somewhere).
1.38.9.1. there.
1.38.9.2. bolted right to the hood.

The narrative is remarkable for its lack of redundancy; it is not the case that the narrator goes back over and over the same events. Furthermore, the narrative is relatively explicit; almost all events are linguistically represented. Rather he has shuffled several sections our of chronological order in his eagerness to get to what he obviously considers the most important part - the issue of the missing jack that was with him and his father all along but in an unusual place and the unreasonable, even nefarious, assumption by the car dealers that the narrator's father would know where it was without being told. The coherence of this narrative would have been improved substantially by staging the propositions chronologically. Compare the dependency analysis of this narrative with that of Narrative # 23 (p. 84) where the narrator has displaced only three propositions in two places, and which is thus more coherent than Narrative # 30.

There are problems with quantifying defective staging order. Do you count the number of propositions a narrator misplaces, ignoring the fact that propositions may be in order within a whole sequence that is misplaced? Or do you count the number of times a narrator departs from chronology, ignoring the fact that the displacement of single propositions, as in Narrative # 23, is not nearly so disconcerting to a listener as is the clumsy disarray of long sequences? Though it does not solve this dilema, we simply looked at the number of narratives at each age level that involved some departure from chronology. We found no age changes. Roughly twelve out of 48 narratives, or 25% of the narratives, at each age group involved some departure from chronology in their staging order. We also counted how many children at each age level departed at least once from chronology in the course of their three longest narratives to see whether only a couple of children were responsible for the number of disordered narratives in their age group. Again, we found no age changes. Approximately ten out of sixteen children in each age group departed from chronology at

least once in the course of their three longest narratives. In other words, most narratives do not violate chronology, but a constant and noticeable number do at all ages. This number is not due to a few children; over half of the children at all ages occasionally violate chronology in their representations of personal experiences.

What probably happens is that violation of chronology in staging order is the (temporary) price paid for increases in complexity. We know that our children increase the length, and hence the complexity, of their narratives with age. And since the increment per se in complexity is present at all ages, it makes sense that the problem of staged violation in chronology is a relatively constant one.

What throws children off the chronological track? Probably many things. But in the narrative above, Narrative # 30, it is of particular interest to us that the distraction seems to be the narrator's eagerness (as revealed in his evaluation, to use the terminology of high point analysis) to tell us what he considers to be the most important part. In the midst of another narrative by this same 9-year-old boy, came the following confusing sequence at a fast clip. It concerns a drawbridge, which was rammed by a passing boat and nearly hit a sailor as it fell.

> "An a then on this then the bridge went down and the yeah the bridge went down and this big sailor I was sitting right on the other side. It broke the and I didn't know it but it I seen it. It had broke the gate. It hit it and it broke the gate there. There was this much from where the thing's going up. He almost got down. He almost got it hit."

Perhaps children must learn to inhibit their enthusiasm for or strong emotional associations to certain aspects of an experience in order to place them in the proper sequence of events, this inhibition occurring in the manner described by White (1965) with respect to many other skills at the age of six: cognition comes to inhibit the associative mode of response. And perhaps some children never do learn to stage their narratives in proper chronological order. Certainly some adults often depart from such sequence in an unsophisticated way.

Overall, however, despite occasional lapses, children aged four to nine are good at staging events in proper chronological order in their personal narratives. Seventy-five percent of the narratives at all ages contain no violation of chronology in staging order.

Thus far, we have viewed the developmental progression towards ideal hierarchy indirectly - by means of the various quantitative measures we derived. We have found that, as far as our data go, there is a straightforward developmental progression towards greater fluency, less repetitiveness, and greater depth. The issue of whether discourse becomes progressively more explicit is more complicated, as is the issue of whether staging order becomes more logical with age. But the issue that needs most attention in the children's data is why there is no developmental progression in the ratio of subordinate to level # 2 propositions, the ratio that measures the density and the location of density in discourse. This issue will be clarified by turning to a more direct, qualitative assessment of the developmental progression towards ideal hierarchy - a consideration of the various dependency structures we described in the previous chapter.

Dependency Structures of Narratives

Incidence of Dependency Structures. The authors independently classified all 288 narratives as one of the six aforementioned structures. We agreed on the category of 91% of the narratives. Disagreements were discussed and consensus reached. As is shown in Table 19, about half of all our children's narratives were simple coordinate sequences. Another fifth were mixed coordinate sequences. In descending order of frequency were ideal hierarchies (11%), combinations of a simple coordinate sequence with a simple subordinate sequence (10%), and mixed subordinate sequences (7%). Only four out of 288 narratives were simple subordinate sequences.

Table 19. Incidence of Dependency Structures in Order of Increasing Approach to Ideal Hierarchy.

Mean Age	4	5	6	7	8	9
Simple Coordinate Sequence	27	34	26	16	24	16
Simple Subordinate Sequence	1	2	0	0	0	1
Combination of Simple Coordinate with Simple Subordinate Sequence	2	2	4	8	5	7
Mixed Coordinate Sequence	10	6	12	10	11	10
Mixed Subordinate Sequence	5	2	2	5	3	5
Ideal Hierarchy	3	2	4	9	5	9

In order to analyze age differences in children's production of various structures, a discriminant function analysis was performed on the incidence of these dependency structures from each age group. One significant function was found, $\chi^2(15) = 30.48$, $p<.05$. Age changes are due to changes in the incidence of simple coordinate sequences and ideal hierarchies. There is a developmental decrease in the production of simple coordinate sequences that is complemented by a developmental increase in the production of ideal hierarchies. In other words, as children grow older, they are increasingly likely to produce more elaborate proliferation.

Sex differences in children's production of various structures were also analyzed by means of a discriminant function analysis. No significant functions emerged, $\chi^2(3) = 7.19$, n.s. In other words, both girls and boys produce similar patterns of narratives.

Elaboration: Left- vs Right-Branching. What direction do shoots of elaboration take? Recall that right-branching elaboration demands much less of a speaker's planning and a listener's memory than left-branching elaboration, and that therefore the former should be more common. Of course, branching that is undifferentiated in direction should fall between the two. We found 74 shoots of pure elaboration for at least two successive levels amongst the various structures of our 288 narratives. Only 3 of the 74 shoots were left-branching. In contrast, 36 were right-branching, and 35 were undifferentiated in direction. Thus, we find that our narrators behave as one would expect them to: Half of the time the direction of branching in their shoots of elaboration is right - the most easily produced and most easily comprehended. The other half of the time, shoots of elaboration are undifferentiated in direction, probably due to the fact that bits of information frequently need elaboration along the way. Our narrators almost never produce shoots of left-branching elaboration - the most difficult to produce and to understand.

A Good Narrative Need Not Require Syntactic Elaboration. Aside from the aforementioned complementary age trends, then, two facts seem most striking: Seventy percent of all the narratives are coordinate sequences, either simple or mixed. And the frequency of the structures does not significantly negatively correlate with their presumable degree of difficulty, or approximation of ideal hierarchy. These two facts seem to call for the same caveat regarding conclusions about children's abilities: Narratives need not be hierarchical to be good. One has only to compare the simple coordinate sequence, Narrative # 25, with the ideal hierarchy, Narrative # 23, above; both are narratives from the same 9-year-old boy, and both are good narratives. A good personal narrative really only calls for expansion in terms of flat, or linear, proliferation, as in the former narrative. After all, a narrative is comprised of a sequence of presumably parallel, hence coordinate, propositions about events.

What is Elaborated? Examination of what elaboration does occur in our children's narratives supports this point. There were 106 incidents of elaboration, pure or proliferate, in our 288 narratives. (Of course, proliferate elaboration, or elaborate proliferation, as we have called it elsewhere, is more extensive than pure elaboration in terms of the number of functional syntactic propositions involved, but we do not distinguish the two sorts in this analysis.) Of the incidents of elaboration, 40% were true narrative plunges. But roughly 60% were expository, and overwhelmingly descriptive. The expository description was of a number of different things: objects, people, animals, locations, conditions of the environment, and injuries (in descending order). The four expositions that were not descriptive were a moralistic prescription about the dangers of beer-drinking (see Narrative # 40, p.188), an explanation of the process of glass-blowing (see Narrative # 45, p.203), expectations regarding the location of a jack in a car (see Narrative, # 30), and an explanation of how to play a game. The following Narrative, #31, contains both an expository elaboration of how to play a game and linear proliferation narrating a particular time one game was played, and is depicted in Figure 24. It offers a nicely controlled comparison of how the two different types of content are typically expressed structurally, since these occur about the same subject in the same narrative by the same narrator, a 9-year-old girl.

Narrative # 31

E: Have you ever been to a party? Well, tell me.

K: Lots of times. Um, when we going, went to a party at Patty Meyer's. She's a friend of mine in Oberlin. And, um, we, we, we, were playing games and, see, we had to reach in the, um, see, we, we were playing pin-the-tail on-the-donkey. And they spin you around, and they stop you right before you hit, and I reached over and my brother's standing right there, and I went like that. (Giggles) And I pulled through, and I pinned, cause there was a door. He was standing by the door, and so I pinned it in the door.

E: So you pinned it in the door?

K: It's hard to get in. I went, see, they said, "No, to the door." And I turned around and, after said that, um, Michele wanted, um, we went up and we had to grab, in the bag to get a prize out. Any prize we wanted to. See, it was like a prize-grabbing game. 'Cept that everybody's stick their hand in there and, um, those great big one, those fisher bags, was taped shut. We have to be blind-folded. It counts, you pick it if you touch the top of it. They'd lay it down somewhere where's you had the blindfold on and you'd have to, um, touch the top of it and if you touch the top, you'd get a prize.

Dependency analysis of Narrative # 31

1. When we went to a party at Patty Meyer's.
  1. She's a friend.
    1.1.1. of mine.
    1.1.2. in Oberlin.
  1.2. And we were playing games.
    1.2.1. See we were playing pin the tail on the donkey.
      1.2.1.1. and they spin you around.
      1.2.1.2. and they stop you right before you hit.
      1.2.1.3. (NARRATOR TOOK HER TURN.)
      1.2.1.4. And I reached over.
      1.2.1.5. and my brother's standing right there (GESTURES).
      1.2.1.6. and I went like that (gestures).
      1.2.1.7. and I pulled through.
      1.2.1.8. and I pinned.
      1.2.1.9. Cause (AND) there was a door.
      1.2.1.10. He was standing by the door.
      1.2.1.11. and so I pinned it in the door.
      1.2.1.12. It's hard to get in.
      1.2.1.13. See, they said, "No, to the door."
      1.2.1.14. And I turned around.
    1.2.2. We went (SOMEWHERE).
      1.2.2.1. Up (somewhere).
      1.2.2.2. after (THEY) said that.
    1.2.3. See, it was like a prize-grabbing game.
      1.2.3.1. One (OF) those bags was taped shut.
        1.2.3.1.1. those great big (ones).
        1.2.3.1.2. fisher (bags).
      1.2.3.2. We have to be blind-folded.
      1.2.3.3. and we had to grab.
        1.2.3.3.1. in the bag.
        1.2.3.3.2. to get a prize out.
        1.2.3.3.3. (a) prize.
          1.2.3.3.3.1. any prize.
          1.2.3.3.3.2. We wanted to.
      1.2.3.4. 'cept that everybody sticks their hand in there.
      1.2.3.5. It counts.
        1.2.3.5.1. (THAT) you pick it.
        1.2.3.5.2. if you touch the top of it.
        1.2.3.5.3. They'd lay it (A PRIZE) down.
          1.2.3.5.3.1. somewhere.
          1.2.3.5.3.2. where's you had the blindfold on.
        1.2.3.5.4. And you'd have to touch the top of it (A PRIZE).
        1.2.3.5.5. and if you touch the top. (Repetition of 1.2.3.5.2.)
        1.2.3.5.6. You'd get a (Means THE) prize.

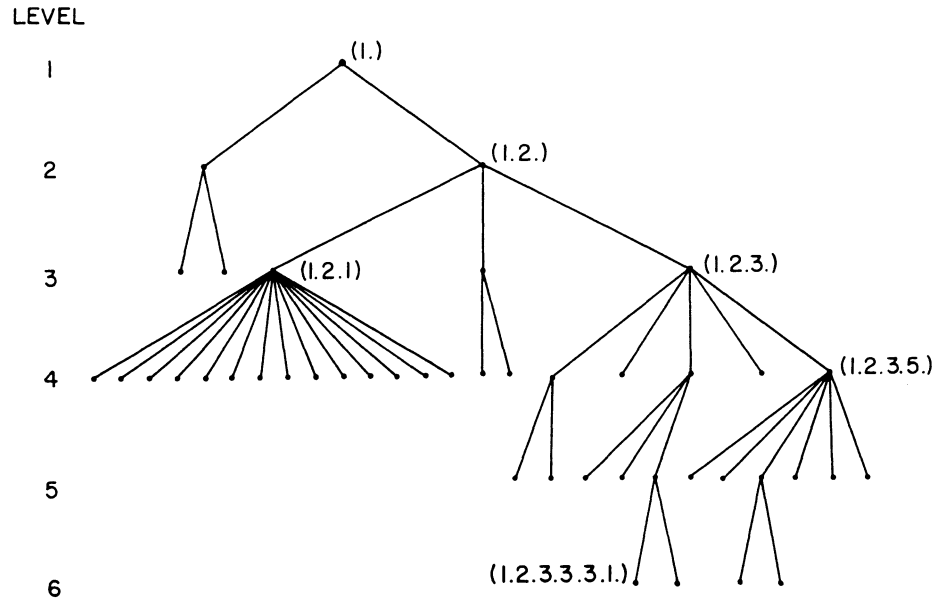


Fig. 24. Graph of Narrative # 31, which depicts both expository elaboration and event recapitulation about a similar topic (playing a game) in dependency analysis.

At times expository description overwhelms the narrative, as in the narrative describing a medicine thing, Narrative # 26 above (cited on p.129). As a matter of fact, the four examples of simple subordinate sequences, of which Narrative # 26 was an example, were almost purely descriptive and consequently were all poor narratives. (By definition as narratives, they included at least two sequential events.) One described a cat, one a fishing rod, and one elaborated upon beeping car horns. Roughly one-third of the incidents of expository description in the form of elaboration were of this unintegrated sort.

At other times, the narrator's descriptive exposition is nicely integrated into the flow of events. See for example, Narrative # 23 (cited on p. 84), where there is a burst of elaborated proliferation about the gift for the sister. Here the object warrants such description, as it is what precipitates the conflict between the narrator and his father. Roughly two-thirds of the incidents of expository description in the form of elaboration were so integrated into the narrative flow.

Not all of this integrated expository description was evaluative, in the sense used in high point analysis. Only one-third of all descriptive elaboration was evaluative, so less than half of the integrated expository description was evaluative. Thus Labov and Waletsky's (1967) suggestion that evaluation promotes syntactic complexity is not borne out by this analysis; elaboration, or syntactic subordination (as we have defined it), is often unevaluative.

In short, while dependency analysis concentrates on the relations among syntactic structures in a particular discourse, it has allowed us to see how content affects the syntactic relations. The deepest, most hierarchical narratives tend to include much exposition, exposition in the form of description of games, sisters, prize fish, etc. Such exposition may interfere with narrative acceleration, overpowering the narrative.

SUMMARY

Overall, we may conclude that discourse becomes more coherent in a number of ways as children grow older. It becomes more fluent, as children utter relatively fewer false starts and internal corrections. And in some ways, discourse tends toward ideal hierarchy as children get older. For one thing, there is less repetition, including less recursive repetition. Children reach increasingly greater depths of discourse with age. And there is a decrease in the production of simple coordinate sequences as children increasingly expand their narratives at lower levels of depth.

Yet other aspects of ideal hierarchy do not show such straightforward developmental progression. Although 75% of the children's narratives were well-ordered chronologically, roughly 25% were not so logically staged - a chunk sizable enough to explain how people such as Piaget (1960) and Fraisse (1963) got the impression that children have a problem with staging order. We have suggested that this problem is more-or-less constant at all ages since it is the price paid for increasing length of discourse. However, we also noted difficulties in quantification that may have obscured developmental trends.

We also did not find the developmental decrease in the ratio of implicit to explicit propositions that we had expected in the children's data. There is roughly one implicit to 5 explicit propositions at all ages. Recall that two logical features of an ideal hierarchy are involved in the measure of implicit propositions: (1) That a given proposition never is subordinate to more than one proposition at any given level of discourse. Defects in this regard register as implicit propositions in the practice of dependency analysis. But so do other sorts of missing information.

(2) And the second pertinent feature of ideal hierarchy is that it is fully explicit. We conclude that discourse becomes somewhat quantitatively more explicit with age, and that the nature of things left unsaid shifts with age. People learn what they reasonably can expect their listeners to infer.

That 70% of all our children's structures here are coordinate sequences, either simple or mixed, and that the patterns of frequency do not negatively reflect logical progression towards ideal hierarchy (either overall or within age groups) - both are attributable to the fact that all our children's discourses were narratives. And narratives need not be hierarchical to be good. We believe that these narrative discourses represent the upper bounds of our children's linguistic abilities. And, as we have shown, the narratives contain a fair amount of expository discourse, the sort of discourse that is most given to approaching ideal hierarchy (it did so in our data). Moreover, narratives can be hierarchical, as we showed by example as well as by noting that 40% of the children's plunges into elaborate proliferation were narrative. Still, the fact remains that narratives need be only simple coordinate sequences. Thus it is possible that children reveal more marked progression towards ideal hierarchy in other, more purely expository discourses. Our conclusion that discourse tends only in some ways toward ideal hierarchy from age four to age nine is attenuated by the narrative nature of our data.

10
Empirical Conclusions

TEMPORAL SEQUENCING OF EVENTS WITHIN A NARRATIVE

Because the story-tellers in the present study are children instead of adults, some attention should be focused upon recent debate over the characteristics of children's narratives. This debate has centered around children's ability to construct temporally ordered sequences in their stories. Piaget (1960,1969) and Fraisse (1963) have maintained that preoperational children are unable to reconstruct a temporally ordered series of events. In Piaget's words, "before the age of 7 or 8, children's narratives ... remain purely egocentric, ie. events are linked together on the basis of personal interest and not on the real order of time. If the child is asked to retell a story, to construct one from two pictures, or to re-arrange a series of shuffled drawings, he will simply jumble together a host of unrelated details, pairing two of them at a time" (Piaget, 1969, p.272). Fraisse (1963) also claims that children jumble the correct sequence of events when retelling stories, and that the order in which they retell stories reflects their interests and associations more than it does reality.

A number of recent investigators have questioned the conclusions of Piaget and Fraisse. The stories Piaget asked the children to recall have been criticized as being complex and poorly structured (Mandler and Johnson, 1977). They involve difficult concepts, such as characters magically being turned into stone and tears making a river. Brown (1975) wondered whether the children's poor performance was due to a failure to comprehend and reproduce ordered sequences embedded in narratives, as Piaget and Fraisse suggest, or merely to a lack of expository skills sufficiently developed to enable the child to deal with these difficult stories.

Her research (eg. Brown, 1975; Brown and Murphy, 1975) clearly suggests that young children are capable of reconstructing stories in the correct temporal order. Mandler and Johnson (1977) and Stein and Glenn (1979) also found that children's reconstructions were almost always correctly ordered temporally, as long as the stories they were read were well structured, ie. matched the general format of their story grammars.

All of the above studies involve retelling stories that have been read to the subjects or arranging pictures to reflect the order in which events were given. Less is known about how well children temporally order their spontaneously produced narratives about their own experiences. Nelson (1978) questioned pre-schoolers about their knowledge of everyday events such as eating at their daycare center or at McDonalds. She found their reconstructions to accurately reflect the correct temporal order of the events. Thus, it appears that children do understand temporal order and can accurately reproduce it in their stories, unless they are attempting to recall complex and poorly structured stories such as those used by Piaget.

When children produce narratives about personal experiences which are outside the knowledge of the listener, such as in the present study, it is of course impossible to check the child's ordering of events against the order in which the events actually occurred. Often one can assume the correct temporal ordering, as when a child talks about going to the doctor's office and getting a shot. Clearly the action of travelling to the doctor preceded the event of getting a shot. But in other cases, such as the child talking about getting her throat checked and getting a shot, there is no necessary temporal relationship between these two events. In such cases, we assume that the child has correctly ordered the events, on the basis of the research suggesting that children generally do so (Brown, 1975; Brown and Murphy, 1975; Glenn, 1978; Mandler and Johnson, 1977; McClure, Mason, and Barnitz, 1979; Nelson, 1978; and Stein and Glenn, 1979). This assumption has been made in the present study.

Overall, the children demonstrated competence at ordering events in their correct temporal sequence. Even if we just look at the events whose ordering is constrained by their content (eg. getting stung by a bee necessarily precedes cries of pain), the children showed surprisingly few confusions of staging order, as discussed above. The non-chronological sequences that did occur usually consisted of entire segments being misplaced, with the temporal sequence within that segment being well-ordered. Thus, little support was found for Piaget's and Fraisse's assertions of temporal order confusion in children; rather, our findings support the growing body of evidence that suggests that children are not as incompetent at this skill as was once thought.

We turn now to a direct comparison of our three systems. Each of them is an effective system for describing the structure of children's narratives; each captures important consistencies in what children do while narrating. However, these consistencies differ between systems, hardly a surprising finding since the focus of each is so different. Thus, a comparison of each system with the other two seems warranted. We will compare both their elements and their structures.

COMPARISON OF ELEMENTS OF ALL THREE SYSTEMS

Elements of any one system are not directly translatable into elements of any other system, despite superficial similarities of definition. To begin with, compare the elements of high point analysis with episodic analysis. What episodic analysis calls setting is not always equivalent to what high point analysis calls orientation, although it often is. Rather, setting may incorporate elements of evaluation as well as orientation. For example, using episodic analysis one would consider the following two descriptions equivalent:

(1) "Well, my little sister's cute, but my big sister, she's awful and ugly. She got freckles too" (given by a 7-year-old boy).

(2) "One (of mother's friends) was Frank, and one was Andy, a girl named Andy. And a baby. I forgot the baby's name" (given by a 6-year-old girl).

Anyone listening to these two descriptions would perceive them as very different - a qualitative difference which is not captured by episodic analysis. High point analysis differentiates the two by acknowledging that the first narrator colors the facts whereas the second one merely presents them.

Conversely, not all orientation is setting. For example, orientation in the form of ongoing events can be classified as events or consequences. (See Narrative # 20, line 11: "It was bleeding real bad.")

Often reactions, motivating states, and judgments in episodic analysis translate into evaluation in high point analysis, but these categories cannot all be equated. Motivating states and reactions are not always evaluative, although judgments are. For example, when a child presents a motivating state such as her mother having forgotten something (see Narrative # 22, line 9), this comment is not at all evaluative; it is merely complicating action in high point analysis. Conversely, evaluation may be incorporated into any statement, and fully half of all narrative clauses are evaluated. Of those narrative clauses that are wholly

evaluative, many are reactions in episodic analysis but some are not. For example, when the 8-year-old narrator of Narrative # 27 breaks the acceleration of her narrative about a car skidding down the road to tell us the tangential information about the ownership of the car, this is clearly not a reaction. Its function is to create suspense by extending the moment of danger, but episodic analysis classifies this simply as setting.

Furthermore, it would be easy to assume that events and attempts in episodic analysis are always equivalent to complicating actions in high point analysis and that consequences are always equivalent to resolutions. While this is often a true equivalence, again it is not always the case. Within high point analysis, complicating actions are distinguished from resolutions by virtue of whether they occur before or after a high point, respectively. But high points are irrelevant to episodic analysis, so that if, say, one has a narrative comprised of more than one episode with a high point falling between two of those episodes, all events and attempts in the second episode will register as resolution in high point analysis, whereas all consequences in the first episode will register as complicating actions in high point analysis (see Narrative # 25).

Irrespective of this issue of the placement of high points, there is a general equivalence between the three categories in one system and two categories in the other system. That is to say, events, attempts, and consequences in episodic analysis usually are complicating action or resolution in high point analysis. However, we have already seen that an event can be orientative (eg. "It was bleeding real hard," in Narrative # 20 above). Converse exceptions include complicating action that translates into motivating states (see Narrative # 6, line 4) and resolution that translates into reactions (see Narrative # 6, line 24 and 25).

As far as appendages are concerned, these are exactly the same in both systems since we imported them from high point to episodic analysis.

Next, we must compare the elements of dependency analysis with those of the other two analyses. This is easily done, since it bears far less relationship to the other two analyses than they bear to each other. Briefly, the elements of dependency analysis are orthogonal to the elements of both high point and episodic analysis with one exception: abstracts in high point analysis tend to be the most dominant proposition in dependency analysis.

There were 28 narratives that provided abstracts and 3 that provided the related element, prologues. In all 31 cases, those abstracts or prologues served as the most dominant proposition of the dependency analysis. (Conversely, 18.6% of all dominant ex-

plicit propositions were abstracts or prologues.) In this way, the theory of dependency analysis provides the rationale for a discovery of high point analysis: by increasingly providing abstracts with age, children make their discourse progressively more coherent.

In summary, there is some significant overlap between the elements of high point analysis and episodic analysis while there is almost no correspondence between the elements of these two systems and those of dependency analysis. The three systems are not redundant with each other in terms of how they classify elements of children's narratives. We now turn our attention to the compounds these elements form.

COMPARISON OF STRUCTURES OF ALL THREE SYSTEMS

Structures of High Point Analysis vs Episodic Analysis

Table 20 shows the relationship between the structures of high point analysis and those of episodic analysis. The categories of high point analysis are mutually exclusive while those of episodic analysis are not. Because multiple structure narratives were common, particularly in the narratives of older children, many narratives consisted of more than one type of episodic structure. We tabulated the intersection of each type of episodic structure with each (mutually exclusive) type of high point structure. For example, if a classic narrative consisted of three complete episodes and a reactive sequence, the child was credited with two intersections: (1) between classic narratives and complete episodes, and (2) between classic narratives and reactive sequences.

In general, there is a modest relationship between the structures of high point analysis and those of episodic analysis. Planning by participants complicated events such that a narrator is likely to produce a more ideal form of narrative in high point analysis. Chi-squares were calculated for the relationships between each high point structure and the presence or absence of every episodic structure. The presence of both complete episodes and of complex episodes was significantly related to type of high point structure, $\chi^2(6) = 27.40$, $p<.001$ and $\chi^2(6) = 28.89$, $p<.001$, respectively. Thus, complete episodes and complex episodes are more commonly classic narratives than one would expect from simple frequency counts.

Moreover, there is some regularity in where a high point falls relative to episodic structure. Within classic narratives, if the high point is not in a reactive sequence it is often found immediately before or after an attempt, or between structures. However, most are centered around a consequence. Thus, the evaluative high point usually is the solution of a problem.

Table 20. Classification Overlap Between High Point Structures and Episodic Structures

	Descriptive Sequences	Action Sequences	Reactive Sequences	Abbreviated Episodes	Complete Episodes	Complex Episodes	Interactive Episodes
Classic	0	2	43	11	62	29	10
End-at-the-High-Point	0	3	24	2	20	3	2
Chronology	6	11	29	9	16	5	1
Leap-Frog	3	7	4	2	6	0	0
Impoverished	8	2	11	0	1	0	0
Disoriented	2	2	3	0	1	0	0
Miscellaneous	2	2	5	3	10	0	1

Complimenting the co-occurrence of episodes and classic narratives, the lack of planning by a protagonist depletes events such that the narrator is less likely to narrate events in ideal form according to high point analysis. Two chi-squares were calculated for the relationships between the structures of high point analysis and the presence or absence both of descriptive sequences and of action sequences; as expected, significant relationships were found, $\chi^2(6) = 50.19$, $p<.001$ for descriptive sequences and $\chi^2(6) = 32.38$, $p<.001$ for action sequences. Thus, descriptive sequences and action sequences are very unlikely to be of classic or end-at-the-high-point form and are more likely to be impoverished, leap-frog, or otherwise linguistically problematic narratives. However, the two systems do not easily translate into each other. For example, a complete episode can be scored as any of the seven types of high point system categories, and in fact each equivalence was present.

Action sequences are more commonly classified as chronological narratives than one would expect by chance, but, on the other hand, chronological narratives are only slightly more likely to be classified as action sequences as anything else. Thus, action sequences and chronological narratives are deceptively similar. (Keep in mind the fact that chronological narratives are represented in every episodic structural category, including interactive and complex episodes.)

Reactive sequences are interesting. While they are common in the two most sophisticated high point structures (classic and end-at-the-high-point), they are simultaneously found frequently in impoverished and disoriented narratives, two of the most primitive structures in high point analysis. A chi-square was calculated on the relationship between high point structures and the presence or absence of reactive sequences, and no significant relationship was found, $\chi^2(6) = 9.38$, $p=.15$. Thus, reactive sequences are found in every category of high point narrative, from most sophisticated to least, and their incidence is more or less in proportion to their overall frequency. Again, this prompts us to suggest that they are an alternative structure to the complete episode: they represent causal relationships between events, but in circumstances where the child is not in control of his or her environment, and thus cannot represent experiences as planful, problem-solving episodes. We all have capricious things happen to us, and not all of them result in planful responses. It is reasonable to expect good narratives that do not (and cannot) be organized around the problem-solving episode.

The presence or absence of both abbreviated episodes and interactive episodes showed no statistically significant relationship with the structures of high point analysis, $\chi^2(6) = 8.13$, $p=.23$ for abbreviated episodes, and $\chi^2(6) = 7.49$, $p=.28$ for inter-

active episodes. Abbreviated and interactive episodes were not very common, which probably accounts for this lack of relationship.

How do the two systems differ in their treatment of particular narratives? High point analysis is better geared to showing the overall coherence of a narrative. It registers the increasing elegance with which narratives are presented; abstracts come to mark off the beginning, codas the end. Comparison of Figures 25 and 26 yields even more crucial structural distinctions. They are both graphs of Narrative # 25 on page 126, given by a 9-year-old boy.

The high point graph, Figure 25, depicts the way the narrator progresses to the high point: he "finally" hits the ball, emphasizes that with two superb evaluations ("His eyes got as big as a tomato. I think that was cool."), and eventually triumphs by flattening his scoffing cousin. He dwells on that high point by repeating it another four times, talks about his usual habits in order to create suspense, and goes on to tell how the fight was resolved for him. In contrast, the episodic graph, Figure 26, represents this narrative as four equally-important, parallel structures. But the episodic graph better depicts the narrator's machinations to thwart his cousin's nefarious scheme, whereas this planfulness is entirely missed by high point analysis. (In dependency analysis, this narrative is a simple coordinate sequence of propositions.)

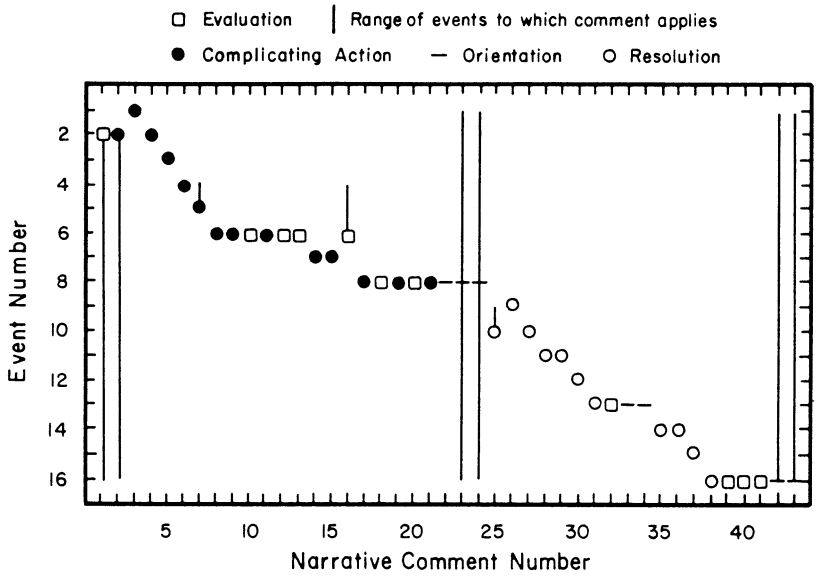


Fig. 25. Graph of Narrative # 25 in high point analysis.

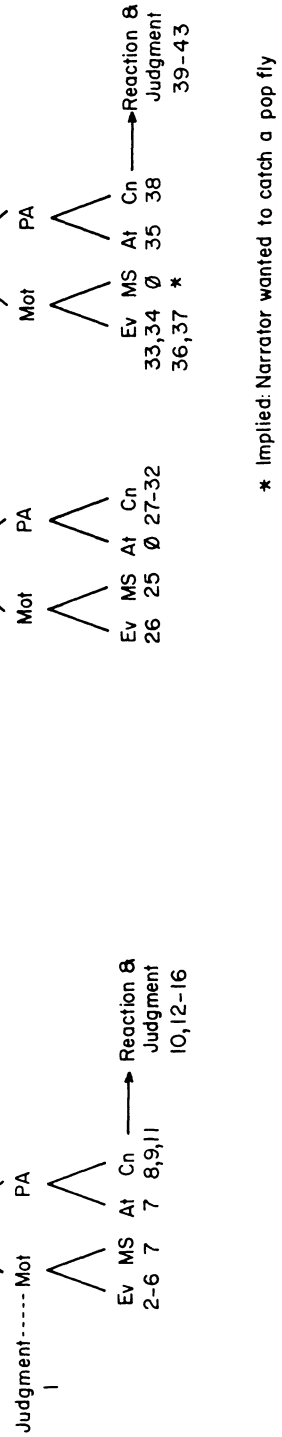


Fig. 26. Graph of Narrative # 25 in episodic analysis.

Another comparison of the two treatments is instructive. Figures 27 and 28 are both graphs of Narrative # 30 on page 150, given by another 9-year-old boy. Here only the episodic graph reveals the complexity of the narrative. The high point graph merely depicts it as a classic chronological recapitulation of events, whereas in the episodic graph, fully seven hierarchically integrated plans are delineated.

A good narrative in terms of episodic analysis is not necessarily a good narrative in terms of high point analysis, and vice versa. For example, the following narrative by a 6-year-old girl is aptly categorized as a leap-frog narrative since we have no clue about why a little girl ends up having a baby nor about why the narrator's father hits the victim of a prior car wreck. But episodically this appears relatively sophisticated since it consists of two complete episodes. (In terms of dependency analysis, this is a simple coordinate sequence of propositions.)

Narrative # 32

E: Have you ever seen anything like that? (Car wreck story)
V: Nope. ... But I did before.
E: You did?
V: Yeah.
E: What happened?
V: Well, I saw somebody have a car wreck and I told Daddy to go back and see. And he did. Then he had to take,

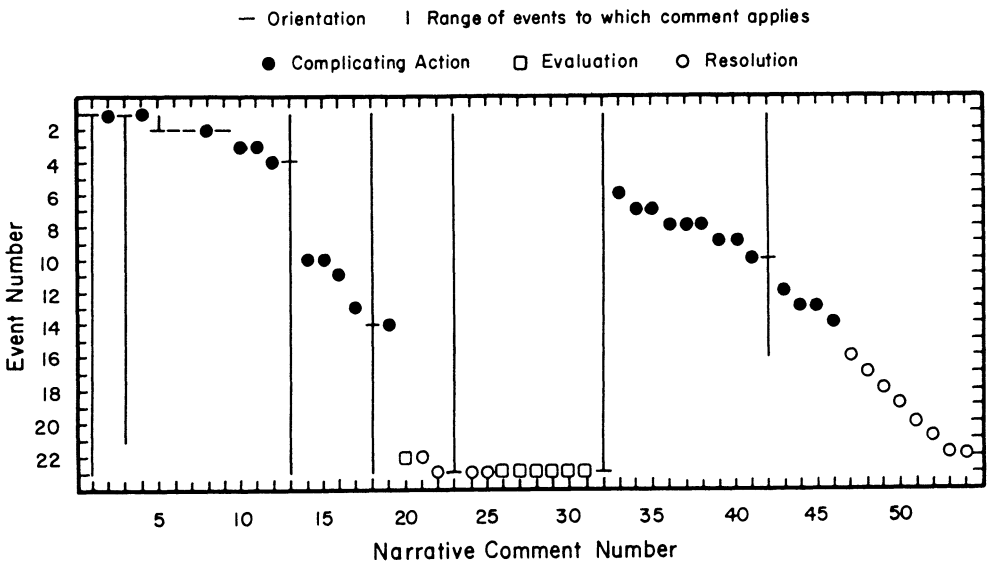


Fig. 27. Graph of Narrative # 30 in high point analysis.

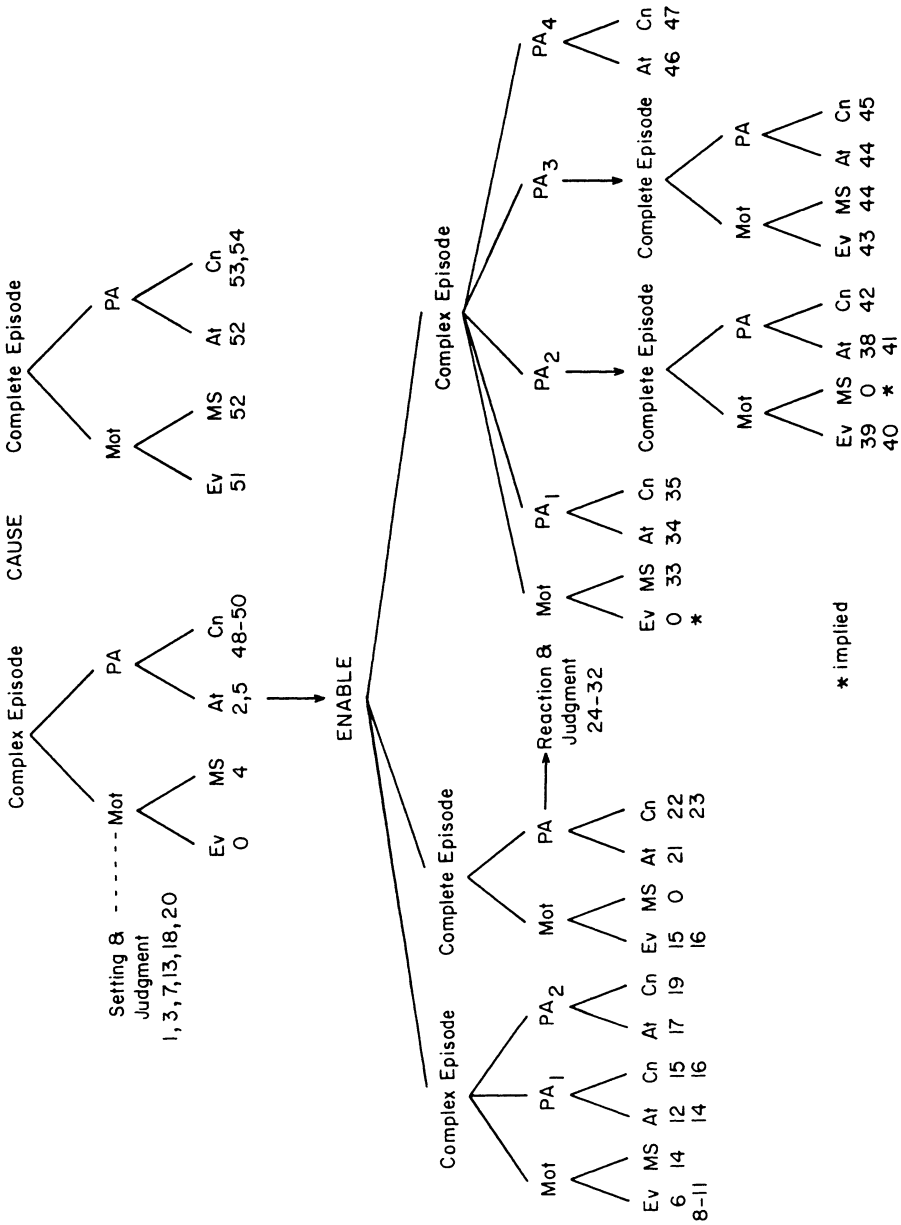


Fig. 28. Graph of Narrative # 30 in episodic analysis.

then there was a little girl in the wreck, then, the little girl was walking by, then she had to raise one, her hand up before Daddy could

E: She had to raise one hand before Daddy could?

V: Pick her up, then when he did, when she did that, she did one, and Daddy hit her,

E: She did that, then Daddy hit her?

V: No ... See, when she was walking by, then Daddy hit her, cause he he didn't saw her walking by.

E: Oh, I see.

V: Then, Daddy has to pick her up, and take her to the hospital, then she had a baby.

Conversely, the following narrative is depicted as a classic narrative in high point analysis because the 6-year-old boy who tells the story makes much of the fact that Lenny tries to scare him. At the same time, this narrative is classified as an incomplete episode because although Lenny's intentions and attempts to scare the narrator are clearly specified, no conclusion is given. That is, did Lenny actually frighten the narrator? (Dependency analysis depicts this as a simple coordinate sequence of propositions.)

Narrative # 33

M: But, you know, once we were over at Jacksons 'cause we were staying there for the day 'cause Mommy and Daddy had to go to work, that's where they take us every day 'cause they have to go to work. And we were over there, and they have lots of sheep and stuff and he took me back there on his mini-bike and we saw this sheep stuff and it was just bones.

E: It was just bones?

M: And I was getting off and he said, "Don't touch it." And Lenny was trying to scare me, cause I get scared all the time. He was trying to scare me cause there was haunts back there, and he was trying to scare me and saying, "Are they gonna haunt us?"

E: Are they going to haunt you?

M: So he went back there and said, "Mo, you wanna have a ride?" And then, know he was gonna run out of gas, so he went back there (laughingly) and was pulling it back.

E: He was pulling it back?

M: Yeah, cause it ran out of gas.

Overall, high point analysis and episodic analysis are not redundant. They focus on different aspects of a narrative, the former on personal significance and the latter on cognitive problem-solving. Thus, they represent the structure of narratives quite differently. One cannot accurately predict the high point

structure of a narrative from knowing its episodic structure, and vice versa.

We turn now to a comparison of the structures of high point analysis and those of dependency analysis.

Structures of High Point Analysis vs Dependency Analysis

There is a significant but incomplete overlap between high point analysis and dependency analysis, parallel to what we found when we compared the structures of high point analysis and episodic analysis, as Table 21 shows. We calculated a chi-square on the relationship between high point structures and dependency structures, and the relationship was significant, $\chi^2(30) = 62.42$, $p<.001$.

Simple subordinate sequences - all four of them - look bad in terms of high point analysis, although of course there are too few of these narratives to draw any serious conclusions. Leap-frog and impoverished narratives tend to be simple coordinate sequences. And more often than we would expect, narratives that end at the high point tend to be combinations of simple coordinate with simple subordinate sequences. Keeping in mind the pronounced tendency for shoots of elaboration to be right-branching, as dependency analysis illuminated, such coincidence of structures suggests that narrators (more-or-less descriptively) elaborate on the high point event that terminates a narrative. More ideal hierarchies are classic high point narratives than one might expect. Ideal hierarchy seems neither antithetical to nor necessary for classic high point narration. However, most narratives tend to be coordinate sequences of propositions, either simple or mixed, see Chapter 9, and many of these coordinate sequences are classic narratives.

Again, however, high point analysis is not easily translated into dependency analysis. An ideal hierarchy in dependency analysis may prove to be an impoverished narrative in high point analysis. For example, consider Narrative # 34, produced by a 5-year-old boy.

Narrative # 34

J: Hey, I had a hayride. I got stuck in the woods. It was fun riding on that. The tractor was pulling it.
E: The tractor was pulling it?
J: Yeah. It was bumpy. I thought that thing was gonna fall apart.
E: You thought that thing was gonna fall apart?
J: Yeah, it was bumpy out in that woods.
E: It was bumpy out in the woods?
J: Yeah. Real bumpy. It went, it went, <u>bump</u>, <u>bump</u>, <u>bump</u>. And I, I felt the world was gonna fall apart cause I heard something noisy go bloo, bloo, bloo.

Table 21. Classification Overlaps Between High Point Structures and Dependency Structures

	Simple Coordinate Sequence	Simple Subordinate Sequence	Combination of Simple Coordinate With Simple Subordinate Sequence	Mixed Coordinate Sequence	Mixed Subordinate Sequence	Ideal Hierarchy
Classic	57	0	12	21	8	16
End-at-the-High-Point	26	0	9	10	2	3
Chronology	26	1	2	16	6	7
Leap-Frog	11	0	2	2	1	3
Impoverished	11	1	2	3	3	1
Disoriented	2	2	0	3	0	0
Miscellaneous	10	0	1	4	2	2

Not much happens here in terms of discrete events: the child had a hayride, got stuck in the woods, and heard a noise. Yet we come away with a sense of something important having happened to the narrator, something that was described in sufficient (syntactic) depth to warrant classification as an ideal hierarchy in dependency analysis. It is a coherent, poignant discourse, but this import is captured structurally only by dependency analysis, even though high point analysis acknowledges its abundant evaluation in non-structural terms. (In episodic analysis, this narrative is a reactive sequence.)

The converse discrepancy, namely narratives that are depicted as primitive structures in dependency analysis but as sophisticated structures in high point analysis, is quite prevalent. One has only to refer to Narrative # 25 to see an example of this intersection between the two systems. Recall our conclusion that a narrative need not be elaborate to be good. This narrative is a sophisticated classic recapitulation of a baseball game organized around the narrator's eventual success in hitting the ball (obviously not a frequent occurrence for this child). However, its primarily chronological recapitulation of equally unelaborated events results in its classification as one of the most primitive types of dependency structures, a simple coordinate sequence of propositions.

To summarize, high point analysis and dependency analysis are no more equivalent in their delineation of underlying structure than are high point analysis and episodic analysis. The systems capture different sorts of regularities, and different sorts of information. The emphasis by high point analysis on meaningful events is not parallel to the emphasis by dependency analysis on linguistic (primarily descriptive) elaboration. One can no more predict how a narrative would be classified by high point analysis if one knew its classification by dependency analysis (or vice versa) than one could predict equivalences between high point analysis and episodic analysis.

We turn our attention next to relationships between the structures of episodic analysis and dependency analysis.

Structures of Episodic Analysis vs Dependency Analysis

As Table 22 shows, this comparison yields the least relationship among the three possible comparisons of analyses. The presence or absence of each episodic structure was compared to each dependency structure in a chi-square calculation, and none of the relationships were significant; χ^2s ranged between $\chi^2(5) = 2.88$, $p = .72$, to $\chi^2(5) = 7.57$, $p = .18$. Thus, these two systems appear to be fairly orthogonal.

Table 22. Classification Overlaps Between Episodic Structures and Dependency Structures

	Simple Coordinate Sequence	Simple Subordinate Sequence	Combination of Simple Coordinate With Simple Subordinate Sequence	Mixed Coordinate Sequence	Mixed Subordinate Sequence	Ideal Hierarchy
Descriptive Sequences	11	1	1	3	4	1
Action Sequences	10	0	2	9	2	6
Reactive Sequences	55	2	12	27	7	16
Abbreviated Episodes	15	0	1	4	3	4
Complete Episodes	51	1	15	30	7	12
Complex Episodes	18	0	5	6	2	6
Interactive Episodes	9	0	0	3	0	2

Interestingly, the rare but curious simple subordinate sequences do not appear to be as bad a structure in episodic analysis as in the other two analyses. For example, one simple subordinate sequence, a relatively primitive dependency structure, is scored as a (sophisticated) complete episode; the 4-year-old girl who told the following narrative provided only sparse elaboration about the dire consequences her mother avoided by chasing the bird, but the planfulness involved here renders this narrative a complete episode, albeit a confusing one. (High point analysis classified this as disoriented because of the child's problems with pronominal reference.)

Narrative # 35

E: What happened last time Blondie (their cat) ran away?
S: Oh, he went and had a accident and Blondie had to chase a mouse and a bird caught Blondie.
E: A bird caught Blondie?
S: And he chased him, he was chasing a mouse.
E: When he was chasing a mouse? ...Then what happened?
S: And my Mommy started chasing the bird, so
E: Your, your Mommy started chasing the bird?
S: The bird. And then, and then he got the bird away from Blondie.
E: Then he got the bird away from Blondie?
S: Yeah. ... So they wouldn't eat him up, so we wouldn't have no cat.

Conversely, an ideal hierarchy - the most sophisticated structure in dependency analysis - may be scored as a primitive action sequence in episodic analysis. For example, the following narrative by a 7-year-old girl consists only of temporally related actions, external states, internal states, and natural occurrences and thus is even too primitive to be graphed in terms of episodes. Yet in dependency analysis this description of a party is revealed to be relatively elaborate proliferation. (High point analysis classifies this descriptive exposition as a chronological narrative.)

Narrative # 36

E: Have you ever had a birthday party or a party of any other kind?
J: We had a celebration party for Easter.
E: Oh, you did? What'd you do?
J: It was at our house and we had games. We hanged up balloons and we had those things of darts. There was five balloons and five darts. Five people could play it. And, and there was five stuffed animals, and the one that pops the balloon gets the stuffed animal. And,

there's a game, we had bee-bee guns. This is an outside game, cause bee-bee guns are dangerous. And, there's these, we have these things with the ducks on, and go around in circles. And, we have, we had a whole big box of stuffed animals, and there's more stuffed animals there, and, the one that shoots down the duck gets the stuffed animal. That's all I can remember.

E: (Laughs) Did you play?

J: Yeah, my Mom made all the ga-ames.

E: She did?

J: Yeah. My Dad helped. My Mom made the game with the balloons and my Da-ad, two days before that, he made that one game with the ducks.

E: Ohh.

J: They made them.

In summary, there seems to be little overlap between the structures of episodic analysis and those of dependency analysis. Episodic analysis relies most on semantics while dependency analysis relies least; dependency analysis relies most on the formal syntactic properties of a narrative while episodic analysis relies least on syntax. This dual divergence probably accounts for the lack of relationship between these two systems.

Overall we see that there was a moderate statistically significant overlap between the structures of high point and episodic analysis and between the structures of high point and dependency analysis, but that there was no relationship between the structures of episodic and dependency analysis. We must mention the possibility that the moderate associations we did find may be spurious due to the confounding factor of chronological age. That is, younger children are less likely to produce the complex structures of any analysis, while older children are more likely to produce complex structures of an analysis and seldom produce the primitive ones. The problem with this easy dismissal of the relationships is the fact that there was no relationship between two of the three systems when we would expect relationships among all systems if they resulted from increasing age and hence sophistication. We do believe that increasing age and sophistication accounts for some of the overlaps, particularly in the case of the intersection of dependency analysis with high point analysis. Younger, less sophisticated children are more likely to produce leap-frog or impoverished narratives in the most primitive syntactic form, namely, a simple coordinate sequence of propositions, while older children are more likely to produce classic narratives in the form of an ideal hierarchy of propositions. However, these two systems are meaningfully connected by virtue of the fact that both define their units syntactically, and a narrative composed of more (syntactic) units is likely to be more complex from both perspectives. A more specific meaningful intersection is that 5- and 6-year-old children

produce narratives that end at the high point in the form of a combination of a simple coordinate with a simple subordinate sequence of propositions, since they are prone to elaborate high points of narratives and they are prone to elaborate that which occurs last (in a right-branching way); the two provocations of elaboration coincide in this instance.

The meaningful overlap between episodic and high point analyses turns upon the fact that the high point of a narrative is usually the solution of a problem. Most older children talk about problems in classic narrative fashion. That is, the solution of a problem is stressed.

We have seen that there is at most a moderate overlap between the structures of the three systems. What, then, are the comparative strengths and weaknesses of these systems?

Strengths and Weaknesses of Each System

Any psycholinguistic analysis has a systematic focus, foregrounding some information, ignoring other information. This is at once the source of the strengths of an analysis and the source of many of its limitations or flaws. Often, the paradoxically flawed virtues of such analysis emerge only through contrast with other analyses. Preoccupation with one analysis to the exclusion of all others could blind one to such flaws.

High Point Analysis. One of the great virtues of this analysis is that it grasps the overall coherence of a narrative. It effectively shows how narratives center around meaningful events. The other great virtue of high point analysis is that it foregrounds emotional information. It illuminates the oft-forgotten fact that humans are something more than information-processing systems. Our emphasis on evaluation is consonant with Labov, who wondered why people bother to tell narratives. Surely in part the answer to this is, because they want you to know what happened, but just as surely, another part of the answer is, because they want you to know what it all meant to them.

Systems are often imperfect realizations of their own goals. Unfortunately, high point analysis does not register structurally much of the evaluation that occurs in a narrative. For example, a narrative that evaluated every step of the way toward its high point through word choice, voice stress, or evaluative dependent clauses (but no independent wholly evaluative clauses), would have the same high point structure as a narrative bereft of all evaluation save for some emphasis of a central event.

Furthermore, the structures of high point analysis are predicated upon the existence of discrete integrated events and have no room for very meaningful experiences that are not comprised of many discrete events. See Narratives # 41 and # 42 (p. 188, 195), which exemplify this problem.

In its focus upon emotional information, high point analysis fails to capture information about psychological or physical causality or the complex ways in which people deal with problems they face - the strength of episodic analysis.

High point analysis is unhappily wedded with syntax. For one thing, the fact that by definition the events of a narrative must be represented in an independent clause means that some narration is slighted. Consider the following, Narrative, # 37, by a 4-year-old boy.

Narrative # 37

	E:	Have you ever been in a plane or a train or a boat?
1	S:	No.
	E:	No?
2	S:	We went on the ferry boat.
	E:	Oh, tell me about it. What happened?
3	S:	Well, well, it, the, the horn, it, it had a beep, that beeped cause it was foggy.
	E:	The horn had a beep and beeped cause it was foggy?
4	S:	Yeah, and that was called the foghorn.
5		But I wasn't scared when it was taking off.
	E:	You weren't scared?
6	S:	Yeah, but I was when we just, just going on.
	E:	You were scared when you were just going on?
7	S:	Yeah, but I when I was, in, inside I wasn't.
	E:	When you were inside you weren't?
8	S:	Yeah. Also we hadda eat at the boat.
9		There was lunch time.

The principal events consist of a foghorn beeping, a boat taking off, getting on that boat, and eating on that boat. Of these, three are represented in dependent clauses (comments # 3, 5, and 6). (The fact that this qualified as a narrative at all depended on two events represented in independent clauses: "We went on the ferry boat," and "We had to eat at the boat.") There is no structural representation of any dependent clauses.

At the same time, high point analysis does not go far enough in dealing with syntax. That is to say, it does not register syntactic complexity in anything like the detail or richness of dependency analysis. Not only is the existence of dependent clauses ignored, but also the presence of prepositional phrases and multiple adjectives.

There is an additional weakness of high point analysis that easily could be redressed. As it stands, the high point structure of a narrative admits of only one central organizing event. However, some of the narratives of our older, sophisticated children could more appropriately be characterized as having multiple high points. For example, consider Narrative # 25, (p.126, represented in Figure 25), the one about a surprise hit at a baseball game. This narrative really centers around at least two events, (1) the fact that to everyone's surprise, including his own, the narrator finally hit the ball, and (2) the fact that that ball in turn hit his cousin in the head. That the latter is singled out as the one-and-only central event is a rather arbitrary choice on our part.

Moreover, some narratives really consist of a series of similar experiences rather than a series of integrated events that comprise a single experience. Such narratives often include central events for each experience but no central event for the series. For example, consider Narrative # 38 below by a 9-year-old girl, a series describing the deaths of various cats.

Narrative # 38

E: Do you have any dogs or cats?
L: Yeah, we had a little cat, six cats.
E: Six cats.
L: And we and the first one my Mom would throw it out to the dog pen.
E: What?
L: My Mom would kick it out and she told me the cat died and she didn't know how. And then there was a white cat, name was Herbie.
E: Herbie?
L: And then a black cat named ... named ... Blackie. But it got ran over by a car. That was laying on a side of the road when I went out to get the paper one time. And another one, my brother ran over by the car by accident. He didn't, it was a kitten at the time. His name was Smokey. And, and there was this one named ... Tipsy. It was all black except it had a little white tip on the end of its tail. And we we called that one Tipsy, and it got it died cause it got into my foster sister's car and it, it climbed in the motor. She started up the car and it, and, and, and then my my sister ran outside cause she was it walking round and she ran up outside and picked it up but it was just laying there. And then we still have two cats. (Giggle)

We were forced to classify such narratives as miscellaneous under our present rules, but we would advise others to modify the system,

allowing for structures with high points of parallel as well as hierarchical importance.

Episodic Analysis. The great virtue of episodic analysis is that it represents the cognitive component of human actions very well. In many, even most, of our narratives, protagonists operate as though they have some control over their fate and they respond to events by developing plans and attempting to execute them. Episodic analysis carefully distinguishes a character simply reacting to an event from one who responds deliberately, with plans.

Along these same lines, episodic analysis captures causality and other generic, impersonal information conveyed by narratives. It differentiates causal from simple temporal links within a structure (eg. reactive sequences are distinguished from action sequences), as well as between structures. It also differentiates necessary and sufficient connections between structures (ie. causal links) from necessary but not sufficient connections (ie. enable links).

Some narratives are impressively complex in terms of motivations, blocked goals, development of subgoals, embedding of episodes within episodes, and so on. Narrative # 30, (p.150), depicted in Figure 28 (p.133) is an example of such a complex narrative. In contrast, the high point structure flattens the topography of that narrative (see Figure 27, p.132).

Like high point analysis, episodic analysis does not fully realize its own goals. The complexity of unplanned but causally related events is not represented structurally. A complicated reactive sequence of, say, 89 events is represented structurally in exactly the same way as a simple reactive sequence of merely three or four events - a serious neglect of complex causal representation.

As we have already suggested, the major weakness of episodic analysis is that it totally ignores evaluation of experience. One could conceivably have identical episodic representation of two narratives, one of which is twice as long as the other due to the narrator's evaluation of his or her experience. What is the information that is extraneous to episodic analysis doing there, anyway? High point analysis shows the function of this information. Related to this point is another of our aforementioned criticisms - that episodic analysis often misses the overall coherence of a narrative, while both of the other analyses capture such coherence.

In its virtuous representation of cognitive information, episodic analysis pays almost no attention to language per se. In fact, episodic structures have been delineated for picture sequences (Day, Stein, Trabasso and Shirey, 1979). Naturally, there

is no representation of syntactic complexity, whereas dependency analysis is preoccupied with this. But even more importantly, episodic analysis would not distinguish, for example, a narrative about the exploits of a specific cat from one about what generally happens to cats in such circumstances. The following hypothetical general narrative contains an event, a motivating state, an attempt, and a consequence. "When a cat sees a mouse, it always wants to chase it. And it always gets the mouse and kills it." Because episodic analysis ignores the morphology of verbs, this representation would be equivalent to one for the following hypothetical narrative: "My cat saw a mouse and chased it. He got the mouse and killed it." The comparison of these two little narratives illustrates that an analysis ignores language at great cost. The first narrative boils down to a statement of probability. One could conceive of a cat chasing a mouse without catching it, or even if it caught the mouse, not killing it. The second, a specific narrative, is an immutable fact. Probable relationships are a very different sort of information from immutable facts, and should be distinguished from them.

Dependency Analysis. Of all the analyses, dependency analysis best captures the overall coherence of a narrative, and it does so in a number of ways. To begin with, it extracts the proposition that organizes the whole discourse. On a lower level, too, it depicts the way in which some propositions depend upon others. It also asks how fluent a discourse is, how repetitious it is, and how explicit and well-ordered - all of which are important aspects of a narrative's coherence.

Another great virtue of dependency analysis is that it delineates the formal syntactic complexity of the surface structure of discourse. It shows how the syntactic structure of these children's narratives relates to the syntactic structures of very different types of discourse. In so doing, this analysis tells us most about the development of language per se. It shows how children develop the ability to contrastively represent propositions about objects and events, and to organize these propositions hierarchically.

Now the requirement that propositions contrast with other propositions in order to be functionally distinguished in a dependency structure is not without its costs. This requirement means that some syntactic complexity is ignored. For example, the statement, "there was a cat that had a tail that was very crooked" would be a single functional proposition as it stands, equivalent to, "there was a cat."

In contrast to the other analyses, then, dependency analysis is attuned to details of the surface structure of discourse. That is to say, dependency analysis focuses on <u>how</u> something is said. A

pre-occupation with deep structure to the exclusion of surface structure blunts one to important information to be found only in the surface structure, such as descriptive detail about objects or actions. For example, to talk about a brown-and-white dog with big teeth and a mean temper is to say more than to talk simply about a dog, and dependency analysis captures this difference. The former would consist of four propositions compared to the latter single proposition.

Moreover, this emphasis upon style, upon how something is said, lends itself to looking at what a particular child makes a topic of discourse and what is made a comment upon that topic. Since many students of language and its development are interested in the topic-comment issue, this is an important feature of dependency analysis.

Of course, dependency analysis concentrates on syntax at the expense of semantics - the paradox of the virtue that is at once a flaw. But it would not be true to say that a dependency structure is devoid of semantic influence. Semantic content does play some role in determining which propositions are dependent upon other propositions.

Standing back from our specific analyses, we believe that a narrative would be grossly misrepresented by viewing it in terms of only one system. None of the three systems by itself adequately represents what children are doing when they tell narratives, ie. how they are structuring their tales. Each adds an additional dimension, each views a narrative through a different set of lenses. None is primary, the "basic structure" to which the others add trimmings.

Episodic analysis has received much recent attention, but its analysis of a narrative is as incomplete as that of high point analysis or dependency analysis. Although it extracts important conceptual information from narratives, it neglects crucial personal information that is also present, and which greatly affects structure. It also entirely neglects the syntactic complexity of narratives. In our opinion, these are serious omissions.

FACTORS INFLUENCING NARRATIVE STRUCTURE

So far, then, we have seen how the three analyses complement each other in portraying the structure underlying children's personal narratives. Putting the three perspectives of structure together, what can we say regarding the factors that influence narrative structure?

To begin with, a narrator's evaluation of his or her experience is not mere decoration of otherwise structured information; evaluation itself can affect structure, and it can do so both positively and negatively. It can transform a chronological narrative into a classic one in terms of high point analysis. Keep in mind the fact that any classic high point narrative could have been merely a chronological list of events but for the presence of evaluation. See, for example, the two contrastive tales of a bee sting (p. 30), one of which is merely a chronological list of events, the other a classic narrative.

Another example of a narrative that is cognitively sophisticated and well organized (in episodic analysis, a complete episode, and in dependency analysis, a simple coordinate sequence) is the following narrative, told by the same 8-year-old girl who produced the chronological bee-sting narrative.

Narrative # 39

E: Tell me about the dog. Anything ever happen to the dog?
L: Nope. One got killed.
E: Oh, tell me about it.
L: It was on Thanksgiving Day, and I was taking a bone out to the dog. I didn't have it out, so I came back in and got some of it, and when I went out, and I was almost there, there was a chain tangled around his neck. He was dead.
E: He was on the road with a chain tied around his neck, and he was dead?
L: Yeah.
E: Oh. And then what?
L: Nothing.
E: What did you do?
L: Nothing. I just ran in and told Dad.

Indeed, little fault can be found with the organization of information in this narrative - the child orients the listener very well, explicitly outlines her motivation for going outside (to give a bone to the dog), and what she found when she got there. But we couldn't help but be struck by the child's matter-of-fact rendering of the death of her pet. No indication of surprise, dismay, upset, or of any other kind of reaction could be discerned. Did the death of her dog mean nothing to this child? Of course, death is a difficult concept for children to understand, and their narratives about death often stand out as bereft of evaluation (see Menig-Peterson and McCabe, 1977, for an extended discussion of children's narratives about death.) But the point here is that no matter how sophisticated a narrative is on other grounds, something is perceived as missing - something important which is generally present - when a narrative lacks any indication of the meaning an experience had to the narrator.

But evaluation can also negatively affect structure. In our discussion of staging order versus the chronological order of dependency analysis (p.155), we have seen that the values narrators place on certain aspects of their experience can distract them from logically staging their narratives and thereby damage the surface structure of narratives. (Since the practice of dependency analysis corrects for defective staging order, this defect is not incorporated into the deep structures of dependency analysis.)

In addition, evaluation can be stressed until it overshadows almost everything else. Little information about actual events is conveyed in the following two narratives, told by a 7-year-old and a 6-year-old boy, respectively. Indeed, the second narrative hardly meets our minimal criteria for definition as a narrative.

Narrative # 40

O: Cause we don't, our Dad don't drink beer, or our Mom don't. My Dad used to. Once they gave me a can of beer. Never drunk it. I know what it does too. It makes you get mad at your friends. I knew that when I was a little baby. When I was only four, he gave me a can of beer and I said, "Here, have it back. I know what beer does." And I really do know what beer does. Also, makes you kill people. Makes you get mad to hunt for a gun and you'll find it, then shoot people down. That's why I didn't drink it. Dad don't know the secret. I know it. I know the secret long time ago, because I know a lot of secrets.

Narrative # 41

E: What'd you do on your vacation?
K: Nothing.
E: Nothing?
K: I sat and sat and sat, that's all there was to do. There wasn't no to-oys, couldn't go outside ..... so I just sat in and setted.

In Narrative # 40, very little happens: the child is given a can of beer by his father and he gives it back. But his righteous rejection is dwelt on at great length, including an extended discussion of his superior knowledge of the evils of alcohol, which contrasts with his ignorant, misguided father. (Structurally, high point analysis classifies this as an end-at-the-high-point narrative, episodic analysis as a reactive sequence, and dependency analysis as a combination of a simple coordinate sequence with a simple subordinate sequence.) The richness of this narrative is found not in its complex structuring of events, nor in its descriptive elaboration, but simply in the power of its evaluation.

Narrative # 41 is even more primitive in structure. It is classified into the most primitive category in each system (impoverished in high point analysis, descriptive sequence in episodic analysis, and simple coordinate sequence in dependency analysis). However, its poignant description of boredom conveys very clearly and appealingly this child's feelings about his disappointing vacation. In other words, while the predominance of evaluation in both narratives to the exclusion of events resulted in deficient structure from any perspective, it also was delightful.

Overall, affect influences narrative structure in important ways. Sometimes it structurally enriches a narrative, and at other times it seems to detract from structure, particularly when a child is more concerned with conveying feelings about an experience rather than with describing the specific events that occurred. Any narrative contains information both about events and about the meaning of those events, though the emphasis on those two components differs greatly from one narrative to the next.

While evaluation is the type of content that is represented directly in the structures of high point analysis, other sorts of content are represented directly or indirectly in the structures of the other two analyses. The presence and nature of causal information shapes the structures of episodic analysis. Bereft of causal information, the structure of a narrative disintegrates to a description of environment and action. In the specific terminology of episodic analysis, one would only have a primitive descriptive sequence or action sequence. The presence of causal information yields a more sophisticated structure. But the kind of causal information also affects structure. If plans are involved, episodes occur. If plans are lacking, reactive sequences occur.

Syntactic complexity is the principal factor influencing the dependency structure of narration. To the extent that a narrator elaborates upon objects and/or events by using adjectives, prepositional phrases, and dependent clauses, as well as whole sentences, the narrative will have a complex dependency structure. Merely naming what was involved and what happened would produce a very simple dependency structure.

There is a fourth factor that indirectly affects narrative structure. As we saw in Chapter 9, description affects the dependency structure of a narrative. When the object described in detail is important to the progression of events, such description enhances the high point structure of a narrative. But, otherwise, such description makes the discourse more an exposition than a narrative (see p. 129). Of course, lack of description in a narrative precludes its classification as an ideal hierarchy.

The extent to which a child organizes experience chronologically directly affects narrative structure as perceived by two of our three analyses. In high point analysis, a narrative that skips back and forth in the necessary temporal sequence of events would be revealed as having a very erratic primitive (leap-frog) structure. Such a narrative also would require a marked departure from staging order in the logical procedure of dependency analysis. Thus both high point and dependency analysis incorporate our expectation that the order in which we hear things should mirror the order in which those things occurred. A careless disregard for this expectation results in a fractured structure from the point of view of these two analyses.

These five factors - evaluation, causality, syntactic complexity, description, and temporal sequencing - all directly or indirectly play a role in structuring children's narratives, as depicted by our three analyses. There are other factors that remain offstage, but that also have a part in structuring narration. These offstage factors include aspects of the child, of the experience described, and of the listener.

First, consider aspects of the child that affect his or her narrative. There are age-related aspects of the child, which will be discussed in the section on age changes below, but there are also more enduring characteristics that affect how children structure narration. One of these factors surely is the child's intelligence. We did not have any independent assessment of any child's intelligence. We were however struck by how barren some children's narratives were when compared with those of other children of the same age and even considerably younger. These narratives had hardly any structure, hardly any evaluation, and hardly any coherence. We couldn't help but infer that these children were less intelligent than their peers.

The personality of children also has an impact upon the structure of their narratives. Some children were shy, rarely looking us in the eye, and talked far less than their bolder, more gregarious peers. But there were other children, children who did not seem unintelligent or shy, who would look us in the eye, but who nonetheless were not very forthcoming about their experience. They talked to us a great deal, but not about their personal experiences. One such taciturn child was the 9-year-old boy whose longest narrative was Narrative # 29 (p.146). One has only to compare this narrative with ones by other 9-year-old boys (# 5, p. 40; # 23, p. 84; # 25, p.126; and # 30, p.150) - from our two most loquacious children) to get some idea of the remarkable extent to which individual children differ in loquacity.

Finally, there are undoubtedly other personality characteristics that affect narration. For example, although we did not

have any belligerent or otherwise uncooperative children, we might have had some. Narration is a window to the person, and thus the personality revealed affects the overall pattern of the narrative.

The second set of offstage factors that affect narrative structure concern aspects of the original experience itself. As we have mentioned previously, the nature of the experience can affect the structure of a narrative, in that, for example, narratives about death diverge in form from those about all other experiences (see Menig-Peterson and McCabe, 1977). But the complexity of the original experience is also important. It would be very hard, indeed, to tell a good narrative about a crayon dropping on the floor, for example.

The third set of offstage influences on narrative structure concern the role of the listener. Recall that we took pains to ensure that the children were familiar with us and that we were not overbearing or directive in our conversation with them. This non-intrusive mode of interacting is remarkably difficult. We constantly had to refrain from prompting for specifics such as "Did she take you to the hospital? Who was with you? Was it fun?" In fact, our ploy of repeating what the child just said was in part an attempt to give ourselves a conversational alternative. Moreover, in a previous project, the first author trained a number of nursery school teachers to elicit narratives from their students, and found that they had a surprisingly difficult time inhibiting such specific prompts.

We suspect that our painstaking procedure was the reason the children talked so readily to us. Had we simply interrogated them, and interrogated them without knowing them, or without providing narratives of our own, or without having them do an art project to dispense with any possible self-consciousness about conversing with us, we probably would have gathered far fewer and far poorer narratives than we did. Listeners' warmth, familiarity, and modes of interaction influence the narratives they will be told.

AGE CHANGES

The most important point about the age changes we found is that language develops past the level of the sentence. This is in contrast to the more traditional view that language development is more or less complete with the development of sophisticated sentence structures. Whether the development of discourse structures appears to be a quantitative or qualitative one depends upon the nature of the analysis through which we view children's narratives.

The first two of our analyses make the development of discourse appear to be a more or less qualitative shift. In terms of

high point analysis, both the elements of children's narratives and the nature of their structures change with age. Each narrator increasingly employs a greater variety of evaluation and orientation with age. That is, narrators increasingly provide a more finely differentiated view of their feelings about their experience as well as the context. Moreover, children increasingly cluster their orientation at the beginning of their narratives, where it is of most use to the listener. That resolution is an element that is increasingly present in narratives parallels structural changes; children move from leap-frogging and ending at the high point to classic narration. Children increasingly mark off their narratives from surrounding discourse; that is, they increasingly provide abstracts at the beginning and codas at the end. They also provide codas of increasing sophistication; "that's all" is replaced by "That bullet's still out in the field somewhere. I'll bet it's rusted away by now."

At the structural level, children increasingly represent their experience coherently such that their listener easily can reconstruct it. Again, children move from leap-frog narratives where they erratically skip around from one event to another, to an ordered progression of events culminating in the high point event, to classic narration where the high point event assumes a central rather than a terminal position.

In terms of episodic analysis, changes in the presence of elements are isomorphic with changes in the types of structure. Young children use predominantly temporal relationships both within and between structures whereas older children increasingly represent causality both within and between structures.

That is to say, action sequences and descriptive sequences, which are sparse, temporally-linked structures, disappear, whereas the causally-linked complete and complex episodes proliferate. Children also become more comprehensive in their representation of experience. Their narratives increasingly incorporate multiple structures in two ways: a greater number of complete episodes are linked together, and complete episodes are embedded within other episodes to form more complex structures. Even their narratives that have only a single structure become more complex, as children represent multiple attempts to achieve a single articulated goal. Illustrative of waning egocentrism, children increasingly represent perspectives other than their own in interactive narratives and narratives that have multiple perspectives.

Thus, when children are 6 years old, they usually produce the ideal structures of both analyses - the classic narrative and the complete episode. This appears to be a qualitative shift.

In our third analysis, the development of structure beyond the level of the sentence seems more quantitative than qualitative.

The absolute measures of dependency analysis reflect the fact that children produce longer narratives as they get older. (They also of course produce more narratives, but this is not directly tapped by any of the three analyses.) As the more telling ratio and depth measures reveal, children become quantitatively more coherent in a number of ways with age. Children become proportionately less repetitious, less dysfluent, and they reach a deeper level of discourse.

In a more direct consideration of structure, we found a decrease in the number of simple coordinate sequences that is complemented by an increase in the number of ideal hierarchies - the two extremes of sophistication in dependency structure. The largest change seems to be between the 4- to 6-year-olds on the one hand and the 7- to 9-year-olds on the other (with the exception of the 8 year olds), although this is tentative due to the small number of ideal hierarchies produced by children at any age.

Verging on a qualitative shift such as the one suggested by our first two analyses, it is interesting to note that a number of investigators in the field of child development have also remarked upon qualitative changes in cognition around the age of six. Most notable of course is Piaget, who described children's thought as changing from pre-operational to concrete operational. White (1965) summarizes a number of empirical and theoretical studies which focus on seemingly qualitative shifts in cognition between 5 and 7 years of age. He suggests that an associative mode of responding is overlaid by a more cognitive mode of responding as the child increasingly inhibits associations while at the same time he or she increasingly plans behavior. Children demonstrate adult-like thought at age 6, and this is nicely congruent with the fact that children predominantly produce ideal (adult) narrative structures at age 6. What seems to be happening is that children inhibit their strategy of simply saying what comes to their mind first, then second, etc. (leap-frog narratives, primitive descriptive and action sequences). Instead, they plan their narratives to be more comprehensible to their listeners in a number of ways.

What accounts for this shift in strategy? There are a number of aspects of cognition that probably support it. To begin with, as children gain information and understanding of the world in general, they are able to notice more about an experience, a prerequisite for representing such information. Furthermore, although we do not believe that narrative structure is isomorphic with memory structure, still it is undoubtedly true that increased understanding of an experience goes hand-in-hand with increased (long-term) memory for that experience, and memory of an experience of course is also prerequisite for representing it in a narrative.

Development of short-term memory is crucial as well, since it is that aspect of cognition that enables planning ahead what one is going to say.

The fourth aspect of cognition that affects the development of narrative structure is quite simply the development of more complex language skills. The child who has not yet mastered the use of the negative will produce a very incoherently structured narrative (see Narrative # 11, p. 47), from the point of view both of high point and of dependency analysis. This narrative is disoriented in terms of high point analysis, and a simple coordinate sequence in terms of dependency analysis. (It is a descriptive sequence, episodically.) The command of language is an aspect of style of such importance that it encroaches upon structure.

Fifth in order though not in importance, children become better and better at imagining the perspective of their listeners. Although recent evidence supports the idea that children at the age of 4 are quite capable of imagining some simple perspectives of listeners, perspectives that differ from their own (Blank, 1975; Hoy, 1975; Maratsos, 1973; Menig-Peterson, 1975; Menig-Peterson and McCabe, 1978; and Shatz and Gelman, 1973), they may nonetheless be capable of more elaborate role-taking only by the age of 6 or thereafter, as Piaget suggested. Since elaborate role-taking is required in forming such a complex response as a narrative, it is not surprising that such a leap in the quality of narration occurs at age 6.

But why age 6 for such a shift? As White (1965) points out, "the fact that children begin school at age 6 is an important unknown factor." It could either cause such a cognitive shift, or such a cognitive shift could be the reason that children traditionally have been sent to school at that time. In terms of developing narrative skills, it is certainly true that children in school hear a lot of stories, are encouraged to talk about their experiences, and undoubtedly receive many probes for missing information from their teachers.

SEX DIFFERENCES

We were struck by the overwhelming lack of sex differences to be found in narration. There were no differences between the sexes in their production of structures in any of our three analyses. Nor were there any differences between the sexes in their production of the elements of episodic or dependency analyses, although there was such a sex difference in the case of high point analysis. Boys and girls differed in the types of orientation and evaluation they provide their listeners.

Boys and girls differed mainly in their productivity. Girls responded to more prompts and produced more narratives than boys. When only their top three narratives were considered, girls' narratives were longer than boys' narratives, although this difference in length did not hold up when all the narratives they produced were considered.

Overall, then, differences between the sexes are to be found only in what is most appropriately thought of as conversational style, not in the nature or complexity of narration per se. Girls tend to be more loquacious than boys. Our findings are congruent with those reviewed by Maccoby and Jacklin (1974), where sex differences are seldom found between the ages of 3 and 11, but where they are, girls are superior to boys in linguistic ability.

VERSIONS OF REALITY

While structure is a vital aspect of narration, it is not the whole of narration. Children are not merely reporting what happened to them, nor do they stop with telling how they felt about what happened. Rather, children, as well as adults, often have ulterior motives in telling their narratives. They present a version of reality; they burnish the facts, frequently to make themselves shine through as more mistreated, more skilled, more intelligent, more moral than the rest. We have seen examples of this already, most obviously in Narratives # 3 and # 40. In the former, one is left with a clear picture of how deeply that child suffered from her bee sting. In the latter, the boy shows himself smarter and better than his drinking Dad. Below, another boy (aged 4) absolves himself for severely injuring his brother.

Narrative # 42

E: Have you ever been to the hospital?
H: Only Stevie, when I hit him with the rake one time, and he hit me with that big broom. And she (Mom) didn't take me to the hospital. Only Steven. He hit me with a sharp broom. He hit me with that, that hard, hard, that hard, ooooooooohhhhhhhh, I got it in the head. He hit me. I hit him. If he hits me with that once more, that broom once more, I'm going to hit him with the rake once more.

Who could help but feel sorry for someone hit with such a vile weapon as a hard, sharp broom, especially when he was not taken to the hospital along with his brother, who was merely gashed by a rake?

Evaluation can even take precedence over reference. In Narrative # 43 and the subsequent excerpt, two boys (ages 5 and 7, respectively) engage in a bit of exaggeration.

Narrative # 43

P: Do you know what? Every single tree fell down on our house. Cause there's a snowstorm. I picked them up with one, with my pinky. All of them with my pinky. Do you believe that?
E: No.
P: I <u>did</u>.

Excerpt
(In the course of a narrative about hunting)

V: And then the deer fell down, slid down the hill. And it, then I slid down the hill. Then I caught the deer. Then Dad shot it. I, I hold the deer. And Dad was shooting it. And I was holding it. I was holding it right by the front legs, and my Dad was shooting it.

In Narrative # 43, the child is talking about an actual, severe snowstorm, but he spices it up by adding his Paul Bunyon feat, and cannot resist checking to see how successful he has been in making his listener believe the whole thing. As for the excerpt, the boy clearly felt the need to expand his role in the real hunting adventure. How brave, strong, and swift this 7-year-old is!

Although in exaggeration the narrator somewhat departs from the facts in recounting them, in fantasy meaning triumphs once and for all over reality. We did not include the occasional fantastic flights the children took among the narratives, unless they occurred during a recapitulation of an actual experience. Our definition of a narrative precluded total inventions. Nevertheless, there is a clear connection between narratives and fiction, and exaggeration is that bridge.

Given a single, spectacular event with many participants, it would be interesting to see the kinds of different versions those participants would produce. Would each seek to enhance and glorify his or her own role? Or would there be different styles of self-presentation? This warrants more investigation.

In sum, there is much more going on in narration than we have yet assessed or even identified. Our picture is still rudimentary, and a wealth of questions remain unanswered. There is however one more question which we grappled with: What are the characteristics of a narrative that lead a listener/reader to evaluate it as a nice narrative? That is, what makes a narrative good?

11
The Pleasures of Narrative

Having accomplished the hard work of comparing our three systems and looking at the development of structure with age, we wish to return to matters less serious though not less important for all that. We began this book by cautioning our readers not to lose sight of the sparkle of the children's narratives. Some are indeed delightful, though others are somber; some are quite lucid, though others are hopelessly confusing. In this chapter we wish to look more directly and systematically at the quality of the narratives. We also wish to consider the use of such narratives including speculations concerning the relationship of these oral, personal narratives to written, literary ones.

WHAT MAKES A NARRATIVE GOOD?

In our categorization of narratives in terms of our three analyses, some value judgments were involved. For instance, a narrative classified as classic was deemed better than one classified as a leap-frog narrative, a complete episode was deemed better than a descriptive sequence, an ideal hierarchy was deemed better than a simple coordinate sequence. But this classification had to do with the soundness of their structure, and only indirectly if at all with their aesthetic worth. It is certainly true that there were better and there were worse classic narratives, complete episodes, ideal hierarchies. To redress this neglect, we conducted an independent assessment of the quality of the narratives.

Method of Determining the Quality of Narratives

We asked seven adults to read our 288 narratives, and then to rate each narrative on a six-point scale where 1 = a very poor

narrative, 2 = poor, 3 = mediocre poor, 4 = mediocre good, 5 = good, and 6 = a very good narrative. We asked our raters to disregard age, but we did not otherwise specify what they should take into consideration in judging the quality because the point of this experiment was in fact to see what would impress them, favorably or not. That is, we did not ask them to disregard the topic of the narrative, for instance, and to concentrate on its structure, because we wished to see whether people confronting a narrative for the first time would be sensitive to its structure or whether they would be more impressed by other attributes.

Our raters numbered three males and four females. There was one engineer, one undergraduate psychology major, one clinical psychologist, and four psychology faculty members who do not teach either clinical or developmental psychology courses. Agreement amongst these raters was high. The average deviation from their mean rating score was calculated, and they agreed at better than the .10 level.

We had asked our raters to use all points on the scale, and we found that their ratings were normally distributed with a mean of 3.4 (the expected mean was 3.5).

Effect of Structure Upon Quality

How much was the quality of a narrative affected by structure, as determined by our three systems? In a nutshell, quality was very much affected by structure. Consider our 15 best narratives, those with a mean rating of between 5 and 6, and our worst narratives, those with a mean rating of between 1 and 2 points (see Table 23).

The most primitive structures in all analyses tend to be over-represented amongst the worst narratives, while the most sophisticated structures in all analyses are over-represented amongst the best narratives.

As far as high point structures are concerned, classics are far more often good narratives, and far less often bad narratives than one would expect simply on the basis of how frequent they are. Narratives that end at the high point are mediocre structures - less often bad and slightly less often good than expected. Chronological narratives are more often bad and less often good narratives than was to be expected. And the three problem-ridden sorts of structures - leap-frog, impoverished, and disoriented narratives - are more often bad narratives and are never considered good narratives. (Miscellaneous narratives also are never considered good narratives, but they are not considered bad more often than one would expect given their overall frequency.) In a word, our

Table 23. Classification of Our Best and Worst Narratives: Expected and Obtained Percentages for Each Structure of All Three Systems

	High Point Structures						
	Classic	End-at-the-High-Point	Chronology	Leap-Frog	Impoverished	Disoriented	Misc.
Best Expected	39.2	17.7	20.5	6.2	7.6	2.1	5.9
Obtained	73.3	13.3	13.3	0	0	0	0
Worst Expected	39.2	17.7	20.5	6.2	7.6	2.1	5.9
Obtained	6.2	6.2	37.5	13.3	25.0	6.2	6.2

	Episodic Structures						
	Descriptive Sequence	Action Sequence	Reactive Sequence	Abbreviated Episode	Complete Episode	Complex Episode	Interactive Episode
Best Expected	7.3	10.1	41.3	9.4	40.3	12.8	4.9
Obtained	0	6.7	40.0	6.7	46.7	33.3	20.0
Worst Expected	7.3	10.1	41.3	9.4	40.3	12.8	4.9
Obtained	31.3	6.2	50.0	12.5	6.2	0	0

	Dependency Structures					
	Simple Coordinate Sequence	Simple Subordinate Sequence	Combination of Simple Coordinate With Simple Subordinate Sequence	Mixed Coordinate Sequence	Mixed Subordinate Sequence	Ideal Hierarchy
Best Expected	49.6	1.4	9.7	20.5	7.6	11.1
Obtained	26.7	0	6.7	20.0	0	46.7
Worst Expected	49.6	1.4	9.7	20.5	7.6	11.1
Obtained	75.0	6.2	0	18.8	0	0

our raters verified our judgments of the quality of the various high point structures. People who know nothing about high point analysis are nevertheless very sensitive to the structure it articulates when they appraise the overall quality of narratives.

Much to our surprise, given our caveat that a narrative need not be elaborate to be good, the structures of dependency analysis also impressed our raters. Ideal hierarchies are more often considered good narratives than one would expect on the basis of their overall frequency, and are never considered bad narratives. At the other extreme of syntactic sophistication is the simple coordinate sequence of propositions, which is far more often considered bad and less often considered good than one would expect. The simple subordinate sequence is more often considered bad and is never considered a good narrative. The mixed coordinate sequence breaks even, being considered bad and good as often as one would expect on the basis of its overall frequency; its structure does not seem particularly well-suited or particularly ill-suited for narratives. The remaining two dependency structures - mixed subordinate sequences and combinations of simple coordinate with simple subordinate sequences - these seem to be mediocre structures, being less often considered either good or bad narratives than was expected.

When considering episodic analysis, one must bear in mind the fact that narratives can have multiple structures. Therefore, what we have considered are the percentage of good and bad narratives that contain any particular structure. (That means of course that these obtained percentages will not add up to 100%.) Narratives containing complex and interactive episodes are far more often good than one would expect on the basis of their overall frequency, and they are never considered bad narratives. While narratives containing complete episodes are as often good as one would expect, they are far less often considered bad. Narratives containing abbreviated episodes are uncommon and are neither better nor worse than one would expect. Narratives containing reactive sequences are somewhat more often bad but also are as often good as would expect. Narratives containing descriptive sequences are far more often bad than expected, and they are never good narratives. Narratives containing action sequences are less often good and less often bad than expected - seemingly mediocre structures.

We must qualify these findings because they involved such low frequencies. However, we did look at higher frequencies, at the 35 narratives that were rated over 4.5 (the better narratives), and the 47 narratives that were rated less than 2.5 (the worse narratives). The pattern of relationships between quality and the structures of all three analyses was similar to that in Table 23, with one exception. Action sequences looked worse in this larger sample, in that 17% of the poor narratives contained action sequences when only 10% were expected to do so.

Thus, aesthetic appeal of a narrative depends to some extent upon its structure, no matter how that structure is conceived. But we have dwelt at length upon how differently structure is conceptualized by our three analyses. We were able to find narratives that were structurally strong in terms of one system and yet weak in terms of another system, and vice versa - for all three comparisons. How can this be?

The answer is that the three analyses can converge in their assessment of the structural sophistication of a narrative, although they often do not. In the case of the best and worst narratives, there is much convergence between the three systems. That is to say, the best narratives were almost always sophisticated in at least two systems. The prototypical good narrative is a classic narrative containing complex and/or complete episodes in the form of an ideal hierarchy. The worst narratives were almost always primitive in all three systems. The prototypical bad narrative was a chronological recapitulation of a reactive or a descriptive sequence of events in the form of a simple coordinate sequence of propositions. What this means is that people are favorably impressed by narratives chock-full of emotional commentary about sophisticated problem-solving that includes detailed description of what objects and events were involved. No one of these components is sufficient unto itself for a good narrative.

Beyond Structure

Given that people are sensitive to structure in all three systems in their determination of a narrative's quality, does this exhaustively describe what makes a narrative good? Do older children produce better narratives than younger children? Do boys and girls tell equally good narratives? Are people perhaps sensitive to the nature of the narrative's topic as well as its structure? And are there attributes of a narrative not fully captured by any of the three analyses that nonetheless seem to affect their quality?

In answer to the first question, structure does not entirely account for the quality of a narrative, as we will see. The age of a narrator has some impact upon the quality of narratives. As one would expect, younger children are more likely to produce the worst narratives while older children are more likely to produce the best narratives. Of the worst narratives, twelve were from the youngest three age groups. Of the best narratives, only one was from the youngest three age groups while fourteen were from the oldest groups.

As far as sex is concerned, there is a near balance, with boys producing slightly more of the worst narratives. The best narra-

tives included 8 narratives from 7 girls and 7 narratives from 6 boys. The worst narratives included 6 narratives from as many girls and 10 narratives from as many boys.

What about the topic of a narrative? First we looked to see whether good narratives were always about happy, pleasant experiences while bad narratives were about sad, painful experiences, or vice versa. The two authors independently categorized the 31 best and worst narratives in terms of the emotional tone of their topic, and we agreed on 30 (97%) of those topics. We found that of the best narratives, 11 were about sad, painful, embarrassing or otherwise unpleasant experiences, while 4 were about happy or pleasant ones. The worst narratives were evenly split, eight about each sort of experience. This means that people are not simply judging the quality of a narrative on the basis of how pleasant an experience was.

We also looked at the specific topic of our notable narratives and found that the distribution of the topics was similar for both the best and the worst narratives. There were seven good and six bad narratives about blood-and-guts experiences. There were two good and one bad narratives of fights. Birthday parties were the topic of one good and two bad narratives, while there were three each about trips. Three of the bad narratives were simple descriptions of objects, while none of the good narratives were of this sort. The remaining bad narrative was about getting caught in the rain. Of the remaining good narratives, one was about the evils of alcohol, and the other was about ripping a sleeve at the movies. In short, neither the specific topic nor its tone made an impact upon the quality of a narrative.

Is age, then, the only thing besides structure that affects the quality of a narrative? In perusing our outstandingly good and bad narratives, it is clear that although topic has no particular effect, there are other attributes of a narrative that are not fully captured by any of our three analyses but that nonetheless do seem to affect their quality. Both the clarity of a narrative and its expansiveness enhance a narrative's appeal. That is to say, good narratives are clear and expansive, while poor narratives are incoherent and cursory. Moreover, our better narratives have an elusive quality best described as charm.

The Best

The very best of our narratives is the following, given by a 9-year-old girl, a lucid and full account of an experience we have all had, the experience of getting lost. She sprinkles it with striking imagery such as the smell of the pine trees and ends up with an amusing insight into her father's shortcomings and her mother's prowess in the matter of shortcuts.

Narrative # 44

E: Oh, tell me about one of the trips you were on.
A: Oh, we've gone to Michigan.
E: Michigan, well, tell me about it. Tell me about the trip.
A: Well, there's a lot of pine trees there. All you could smell is pine trees.
E: Pine trees? Uh-huh.
A: And we slept out in a tent one time. We didn't have our brother though, and we'd have a lot of fun. We'd go, there's a little path, and me and my sister went down the path.
E: You and your sister went down the path?
A: Uh-huh, and my Dad. Oh, I gotta tell you the important part.
E: Ok.
A: See, we went, the whole family went up to the, this great big path. Then we kept on going up and then finally got to a hill. We went up, then then there's another hill. We went down, and they we got, we turned so many curves that we couldn't find our way back home. And it was early in the morning. So we didn't get home about till midnight. Then my Dad, cause he goes all nuts. My Dad likes shortcuts, but his shortcuts are the long way, but when my Mom wants to take a shortcut, they are shortcuts.
E: So when your Mom takes shortcuts they are shortcuts?
A: Yeah, and my when my Dad says, "Oh, let's take a short cut," Mom goes, "Oh no, you don't." She doesn't want to get lost again.

Another of our best narratives was given by a 7-year-old boy, Narrative # 45 below. This narrative shows the child's real appreciation for his parents' efforts to make his birthday nice, including an appealing and apt description of their visit to a glass-blowing factory. One gets the impression of a sensitive and curious child here, one who articulates expectations ("it looks like it's going to turn out any old shape"), who has a good sense of his listener's knowledge ("You probably know they blow it through a pipe and all that. Yeah, I know you know that"), and who speculates intelligently about how the world works.

Narrative # 45

G: My Mom, when I was just turned seven she gave, she made me a angel food cake.
E: She made you an angel food cake?
G: They're hard to make. It was fun. My grandma, my grandma got me a wooden soldier. And, they're real and nice, they have real nice toys down there too. They're

real good name. And Daddy got me, Kentucky rifle, play rifle, cork gun. And Daddy and Mommy and Mary got, my sisters got me, my sister, my baby sister, and my sister got me, oh yeah, there's this little like duck and it was little and he had like wheels, you just could, like a car, you could go like that and then let go and it goes. And, and, I, I wanted that so bad, I liked it so much. And then, Mom and Pa got me that for my birthday. And, that's all I got, because (giggle)

E: Well, that's quite a bit.

G: Yeah, only three things. Uh-oh, four. They re-sent me some things. Our, our neighbors s..she sent me a Sesame Street book. The sticker ones.

E: Uh-huh?

G: Yeah, but I only got four. Oh, well, it was a nice birthday anyways. We went to see for my birthday, we went to see them blow glass.

E: You went to see them blow glass? Tell me about it.

G: Its, Daddy, they didn't tell how, how they do it, how they blow the glass, but...the, it was real, the it was real fun. You probably know they blow it through a pipe and all that. Yeah, I know you know that. And, it, it, I like it when it comes out. It looks like, just like just a, it's gonna just turn out any old shape and it turns our the shape they want it.

E: Yeah.

G: Yeah, but that's what's, oh, I always been thinking how would, how does it, how do they make it grow the right shape they want it? I thought, I think they just blow the one side, then another, and sometimes straight in on. All that.

Another of our best narratives was given by a 7-year-old girl. It epitomizes an important aspect of narration that appeals to people - how well the participants in an experience are portrayed. It is essentially a series of character sketches.

Narrative # 46

E: Have you ever been on any kind of trip like that?

R: To Kentucky. One time, we, it was a Saturday. I think it must have been summer, and it was about in the middle of the night, twelve o'clock. And Mom and Dad woke up. You know that's the usual time Dad goes to work. They woke us kids up. And, we ate breakfast, and everytime we go down to Boo's we, we call her Boo. Her real name's Jill. But, we're not allowed to call her Jill. And everytime we go down to her house we stop at the Red Barn to eat. So we ate breakfast. We got dressed, packed our suitcases, and by the time the sun was coming up were

> already about to, out of our drive probably. And, so we went and we got the, well, when we got there, my, aunt, Molly Brown, she's retarded. She has to go to this special home in Kentucky. So, the only ones that live there now is my Grandpa, Jamie, and Elsie. And Elsie was at this other party at Margaret's. And she didn't know we were coming, see. We called Jamie, for surprise (whispers). And, so we went there and Jamie told us where she was, at Margaret's, at the party. Jamie didn't want to go. See, he's lazy. He flunked a lot of times. He just graduated. And, so,....we went over to Margaret's and knocked on the door. And,...we went in, and opened the door, and said, "Surprise Elsie!" And she goes, "ohhh." So, they had this game for the little kids and we played it. Me and Annie did, and Nora. I liked Nora. She gots real long hair and got some pink shirts.

Other examples of our best narratives are cited elsewhere in this text. See Narratives # 5, 23, 27, and 40; also see Appendix Narratives # 56, 63, 64, 66, 67, and 70.

The Worst

The very worst of our narratives is a clear but very minimal account of a birthday party. It was given by a 5-year-old girl.

Narrative # 47

E: Have you ever been to a birthday party?
M: Yeah.
E: What happened?
M: Huh, well,...uhh...ohh, I ate there.
E: You ate there?
M: Uhhhh bigga, huhh...Ricky and Bonnie were there. (Giggles)
E: What'd you do?
M: We... played with her.
E: Ohh.
M: 'Cept Kitty had her foot there. I was tired, real tired. Tireder than everybody. (Giggles).

Another factor that seems to disturb listeners is incoherence. What in the world is going on in the following narrative by a 7-year-old boy?

E: Do you know any other families where the kids fight like that?
D: Michael.

E: Oh yeah? Tell me about it.
D: One time when we went, went with them and he got anemone, and, then sis, his sister wanted it. And he gave it to his other family.
E: You say he's got other family? Uh huh. Then what?
D: Then when, when the, the Mom put it back and then we kept on getting more and more. And then after they, then his mother said they wouldn't, they ain't going go and then they went home.
E: Then they was home? Uh huh?
D: That's about the rest of it.

Although it technically qualifies as a narrative, the following narrative is more an advertisement. This 4-year-old leaves the listener with the feeling of, "So what?" Clearly, she has not mastered the art of narrative, as Labov put it, namely staving off that ever-haunting question.

Narrative # 49

E: Do you like to paint?
L: Yeah.
E: Do you? I do too.
L: One time when I did my painting, my Mom let me - she bought me some dip dot.
E: She bought you some drip dot?
L: Dip-dots.
E: Dip-dots. Ahh, and, she bought you some dip-dots.
L: Yeah. They don't drip.
E: They don't drip?
L: Uh-uh. That's why they're called drip-dots.
E: That's why they're called drip-dots? I don't think I've ever seen drip-dots.
L: If you ask, my Mommy'll tell you where to get them. They are, if you - if, if you know my Mom picks me up there. So, so after the paint, after the school you can get that.

Another example of our worst narratives is Narrative # 12, cited elsewhere.

WHAT GOOD IS A NARRATIVE?

We have considered a number of things that make a narrative good. But what good is a narrative? The answer to that is two-fold.

First of all, as we have often noted, a child's narratives reveal much about that child. One sees their humor, psychological

insight, intelligence, and virtuosity with language - all wrapped up in their narratives. In listening to their children's narratives, parents gain insight into their children's past reactions, and can use those reactions to predict how their children will react to future similar experiences. Narratives are chock-full of such reactions. Moreover, as children grow older, they normally spend more and more time away from their parents. Narratives can bridge such separations, filling in parents (and vice versa) on what has happened in the time apart. As such, narratives play a crucial role in the changing expression of deep attachments.

The knowledge of a person to be gleaned from his or her narratives is of course not only of use to parents. We all get to know each other in no small part through our narratives. And we all feel that there are some stories a person simply must hear in order to know what we are like.

As if this function were not enough, in the next two sections we wish to show that narratives also are the foundation for our understanding of literature, the source of knowledge about human nature in general.

Oral Versus Written Narrative Fiction

Much of the world's great literature is of a narrative nature, meaning that it is distinguished by two things - the presence of a story and a story-teller (Scholes and Kellogg, 1966, p.4). It would be a shame to close our discussion of children's personal narratives without thinking about the relationship between these and the highest accomplishments of language. But before directly comparing children's personal narratives with adults' artistic ones, we must briefly consider the historical relationship between mature narrative that is delivered orally and that which is written, for it is not self-evident that the two are importantly linked.

Milman Parry (quoted in Scholes and Kellogg, 1966) disclosed a link between written and oral narrative when he demonstrated that the Iliad and the Odyssey were essentially transcriptions of narratives that were orally composed. His proof was based on the notion of a formula, namely, "a group of words which is regularly employed under the same metrical conditions to express a given essential idea", such as "son of Atreus" used continuously in reference to Agamemnon or "Wine-dark" used frequently to describe the sea (Parry, 1933, quoted in Scholes and Kellogg, 1966, p.20). Parry showed that the Iliad and the Odyssey were comprised to a great extent of such formulas. For example, 90% of the first fifteen lines of the Iliad consist of groups of words identical to groups

that occur elsewhere in Homer. This stands in marked contrast to literary poets and other writers, who strive to make each line unique, saving repetition for rare special rhetorical effects.

Poets who compose orally are still found in places such as Yugoslavia, and Parry showed that these poets do not compose except with formulas, usually ones passed down over time. These poets neither invent nor memorize a text; instead they deliver a more-or-less novel version of an old story comprised of fixed elements, which are these formulas. Oral poets are the vessel of a culture's cumulatively composed fiction.

Thus written (fictional) narrative as we know it has developed from oral (fictional or legendary) narrative through the transcription of the orally composed tales, such as the Iliad and the Odyssey. In this book we have seen that fictional narratives and factual ones share the same episodic structure. Thus we submit that the phylogenetic development of oral to written narrative is recapitulated ontogenetically. Individually, we assimilate the written literature we read to the structure we use in our own oral narratives, the stories we tell about events that actually have happened to us. Of course, as we develop, this structure of narrative is undoubtedly affected by the stories we read or have read to us. In fact, this structure of personal narrative is probably formed by the stories to which we are exposed.

Literature, Both Great and Small, and Structure As We Have Defined It

If we look more closely at the structure of literary works, both great and small, we are overwhelmingly struck by the abundance of structures to be found. What has happened to our single, ideal structure of narrative along the way from personal to artistic narrative?

For one thing, artistic narrative has no qualms about using in a sophisticated way what we have termed primitive structures, as we shall see. But in so doing, we submit that a notion of ideal structure is not unimportant. As represented by all three of our systems, ideal structure embodies our expectations about what a narrative should incorporate. How does it operate in this capacity when we encounter literature?

Recall that ideal structure is delineated differently by each of our three analyses. We have seen that the three systems do not necessarily converge in their assessment of the soundness of narrative structure. But we have also seen that in the best narratives, the three systems usually do converge in that assessment. One may infer from this a hypothetical unified ideal structure of narrative

underlying conceptualization as a classic narrative, a complete episode, an ideal hierarchy. We suggest that this unified ideal structure is a basic unit of connected discourse, only some of whose properties are delineated by each analysis or even by all three analyses. This basic unit of connected discourse is comparable in a number of ways to the basic unit of semantics and phonology as well as of sentence structure.

Drawing upon transformational grammar, along with Greenberg's (1966) theory of marking phonology and the lexicon will enable us to suggest how ideal narrative structure operates when we encounter literature. The greatest virtue of Chomsky's transformational grammar is its illustration of relationship among sentences that we all feel to be related but for which no previous grammar could generate relationships. For example, we all feel that "The boy hit the ball" is related to "The ball was hit by the boy," and transformational grammar articulates that relationship. On the other hand, the greatest flaw of transformational grammar is its insistence upon the perfect semantic equality of transformed sentences. Supposedly, transformations do not change the meaning of sentences. Yet most ordinary speakers of English will agree that there is a change in meaning when a negative transformation is applied to a sentence. Few would claim that "The girl ran" means the same thing as "The girl did not run." And there is evidence that speakers do not even perceive passive sentences to be identical in meaning to their active forms (Johnson, 1967). Whereas nonsense syllables that serve as grammatical subjects in active sentences are rated more active and potent on Semantic differential rating scales than are nonsense syllables that serve as grammatical objects in those sentences, this discrepancy in power does not hold with passive sentences.

One can retain the aforementioned virtue of transformational grammar while eliminating the aforementioned flaw by welding Chomsky's theory of sentence structure together with Greenberg's theory of marking in phonology and the lexicon (1966). Suppose that one considers the simple active declarative sentence to be the unmarked sentence form, using Greenberg's vocabulary, upon which transformations operate with some change in meaning as a result. That is to say, transformations would have the function of commenting (para-semantically) on the content of sentences, as Deese, McCabe, and Wright (Note 3) have suggested. The presence of the passive, negative, question or some other transformation can be considered a "marked category," a category which "states the presence of a certain property A" (Jakobsen, 1957, cited in Greenberg, 1966, p.25; see Greenberg, 1966, for development of the theory of marking) - here that property would be perceived power of the agent or nonaction or uncertain status, respectively. This would be similar to the way in which a subset of marked single words - antonyms - is generated (Deese, 1965; McNeill, 1966).

In the grammar of discourse, the ideal narrative structure is parallel to the simple declarative sentence in the grammar of sentences and to the unmarked term in the grammar of morphophonemics, in hierarchically descending complexity. All three represent the basic form that language takes at some level. All these basic forms are capable of undergoing operations to yield related forms. Thus for example, prefixing turns unmarked into marked terms; passive transformations turn active sentences into their passive counterparts; deletion of standard narrative sections turns a normal narrative into a modified one. Such operations comment on the material conveyed by virtue of their departure from standard form.

What exactly does this detour into theory have to do with understanding literature - our avowed purpose in this section? What does it mean to say that transformations of ideal narrative structure comment on that structure, that they comment on the information conveyed by virtue of their departure from ideal narrative structure? To put it simply, when we encounter a story we expect it to be in a certain form because most narratives that we tell, hear, and read are of this form. When we come across a story that does not match that form, we notice the discrepancy. Since that discrepancy is deliberate in the case of published fiction, we are forced to make sense of it by hypothesizing, say, that there is no resolution to a particular dilemma given in a narrative that lacks a resolution section.

Which brings us to specific examples of published fiction that employ one of our so-called primitive structures. Insofar as each of our three analyses has a different but equally important delineation of ideal narrative structure, we will have to consider three separate sets of structural transformations one encounters in published literature, beginning with a consideration of those works that involve transformations of high point structure.

Many short stories are told with a classic high point structure: the reader is oriented as to who and what is involved, where and when, a series of complicating events build up to a climax which is elaborated and then resolved in some fashion. For example, in Flannery O'Connor's famous short story, "The River," we are introduced to a neglected little boy, his babysitter, and his parents. A series of events culminates in the boy being baptized in a river at a revival meeting to which he was taken by his babysitter. This baptism is the high point of the narrative; it is also the high point of the boy's day and, by implication, his (short) life. He resolves this experience by re-entering the river the next day, this time drowning in it.

When one moves from the short story to the novel, however, one finds a number of high points, some more important than others

perhaps, but all important and often difficult to rank. One could go on and on naming the high points of, for example, Hardy's Far from the Madding Crowd: the death of all of Gabriel Oak's sheep, Bathsheba's marriage to the soldier Troy, Fanny's death, the disappearance of Troy, Troy's reappearance, etc. As another example, what would one single out as the highest point in Huckleberry Finn? We have previously proposed that high point analysis be modified to allow for the existence of more than one high point even in personal narratives.

We noted the version of classic narrative structure where the narrator gives the ending or resolution first, then goes back and gives the complicating actions that led up to the high point, dwelling on that high point at the close of the narrative. Such a pattern often confuses the listener if the narrator is unsophisticated. "How did that happen?" the listener asks. But the other side of this confusion is that it piques the audience's interest. As such, this structure lends itself to detective fiction. One of many detective novels with this structure is Dashiell Hammett's The Glass Key. A murdered body is found in the first chapter, and the rest of the novel is spent with the protagonist's search for what happened, for the events that led up to the murder. The novel culminates in elaboration of the murder itself.

A number of stories have been told in such a way that they end (at least temporarily) at the high point - another degraded high point structure. Magazine serial novels and television serials and soap operas are well-known for their cliffhanger technique, which leaves the audience frustrated, tantalized sufficiently to come back next week. Frank Stockton's well-known short story "The Lady or the Tiger?" leaves the reader permanently cheated of an ending officially sanctioned by the author. "How did it turn out?" rings in the reader's ears.

The most primitive high point structure - the leap-frog structure - has also been used deliberately with great success. The excellent novels of William Faulkner are of this sort, skipping from one event to another with little or no regard for the timeline of the so-called original experience or for the amenities of orientation. Such a radical transformation of classic narrative structure has the effect of drawing attention away from the necessary temporal sequence of events and the other supposed facts of the experience to the way the story is told. "Why did he tell us about the golf course before telling us about Caddy's activities before telling us about who Caddy was?" the reader of The Sound and the Fury might well ask.

The most radical degradation of classic narrative structure would be one with no orientation, no complicating action, no resolution, and not much evaluation. One finds that even this non-

structure has been used successfully - in Beckett's Waiting for Godot. But that play's meaning derives in no small part from the fact that it thwarts almost all of our expectations about what a story should contain. In other words, even when all elements of high point structure are missing, they play a strong role in the story's meaning by virtue of their absence.

There are two consequences of moving away from classic narrative structure. One is that the audience becomes progressively more involved in actively reassembling a story the more it departs from classic narrative structure. For we do feel that we understand the substance of an experience to the extent that we can name its component events in proper chronological order. Many writers specifically wish to engage their reader's participation, not wishing to present a narrative so seamlessly ideal in structure that their readers remain uninvolved in encountering it.

Secondly, the more radical the transformation of classic narrative structure, the less frequently can it be used in a sophisticated way. How many pieces with the structure of Waiting for Godot would interest the public? This paucity stands in marked contrast to the many stories that begin with the end but are otherwise classic in form, and the almost as many stories that are told as cliffhangers (at least until the next installment). In fact, we have come almost to expect that detective stories will begin with the end, that soap operas will leave us up in the air. These alternative structures have become the rule rather than the exception in certain circumscribed contexts, in other words.

Episodic analysis was developed primarily on the basis of published fictional stories and hence its sophisticated structures reflect the structures of many of those works. But what about its so-called primitive structures: descriptive sequences, action sequences, reactive sequences? We find that these too may be used in a sophisticated way. For example, much narrative poetry consists almost entirely of descriptive sequence. Robert Frost's "Birches" is one of literally hundreds of such examples. In prose fiction, more-or-less lengthy descriptive sequences also abound, playing more-or-less important roles in the overall work. Some of the more interesting descriptive sequences in modern prose are the extensive stream-of-consciousness passages to be found in the works of James Joyce and Virginia Woolf (eg. the description of Mrs. Ramsey's view of the lighthouse in To the Lighthouse). These descriptive sequences are simply descriptions of characters and their surroundings and habitual actions, yet the passages are enough to sustain readers' interest. Such structures show that there is more to life than causally related actions.

Action sequences lend themselves to sports reporting, where the focus is on behavior, actions. Many of the actions are logi-

cally ordered in that some actions necessarily precede other actions in time, but prior actions do not actually cause later actions to occur. All this is appropriate to newspaper reports of the Superbowl or the World Series, or the like. But the sophisticated use of such a structure is not confined to the relatively unsophisticated sports section of a newspaper. Action sequences are often prominent parts of novels or short stories. For example, in The Sun Also Rises, Hemingway includes a bout of fishing and a bull-fight or two in the form of simple action sequences. By foregrounding simple activity rather than intricately planned machinations, Hemingway makes a point about the dilemma of modern man, who must act properly to be honorable but who cannot plan his fate to any large degree.

The transformation of experience from a complete episode to a reactive sequence is perhaps the most telling of transformations. It is a transformation essential to those writers who believe firmly in determinism, those who believe that planned responses to one's fate are not only futile but often impossible as well. And excellent example of this is Theodore Dreiser's Sister Carrie, where the passive heroine drifts through life, falling into one affair and then another, stumbling into acting at someone else's request, slipping back and forth from poverty to relative affluence mainly by luck. All the other characters are equally passive. Carrie is drawn to material possessions, applause, and beauty like a moth is drawn to the light, "responding with desire to everything most lovely" (p.397). Such were what "in the beginning seemed life's object, or, at least, such fraction of it as human beings ever attain of their original desires." But her actions are hardly planned responses to attain clearly conceived goals. Rather, this novel seems best described as a reactive sequence, focussing on changes in the narrative environment, involving changes that generally cause other changes. But even when these changes are psychological states such as infatuation, there is not so much evidence of goals per se but rather of reactions - away from other carnal entanglements, for example.

Thus, ideal episodic structure serves as a standard for our expectations of the plot of a narrative. When these expectations are thwarted in a way that we know to be deliberate, something is communicated regarding the extent to which man can planfully cause things to happen or the extent to which it is important that he do so.

The structure of dependency analysis and its transformations are rather more difficult to discuss than those of the other two analyses because dependency structures as we have described them are so relative to one another. Which is to say that undoubtedly all published novels would appear ideal hierarchies in comparison to our children's narratives. But such a comparison is meaningless.

More meaningfully, one can speculate that in all probability the structure of a Hemingway novel would appear much like a simple coordinate sequence of propositions (the most primitive dependency structure), whereas the structure of a Faulkner novel would undoubtedly be an ideal hierarchy with bountiful syntactic elaboration - should anyone go to the trouble of comparing the dependency analyses of the two. Yet both are equally important and good works of narrative fiction. Even among our children's narratives, we found good narratives that were not syntactically elaborate. We have often repeated the caveat that a narrative need not be elaborate to be good (though elaboration does not hurt and in fact usually helps the quality of a narrative in which it is present). But more to the point at hand, Hemingway's writing is deliberately bereft of complicated syntax in his effort to write like ordinary American people speak, to write in an unliterary, honest, objective way. By virtue of the fact that people expected and still expect syntactic acrobatics from published authors of prose fiction, Hemingway's style is a commentary upon the material he wishes to convey. "The experiences I selected to write about speak for themselves," he seems to be saying; "To do somersaults describing them would be unnecessary, even pretentious."

To summarize, the ideal structure of personal narratives as envisioned by all three systems embodies our expectations of narrative we encounter in written literature as well as from our friends' and neighbors' mouths. When there is a deliberate departure from this ideal structure - no matter how that structure is conceived - some meaningful comment results.

But although a certain type of structure is primary in our expectations, we would caution against its being viewed as the only sound structure of discourse. We have just seen that the so-called primitive structures in all three systems may be used in a sophisticated way. Then, too, no one system adequately characterizes ideal structure. High point analysis captures the development of suspense in a narrative. Episodic analysis is concerned with the plot structure of narrative. Dependency analysis depicts aspects of the language, the style of a narrative. But would anyone want to say that one of these attributes of a narrative was more central than another or that any was unimportant? We think not.

Moreover, it is also true that all three analyses <u>together</u> fall short of delineating the true underlying ideal structure of narrative that we have come to expect. None of the analyses adequately deals with character development, nor do any of them so much as touch on symbolism and other figurative language - aspects of style that can be worked out to such an extent that they are structural.

Ideal narrative structure: a touchstone for our expectations of narrative in general. There is no one sound structure of narra-

tive, since transformations of ideal structure can be successfully accomplished by sophisticated narrators. Such transformations have the effect of commenting in some way on the material conveyed by virtue of their departure from so-called ideal narrative structure, but they result in narratives whose structure is as sound as the more usual sort of narrative.

The Last Word

Our three ways of looking at children's narratives have really amounted to more like 1300 ways, revealing much about children as well as much about the ways we looked at them, the analyses themselves. As they grow older, children improve the structure and hence the quality of their narratives, showing that the development of language is not finished with the development of sentence structure. They increasingly begin by giving their listeners an encapsulated version of the experience, then they orient them to the context of the narrative, recapitulate a number of complicating events that culminate in a climactic event, one that is heavily evaluated, and finally resolve that climax in some way through another series of events, capping off the experience in a coda of some sort. This is from the perspective of high point analysis.

As far as episodic analysis is concerned, children increasingly represent planned responses to specified goals in their narratives of real experience, as they have been shown to do in stories of make-believe experiences. And they tell increasingly complicated episodic narratives.

Our analysis of the dependency structure of children's narratives showed that children's narratives are increasingly more coherent in a number of ways - less dysfluent, less repetitious. Moreover, they are capable of more elaborate and hierarchical syntax both within and between sentences, reaching a higher, deeper level of discourse.

We found virtually no differences between boys and girls in their development of narrative structure.

And what of the ways we looked at children's narratives? We have seen that their relative strengths imply their relative weaknesses. High point analysis captures the personal meaning of experiences, as well as the build-up and dispersal of suspense that most narratives entail. Episodic analysis captures impersonal, generic information about how events are causally linked, including times when that causation is planned by a protagonist in an experience - the stuff of plot. In contrast to these analyses of the semantic content of narratives, dependency analysis captures the syntax of those narratives. It depicts the way in which a narra-

tive is formulated, the extent to which adjectives, adverbs, prepositional phrases, relative clauses, as well as whole sentences, contrastively comment on other propositions in hierarchical form.

Thus, no one of our three systems exhaustively describes narratives. Our most important example of these points is in the case of episodic analysis. This analysis has received an abundance of attention recently, and deservedly so, for it is concerned with matters of considerable psychological importance. But it is not the only such system. We hope that this work convincingly demonstrates some of the important psychological matters that episodic analysis neglects, and that others will redress this neglect by using one of the other systems we describe or by inventing still other analyses. We are reminded of the story about the blind men who went to observe the elephant but who formed vastly different impressions of the nature of the elephant because they all felt different parts of its body (John Godfrey Saxe, "The Blind Men and the Elephant"). The field of psychology should strive for a more well-rounded view of discourse by looking at the aspects of narrative delineated by analyses other than episodic analysis, as well as those drawn by episodic analysis.

And while each system designates one structure as ideal, sounder than all other structures, we have taken issue with this point. All so-called primitive structures can be used in a sophisticated way to make a point. That is, they are potentially as sound as the so-called ideal structures. Within episodic analysis, we take issue with the relegation of the reactive sequence to the status of being more primitive than the episode. We feel that this structure is potentially as sound as the episode and is the only structure for narrating events that are beyond the control of the protagonists. As we said, this shortcoming is not limited to episodic analysis.

Not only does no one of our three systems suffice to describe variations, we have argued that the structure of children's narratives is not fully described by all three systems put together. None of them deals with such important deep and surface structural matters as character development, slang, symbolism.

We all use narratives daily to relate what has happened to us while apart from those we care about or to become acquainted with strangers. On top of this, each of us accumulates a collection of narratives over the years about our own and our family's experiences that were somehow most formative, sometimes even prototypical of that experience. It is this latter repository of vital personal information that we divulge to those whom we wish to know us well, undoubtedly becoming as formulaic in our retelling of these experiences as poets who compose orally. We reveal ourselves directly or indirectly through all our narratives, polishing those we deem the

best - either the clearest windows to our true selves or the most effective shutters over the same, depending upon our personality. Either way, this self-relation begins with the narratives we tell as children. Three ways, even 1300 ways, of looking at children's narratives are not enough to exhaust all there is to be learned from them.

Appendix 1

List of Narratives and Their Classification by Each System

Narrative #	High Point	Episodic	Dependency
		4-Year-Old Girls	
#7 (Chap.4)	Leap-frog	Complete Episode	Simple Coordinate
#11 (Chap.4)	Disoriented	Descriptive Sequence	Simple Coordinate
#12 (Chap.6)	Chronology	Descriptive Sequence	Simple Coordinate
#13 (Chap.6)	Leap-frog	Action Sequence	Simple Coordinate
#35 (Chap.10)	Disoriented	Complete Episode	Simple Subordinate
#49 (Chap.11)	Miscellaneous	Descriptive Sequence	Simple Coordinate
#50 (Appendix)	Impoverished	Descriptive Sequence	Mixed Subordinate
#51 (Appendix)	Classic	Interactive Reactive Sequence	Simple Coordinate
		4-Year-Old Boys	
#17 (Chap.6)	End-At-High-Point	Complete Episode	Mixed Coordinate
#37 (Chap.10)	Chronology	Reactive Sequence	Simple Coordinate
#42 (Chap.10)	Miscellaneous	Complete Episode	Simple Coordinate
#52 (Appendix)	Classic	Reactive Sequence	Simple Coordinate
#53 (Appendix)	Classic	Reactive Sequence	Simple Coordinate
		5-Year-Old Girls	
#3 (Chap.4)	Classic	Complete Episode	Simple Coordinate
#6 (Chap.4)	End-At-High-Point	Reactive Sequence	Simple Coordinate
#47 (Chap.11)	Impoverished	Descriptive Sequence	Simple Coordinate
#54 (Appendix)	End-At-High-Point	Multiple Structures	Simple Coordinate
#55 (Appendix)	End-At-High-Point	Reactive Sequence	Simple Coordinate

Narrative #	High Point	Episodic	Dependency
		5-Year-Old Boys	
#19 (Chap.6)	Classic	Complex Episode	Simple Coordinate
#24 (Chap.8)	Classic	Abbreviated Episode	Simple Coordinate
#26 (Chap.8)	Impoverished	Reactive Sequence	Simple Subordinate
#34 (Chap.10)	Impoverished	Reactive Sequence	Ideal Hierarchy
#43 (Chap.10)	End-At-High-Point	Reactive Sequence	Mixed Coordinate
#56 (Appendix)	End-At-High-Point	Reactive Sequence	Ideal Hierarchy
#57 (Appendix)	Classic	Complete Episode	Simple Coordinate
		6-Year-Old Girls	
#1 (Chap.2)	Classic	Complete Episode	Simple Coordinate
#8 (Chap.4)	Chronology	Action Sequence	Simple Coordinate
#32 (Chap.10)	Leap-frog	2 Complete Episodes	Simple Coordinate
#58 (Appendix)	Chronology	Multiple Structures	Mixed Coordinate
#59 (Appendix)	Classic	Multiple Structures	Ideal Hierarchy
		6-Year-Old Boys	
#9 (Chap.4)	Impoverished	Action Sequence	Simple Coordinate
#14 (Chap.6)	Classic	Reactive Sequence	Simple Coordinate
#16 (Chap.6)	Classic	Complete Episode	Mixed Coordinate
#33 (Chap.10)	Classic	Incomplete Episode	Simple Coordinate
#41 (Chap.10)	Impoverished	Descriptive Sequence	Simple Coordinate
#60 (Appendix)	Classic	Complete Episode	Ideal Hierarchy
#61 (Appendix)	Chronology	Complete Episode	Mixed Coordinate
		7-Year-Old Girls	
#15 (Chap.6)	Classic	Abbreviated Episode	Mixed Subordinate
#36 (Chap.10)	Chronology	Action Sequence	Ideal Hierarchy
#46 (Chap.11)	Chronology	Multiple Structures	Ideal Hierarchy
#62 (Appendix)	Classic	2 Complete Episodes	Simple Coordinate
#63 (Appendix)	Classic	Multiple Structures	Simple Coordinate
		7-Year-Old Boys	
#22 (Chap.6)	Classic	Interactive Episode	Simple Coordinate
#40 (Chap.10)	End-At-High-Point	Reactive Sequence	Combination Coordinate and Subordinate
#45 (Chap.11)	Classic	Complex Episode	Ideal Hierarchy
#48 (Chap.11)	Chronology	Reactive Sequence	Simple Coordinate
#64 (Appendix)	Chronology	Multiple Structures	Mixed Coordinate
#65 (Appendix)	Classic	Multiple Structures	Simple Coordinate

Narrative #	High Point	Episodic	Dependency
		8-Year-Old Girls	
#2 (Chap.4)	Chronology	Complete Episode	Simple Coordinate
#20 (Chap.6)	Classic	Complex Episode	Simple Coordinate
#27 (Chap.8)	Classic	3 Complete Episodes	Mixed Coordinate
#28 (Chap.8)	Classic	Complete Episode	Combination Coordinate and Subordinate
#39 (Chap.10)	Classic	Complete Episode	Simple Coordinate
#66 (Appendix)	Classic	Multiple Structures	Ideal Hierarchy
#67 (Appendix)	Classic	Multiple Structures	Simple Coordinate
		8-Year-Old Boys	
#4 (Chap.4)	Classic	Incomplete Episode	Simple Coordinate
#68 (Appendix)	End-At-High-Point	Reactive Sequence	Mixed Subordinate
#69 (Appendix)	Classic	Complete Episode	Simple Coordinate
		9-Year-Old Girls	
#21 (Chap.6)	Chronology	Complex Episode	Mixed Subordinate
#31 (Chap.9)	Chronology	Multiple Structures	Ideal Hierarchy
#38 (Chap.10)	Miscellaneous	Multiple Structures	Ideal Hierarchy
#44 (Chap.11)	Classic	Multiple Structures	Ideal Hierarchy
#70 (Appendix)	Classic	Multiple Structures	Simple Coordinate
#71 (Appendix)	End-At-High-Point	2 Complete Episodes	Mixed Coordinate
		9-Year-Old Boys	
#5 (Chap.4)	Classic	Complex Episode	Ideal Hierarchy
#10 (Chap.4)	Impoverished	Descriptive Sequence	Mixed Subordinate
#18 (Chap.6)	Classic	Complex Episode	Simple Coordinate
#23 (Chap.6)	Classic	Multiple Structures	Mixed Coordinate
#25 (Chap.8)	Classic	Multiple Structures	Ideal Hierarchy
#29 (Chap.9)	Impoverished	Reactive Sequence	Simple Coordinate
#30 (Chap.9)	Classic	Multiple Structures	Combination Coordinate and Subordinate
#72 (Appendix)	Classic	Complex Episode	Ideal Hierarchy
#73 (Appendix)	End-At-High-Point	Reactive Sequence	Simple Coordinate

Appendix 2

Scoring Procedure for Types of Orientation and Evaluation in High Point Analysis

ORIENTATION

There are nine general types of orientative remarks. These are summarized in Table 4.

One of the most important refers to who the participants in the narrative were, including descriptions of them. Animals and animated objects also fall into this category. Examples include: "My Aunt Susan was there;" "Our dog was a show-off;" "That nail was waiting for me."

The second type of orientation refers to time. Such remarks can be quite specific, as with, "It was Christmas Day, 1976" or "It was my tenth birthday." It can refer to the time of day, as in "This was in the afternoon." But such orientative remarks also include locating events in time by relating them to the occurrence of other events, such as, "He was just about to start work," or, "When my Dad got into the car, he smoked a cigar."

The third type of orientation refers to the location of the events to be narrated, or the location of objects and people in the narrative. Examples of this include: "We were at Lake Erie;" and "There was a baseball bat in the corner."

Some children orient the listener with respect to the general conditions prevailing at the time of the narrated events - conditions of the weather, temperature, lighting, noise, smell, etc. Examples include: "It was raining;" "It was 110 degrees out;" "The whole barn smelled like skunk."

Narrators orient the listener to ongoing events, or the behavioral situation. Such remarks, as we defined them, always occur in the past progressive tense (eg. "He was running down the road;" "We were going 50 miles per hour"). However, not all orientative remarks in the past progressive tense are of this sort. (Note "It was raining;" and, "That nail was waiting for me" above.)

Occasionally, narrators provide tangential information pertinent to the narrative which is also frequently evaluative of the events in the narrative. For example, the second comment in the following sequence is orientative tangential information: "She gave me ten dollars for going in there. Ten dollars is a lot of money when you're little."

Some narrators provide general cases which are related to a particular narrative, for example, "My dog likes to get stuck with a needle," followed by a story of the dog getting one particular shot. Sometimes this type of orientation is extended over several sequential remarks, as in the following: "Then the doctor takes you into a little room/ And gives you a shot." This latter example was followed by a story of the narrator's own reaction to the procedure.

Orientation can be with respect to imminent events, which often also serve as a means of fixing the time of the narrative (a different function); for example: "When Mom was going to have my baby brother ..."

The last general type of orientation involves information about objects or features of the scene of action. For example: "We had a ball with us;" "There was a rip in his pants;" "There was a pole in front of him."

EVALUATION

We isolated 21 types of evaluation, and they are summarized in Table 4.

One type of evaluation is onomatopoeia such as, "It went bam."

Another way of intensifying or underlining the importance of certain things is by using a high degree of stress, a marked emphasis in voice when narrating those things. This could be applied to one word or several words or even a whole string of comments.

Another, similar way of emphasizing is by elongating particular words, markedly drawing them out, for example, "We had to stay a looooong time."

A fourth type of evaluation is exclamations (eg. "Oh boy!").

A fifth means of evaluation is repetition. This is repetition sheerly for the sake of emphasis, not for the sake of adding any new information or for clarification of pronunciation.

Narrators frequently use compulsion words to evaluate what went on, as for example, "We had to come in then" or "He made us write spelling words."

A rare but extremely interesting form of evaluation is the use of similes and metaphors, as in "His eyes got as big as tomatoes." It should be noted that familiar similes and metaphors (eg. "The wheel went flying off") are not scored as evaluative because their conventional usage has diminished their evaluative impact to a great degree, so that such words as 'flying' in the parenthetical context may simply be a way of describing the action without emphasizing it in any way.

Gratuitous terms such as very, just, really, (in "very big;" "really hard" etc.) are a common lexical means of intensifying or stressing what they modify. They give no information and are thus wholly evaluative.

A ninth type of evaluator is the attention-getter. This refers to commands such as: "Listen" or "You know what?" that are sprinkled throughout the narrative to focus the listener's attention on especially important pieces of information.

Many words per se are in and of themselves evaluative. There are a number of adjectives of this sort, including fun, ugly, funny, excited, lazy, sick, scared, happy. There are some adverbs of this sort, including 'finally' ("We finally got him to do it") and 'accidentally' ("I accidentally tripped him up"). Some nouns (eg. 'all' in "All I got was a runny nose") and a few verbs (eg. 'squished' in "Then I squished that spider") also are included. This category does not include 'good' or 'bad' (see subjective judgments below).

A little bit of exaggeration and fantasy is yet another way to evaluate narrated events. However, when fantasy or exaggeration comprises the bulk of a narrative, it should not be considered a narrative for our purposes. Fantasy differs from exaggeration in that it is an account of a purely fictional event (eg. "I held the bear by the paws while Dad shot it"), whereas exaggeration is an expansion of events that did occur (eg. "I hit the ball out of the park" - in reference to a sandlot game).

A major type of evaluation is the use of negatives and modified negatives. These events that did not happen are extremely evaluative since there is literally an infinite set of events that did not happen in any given situation and these were selected from that infinite set. Often they inform the listener of either personal or general expectations that were held but not met in the situation. Obvious examples include: "He didn't hit me," "No one was home after all," "We almost stopped the car."

The expression of intentions, purposes, desires, or hopes is another category of evaluation. Respective examples include: "I was going to sit down;" "We were there to see Dr. Grady;" "I wanted to ride the horse then;" "I hoped Santa would bring me a new one."

Another conglomerate category is the articulation of hypoth eses, guesses, inferences, and predictions. This includes: "Mom thought I had the chicken pox;" "We didn't think it would rain."

The results of the high point or climactic action are extremely evaluative. Unlike all other forms of evaluation, these may occasionally be somewhat temporally-restricted clauses on a superficial level; however, the effect usually remains true throughout much of the rest of the narrative. These actions are not identical to or simultaneous with the specific high point action, although they are related to it. Examples include the second comments in the following sequences (the first comments are the high point actions): "The blue car crashed into our car/ It bent the fender;" "The ball hit my arm/ My wrist was bent back;" "I cut myself with the knife/ Blood came running out."

Causal explanations are an interesting type of evaluation. These include all clauses introduced by 'because," except where it is used simply as a conjunction with no possible causal meaning. This category also includes those few clauses introduced by 'so' in which 'so' genuinely underlines the necessity of the sequence of events it connects. An example of this latter sort would be the second clause in the following sequence (which is classified basically as a narrative clause, and thus only superscripted as evaluative): "He hit me in the head with a rock/ So I threw one at him."

Objective judgments are a means by which the narrator uses other people (specific or general) to evaluate the narrated event. These must be specified, rather than inferred, and include: "My brother liked my snowman much better than he liked my sister's."

Often the narrator employs his subjective judgment to evaluate the events. This includes: "That was good;" "That was the worst day we had;" "I liked the house;" "That was my favorite," (But not "That was his favorite," an inference); "That was easy," - all of the narrator's own opinions about matters which are disputable (such as what is good-bad, what is best, etc.).

In some cases, a fact per se is evaluative because of widely held cultural assumptions. Since these are first and foremost narrative clauses, evaluation is superscripted to categorization of the remark as complicating action. Examples here include: "I caught the biggest fish;" "My brother told a lie."

Descriptions of internal emotional states of either the narrator or some other participants in the event are another general means of evaluation used in the children's narratives. Examples are numerous and include: "I felt embarrassed;" "I loved that dog;" "He was mad at me;" "She didn't care about me." This category does not include "I loved the house," since that is more a subjective judgment of the house than it is an emotional state of the narrator.

Finally, tangential information (discussed above under orientation) is a form of evaluation used by some children. A tangential information clause (such as the example given above), when found in the middle of a sequence of narrative events, has the effect of stopping or suspending the action and calls attention to that particular part of the narrative as important.

Appendix 3

4-Year-Old Girls

Narrative # 50

E: Did you ever go fishing? You did?
S: And we only get little fish, not big fish.
E: Oh really? What happened last time you went fishing?
S: Oh Daddy got a bunch of fish. He always gets a bunch, he gets many, many, many big ones. Always gets so many ones. Gets big ones. Real tall ones like I show you how big the fish are. Like that. (Gestures). Like that.
E: Were you ever with him when he caught one?
S: Yeah.
E: What happened?
S: And the sharks are very big and I better not touch those sharks.

Narrative # 51

E: Have you ever been on a trip?
J: Uh-huh. Yeah.
E: You have?
J: Yeah, to my grandma's.
E: You went to your grandma's? What happened?
J: I just said "Hiii," and then and then they, Mom said, said, "Say, say something." And I said, "Noo, I wanta go home." "Not 'til you say, say, say hello." "I said hello, Ma." And then she, and then my Mom goed back to my grandma's and then she said, "Oh, she's just a bad girl," like that.

4-Year-Old Boys

Narrative # 52

E: What'd you do for Christmas last year?
J: Santy Claus brought me my G.I. Joe. I broke one.
E: You broke one?

J: No, my...my Dad was taking my covers off. It was under my covers. And,...he was taking my covers off. And, there my G.I. Joe, my G.I. Joe.
E: And there was your, hm?
J: My G.I. Joe, and it broke right off. The leg broke off.
E: The leg broke off?
J: The arm, the head.
E: Then what happened?
J: Santa Claus is gonna buy me another one.

Narrative # 53

E: I'm pretty used to getting shots. I took my cat to the vet.
M: I had a shot once too, and that hurt. With a needle.
E: Right, right. With a needle. That's right. What happened? With the needle?
M: Gave me a big shot. He gave me a big hole in my whole arm.
E: Oh, right here? ... Oh.
M: Gave me a, that was with a needle. And he gave me a pool, a play shoot, that you've gotta put a nee, a real needle in that little play thing.
E: You gotta put a real needle in that little play thing, huh?
M: Yep, and a big one. I got a big (name of toy)
E: Oh, you did, huh?
M: And I lost it. I didn't know where it was.

5-Year-Old Girls

Narrative # 54

E: Did your dog ever run away?
M: Noo. 'Cept when we moved over to the old house, cause he missed it.
E: When you were over to the old house? Cause you moved and he ran away?
M: Yeah, but we didn't move that day, we're at, we lived at our own, our new house (giggle).
E: Oh, I see.
M: Then when we went to our old house, Fritz ran away. (Giggles) We have a cousin by the old house.
E: Oh, you do?
M: Yep.
E: What happened?
M: I don't re ... (slurp noise). We had to call him, Fritz back. (Giggles) He wouldn't come when we were calling him. Cause he saw a real rabbit, he couldn't find it, and

all of a sudden, Jim went out in the back and Fritz came in. (Giggles)

E: (Laughs) All of a sudden he came out in the back?

M: Came out....Yeah, and Fritz just went came with Jim, went woom, wooo. Hmm...mmm...And Mom said, "Here she, here he is."

E: Here he is, huh?

M: Hmmm...that's ooom.

Narrative # 55

E: Have you ever broken anything?

L: My friend did once.

E: She did?

L: My friend Mark James, he's in first grade and I went over there and they were eating supper.

E: And you went over there and you went and ate supper.

L: No. They ate supper.

E: Oh, they ate supper?

L: Yeah. And I was waiting on the bed and, Mark, well, he, his mo, his mother gave him a jelly glass and he broke it.

E: And he broke it?

L: After it was, after it, whatever was in there, well he drank it out. After, after awhile he was playing around with Marsha. I mean George.

E: With George?

L: Yeah, and, well, they got, when they played then he musta knocked his elbow, but, it musta

E: He must have knocked his elbow? Uh huh?

L: And, and, them jelly glass musta slipped offa the table. And it broke.

5-Year-Old Boys

Narrative # 56

P: And, um, and, ah, ah, um, you wanta hear another one, I went to the hospital?

E: Sure.

P: Well, I don't like to go to the hospital, and, and I hadda have a operation about tonsils.

E: Oh, about tonsils?

P: Yeah, about my tonsils weren't getting very good.

E: Your tonsils were getting pretty big?

P: No, see, part of my food couldn't get down cause I hadda take milk and this is

E: The food couldn't get down?

P: Yeah, cause I hadda take milk.

E: Because you had to take milk?

P: Yeah, right here, two little bumps that were causing all the trouble. And I kept getting sore throats, and colds so many times, and so we went and got those out. Man, we went so early. Nobody was up yet.
E: You went so early nobody was up yet?
P: Nobody, nobody was up 'cept us when we had the operation. In the morning when nobody was up. 'Cept me and my Dad and my grandma were up. Nobody, and my brother. Yeah, and...and, those were who were up, and nobody was else up 'cept the hospital was already up, yeah.
E: The hospital was, I see.
P: Yeah, I hadda wait a few hours but, but while I was there they had brought stor - library stories along.
E: You brought library stories along?
P: Yeah, and, and, and...and, and then the doctor came in, one of the girl doctors.
E: One of the girl doctors?
P: Yeah, and gave me a shot like a mosquito bite.
E: He gave you a shot like a mosquito bite?
P: Uh huh. Anyway you don't feel a mosquito bite, but she gave me one.

Narrative # 57

E: Have you ever been in a hospital?
D: Uh-huh.
E: You have? Tell me about it.
D: When I got, when I drank glue.
E: When you drank glue?
D: But, that's when I was about one or two.
E: One or two? What happened?
D: Had to go to the hospital. They gave me some kind of pills to make me get all of it out.
E: They made you get some kind of pills that make you get all of it out?
D: Yeah.
E: Uh-huh? Then what?
D: Then I just went back home. They don't take too long.
E: They don't take too long?
D: They just take about one minute.
E: They just take about one minute?
D: I, I, I, gue, I guess it's, if the pills won't help you gotta, gotta, they gotta operate on ya.
E: If the pills won't help you, they gotta operate on you?
D: They didn't operate on me.

6-Year-Old Girls

Narrative # 58

E: Were you ever at the doctor any other time, besides the time you got a shot?
K: I been to a different doctor to get my legs checked.
E: To get your eyes checked?
K: My legs.
E: Oh, your legs. Get your legs checked? What happened?
K: He wanted to see if I walked straight.
E: He wanted to see if you walked straight.
K: If I would have to get braces on my legs. So, Mom took me there. There was a whole bunch of kids there.
E: Were there?
K: They were yelling and screaming, a little kid, she, little baby who were running down the hall. So I was getting my legs checked first because I was starting to cry, you know, and, and their mothers picked them up and spanked them cause they were crying for no reason. And (giggles) a little boy, it was not Mom's friend, but Mommy starting to talk to the lady, and, her little boy had braces on his legs, and, he showed ... the little boy goes, "Mom, you're gonna show everybody." Mom goes, "Well, I'm sorry."
E: That's what his Mom said, "Well, I'm sorry," huh? Uh huh.
K: No, his Mom.
E: His mom, said, "Well, I'm sorry."
K: Yeah. And that's all. (giggle)

Narrative # 59

E: Have you ever been to the doctor?
J: Yes.
E: You have? Oh, tell me about it.
J: Once my friend, Mary, she got in the car accident.
E: She got in a car accident? Uh-huh?
J: And, right here was stitches, real bad, right here and behind her neck here and here. And, she had to get stitches in 'em, and she was big, but, I had to go with her. And, and, I, she had a trailer at the mobile home and guess what?
E: She had a what? She had a trailer at the mobile home?
J: And I was peeling a pear I brought and I cut .. my finger here and here and I went in the bathroom and soaked it.
E: You went in the bathroom and you soak, you were playing with the pen you brought? And you cut your finger?
J: Noo. Knife, a sharp knife.
E: Oh, I see, knife. You were playing with the knife you got, and you cut your finger there and there.
J: I wasn't playing with it. I was trying to cut my pear, getting out the center.

E: Oh, I see, you were cutting your pear, uh-huh?
J: And when she was there, she said, "Let the doctor look at your thumb and your finger. You, you might need stitches." I said, "Noooo way."
E: You said, No way, huh?
J: Yeah. Cause I was scared.

6-Year-Old Boys

Narrative # 60

E: You have some scratches on your arm though?
M: There's and where I got poked.
E: Oh, you got poked, tell me about it.
M: Yeah, you know them pencil things that ever sharp thing that you sharpen that you open and you sort of go like that?
E: That you open so they go like that?
M: Yeah, and one side's the sharp side and the other side's just a handle like?
E: Like some kind of pliers or pinchers or scissors or something?
M: No, you know they have these little holes and the pencil goes right down there?
E: The pencil goes right down there. Uh huh?
M: And also they have a poker and stuff? But the poker went right through there and came right through here.
E: It came what? It came right through there and hit through there?
M: Yeah, and hit that. And it got over there and came out. And it was all dirty cause there was pencil lead down there. And we had to get it out and we had to squeeze and squeeze and all the blood just rolled on the floor.
E: All the blood just rolled on the floor?
M: Just like this, it just falled.
E: Just like that, it just fell, huh?
M: Yeah. Goed like this, mmmm, and it hit the floor.

Narrative # 61

B: You know what I do outside?
E: What?
B: There is a dirt pile out in back of our barn. A big dirt pile. Me and my brother Jimmy play on it. Some day, my Dad, Saturday my Dad took a big chunk out of it.
E: Chunk out of it.
B: Yeah, cause there is water hole by the hob barn. He wanted to fill it up so it wouldn't be so messy. He took one big load full. He has a front end loader. He took it full, took it over there and dumped it out.

E: Dumped it out.
B: Yeah, and he took all the rocks out of it and threw them out. And flattened it out.
E: And flattened it out.
B: Yep. I like it a lot out on the farm.

7-Year-Old Girls

Narrative # 62

J: I'm, we're lucky we have a big closet.
E: Uh huh.
J: We're lucky we have a shelf way up high. Once Mommy said, "Why'nt you just dust." And so I got up on that, this, doll pan to get polish and a rag. We were polishing and Mommy forgot there was a mouse trap up there. There wasn't a mouse in it, and guess what? I reached up there and my thumb got caught in it.
E: Your thumb got caught in it?
J: (Giggles) It really scared me. I jumped off the stool. (Laughs) Then I went over, Mommy said, "Oh, I'm sorry, I forgot there was one there." (Giggles) That did hurt too.

Narrative # 63

E: Oh, you were in the hospital? Were you ever there for anything else?
R: To get my tonsils out, but not to the Oberlin. Do, do you know Dr. Jackson?
E: Uh huh.
R: That's where I got my tonsils out. Have you ever been to that big hospital?
E: No, uh uh.
R: Well, that's where I got my tonsils out.
E: Oh, really? What happened?
R: Well,...I had to be in this big baby crib like. Cause all the other beds were tooken, and this man,...he was very nice, and,...he walked with me and, we talked as we walked down the hall. And, one night, one time I was asleep. And, when I woke up my throat hurt, my throat hurted. And, so, (interruption)
E: So this man was walking with you?
R: Yeah, and, one time I was sleeping, you know what happened?
E: What?
R: I, went to the operating room when I was asleep. And when I wo-oke up, I was out and back into the room. And my throat hurted, like a sore throat, and I said, Mom, is my

tonsils out?" And she, and she says, "Yes", and, I says, "Boy, it doesn't even hu-urt that much. And I had to stay in there one more time, one more day, and the next day, Julie was over at our house.

E: Julie was over at your house?

R: Yeah. And Mike. That's my brother. She's his fiance, and they took me home. I had to, Mike always (?).

7-Year-Old Boys

Narrative # 64

B: You ever seen a shark?

E: No.

B: I have.

E: You have?

B: At Toledo Zoo.

E: Oh, you were at Toledo Zoo?

B: Ever been there?

E: Uh uh. Tell me about it.

B: Uh, there's a whole bunch of animals. And there was this monkey there and he stole somebody's hat.

E: He did?

B: Then the trainer went in there and got him and the monkey stole his hat. And then he wouldn't give it back and they were messing around, and the, he got the monkey down and then they took the hats away from him.

E: They put the hats away first?

B: He put one of them on.

E: He did?.....You saw a shark?

B: Yeah. It looked kind of mean. It was coming right at me. It went shooooh.

E: What else happened?

B: We went around. There was this lady. She was washing the tiger. And the tiger, it went over there and it started roaring, and the lady jumped out of there. It showed its teeth right at her and it go chhhhoooowww.

Narrative # 65

E: Have you ever ridden it (his sister's horse)?

J: Yeah, just once.

E: Once?

J: Yeah, just once.

E: What happened?

J: We rode down around the pasture and we then Little Man stopped and then I saw a rattlesnake. His tail was rattling. He was probably scared of it.

E: And then what happened?

J: We rode right back and he squashed it with his hoof.
E: Did he?
J: Yep. He squashed the snake with his hoof. It was real fast.
E: Oh. He squashed the snake with his hoof huh?
J: Yep. It was real quick. ...Then we went back to the barn. He didn't want to step on any more snakes or his hoof would get all bloody and everything.

8-Year-Old Girls

Narrative # 66

E: Do you have any brothers and sisters?
M: Yeah, I got three brothers and one sister.
E: Do you? Do you ever have arguments like that or fights like that?
M: I really fight Bob.
E: Oh really? What happened? Tell me about it.
M: Well, whenever we get home from school, he starts an argument. He says, "You got to do that, you got to do that" which is when it's really his turn. I get so mad I punch him in the stomach but not that hard and he goes screaming "Mommy, Marsha hit me, Mommy, Marsha hit me." I mean it. But when he gets in trouble and I have arguments with Todd, especially one.
E: Oh, yeah, tell me about one.
M: Well, it was the day he went into my room. I was at school still. This was when I was in kindergarten and he went in my room and tore all my pictures down that I painted and he tore them up and he broke one of my best, my very best doll, my Raggedy Ann, she was my favorite. I got another one. I love Raggedy Ann dolls. Then I told my mother and she came and he got it.
E: He did, huh?
M: Yeah, then we started arguing all over again. Boy, once Todd talks he can't stop talking.

Narrative # 67

E: My face was red and everybody was laughing. Did anything like that ever happen to you? Everyone was looking?
L: Yeah.
E: Oh?
L: This wasn't at school. It was at this moovie. And, you know, I reach, to tell my mother something, and I turned around, she was in there, I found her, and as I was walking out to, you know, tell her something, and I put my arm back, and my sister said, "Where you going?" And she grabbed my arm and my whole sleeve came off.

E: Your whole sleeve?
L: (Giggle) It ripped and I thought what am I gonna do, and you know, which was in the movie. It was real good and I thought, sister thought, and said "Mom, let's go home. I'm getting tired." So, Maura said, "No, no," so we didn't go home.
E: You didn't go home?
L: I was thinking about it, and, and, and, and, so we were at the movie I kinda holded on to it. And I said, "Hi Mom." And she says "Hi." And we were going out to the car and I had to find something, so you know I wouldn't look like (?). She, she says, "You want to stop at a restaurant?" and I, I turned red about then (giggles). Said, "No, no, no, I think we can eat at home."
E: You think we can eat at home?
L: Yeah. She says, "Well, I don't want to cook." And while I was b.s.ing, she turned in. Brother. And finally when we got home, Mom says, "Get on your pajamas." And I take, and I said, "First I'll take a bath." Then, then I closed the door and I hurried up and sewed the back of my arm and it looked funny. Cause I'm not a go, I'm not a very good sew-er.
E: Oh, you aren't?
L: No. ....I can't sew. My sister knew this, see. She know, she, she ripped it up. But I didn't want to tell on her.
E: You didn't want to tell on her?
L: No. Cause she'd do the same for me, and, the next morning, I say, "Mom, I forgot, you know, it ripped," and she says, "Ok, go get it out of the wash," and I oop. "No, I don't think I'll wear that," and I said "Mom, why don't I wear that red shirt?" I looked at it. It was, I think it was sewed on backwards.

8-Year-Old Boys

Narrative # 68

E: Have you ever been down south?
D: Yeah.
E: Have you? Oh, tell me about it.
D: Well, I'd rather not.
E: Rather not. Oh, why?
D: We didn't have a very good time there.
E: You didn't?
D: Know what happened?
E: What?
D: That little boob. I'd like to kill my brother. Do you know what? We went to Niagara Falls, you know.
E: Uh huh. ...What happened?

D: He took my, he took my, he took my paper out of my pocket, you know. He picked it out. He took it out of my pocket and he dropped it.
E: And he dropped it?
D: Right in the Niagara Falls. He dropped it. Uh huh. Now there's a paper floating around somewhere. (Giggle) It says David Mandell.

Narrative # 69

E: And I ripped my sleeve all the way off. Did anything like that ever happen to you?
R: No. You know Danny Smith? He's in third grade, you know, and when he was doing jumping jacks in gym, you know, his pants split and in class you know his teacher said, "Danny Smith, what are you doing?" He said, "I'm trying to split my pants the rest of the way." It was only this much, and he had it this much in class. On the bus he was going like this, you know, splitting it more, and he was showing everybody. We told Danny he was stupid, and he said, "No, I'm not, you guys are the stupids."

9-Year-Old Girls

Narrative # 70

E: Did you ever get stung?
D: Yeah, on my very own birthday I was chased by a yellow jacket.
E: (Laughs) On your very own birthday.
D: I didn't like it cause it was on my birthday and everything, and I was getting chased all around. Mom kept yelling and yelling for me to come back. Cause I was all the way out. I was about all the way down to my friend, and it started chasing me, going faster, I was in bare feet. I went chomping down the road, and it, you know those kind, that rock with tar? Got, and I was, I had I was kept about here cause they started hurting, and so, I, I, I, I, I, I finally got off the grass into the fence and I almost got shocked and its really, it, it's electric, really shocks you, and I almost ran in it, about this close to it. Went back. Finally going to the house and I almost ran into my brother cause he was a little bitty baby cause he was, was blowing bubbles and he popped it. He was right there by the yellow jacket, and the yellow jacket came out and he was swatting it, like, and he didn't know I was, I started running toward the door and he started chasing me.
E: (Laughs) He started chasing you. Hmm.

D: That made me really mad. After it happened, I started chasing him, cause he started hitting me or something and every, and I started chasing it and he didn't like it, so he, he went by on the yellow jacket back again, and the yellow jacket was in it and he started chasing it. I (laughs)

Narrative # 71

E: Have you ever been on a trip anywhere else?
D: Kentucky.
E: Kentucky?
D: That's the only place I been, so far.
E: What happened in Kentucky?
D: Nothing. Yes, we went down to visit my aunt, ended up in the hills and I hate to go up those hills in my car. That scares me.
E: What happened the last time you went down there? In the hills?
D: Nothing. It's just that, we went to see our Aunt because she, she's getting real old and yet, she's going to die pretty soon, so we went and visited her and, my brother, he found a sh, rattlesnake and he thought it was one of those play snakes, and he, he said, "Gee, look at this play snake," and my Dad goes, "That ain't no play snake, that's a real snake." My mother, "Drop that durn thing you, and get in here and wash your hands."

9-Year-Old Boys

Narrative # 72

H: And when we were playing, one day there's a, there's something, we were playing. My neighbor pushed me down in a big puddle. And it came up over my head. It went like that. I mean, when I fell backwards it was like that. And I fell back in backwards.
E: You fell in backwards.
H: I fell in backwards, and then my Mom told me to stay like that and
E: Your Mom told you to stay like that?
H: Yeah, and then, we started playing in it again. I got even worse. He got pushed in twice. And I got pushed in twice. And it was my friend, my big friend, my best friend. Then he pushed, he pushed us in. Every time we'd try to get him he'd throw us over in the water. And then one time, he, I was heading towards him. He had Jimmy, and he threw Jimmy at me. And it knocked both Jimmy and me in the water. Then me and him started getting and

jumping all over him, trying to get him, throw him in the water. Only he wouldn't go. He was hanging onto the tree.

E: He was hanging onto the tree?

H: He wouldn't go. He was afraid. Only when we got up we were soaked. We hardly could move, it was so cold.

E: You hardly could move? So cold?

H: Brrrrr, so I told him to go home.

Narrative # 73

E: Did you ever get a shot like that in the doctor's office?

J: I had strep throat once and I was, it looked like three foot long (laughs). Man, shew, once I saw a baby and finally she had to get it one morning. I heard a screaming noise. All of a sudden the baby comes out of there and she's still screaming like bloody murder. She keeps on screaming, then she went out the door, right out the door and I was way in the back lot and I could still hear her. She was screaming and screaming. Wouldn't stop. I don't blame her. Those things hurt.

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END NOTES

1. Cather, W. A Lost Lady, p.10, New York: Vintage Books, 1972 (first published, 1923).

2. The correlations are not large, but they are there. This matter is more thoroughly discussed in Deese, in progress.
3. Since writing this, Mandler and Goodman have stated their position somewhat differently in a recent paper titled "On the psychological validity of story structure," delivered at the annual meetings of the Psychonomic Society, November 1980, St. Louis, Missouri. Their position is now much closer to our own, "A story schema is a kind of mental structure and/or processing mechanism. However, one of the tenets of schema theory is that schemata consist of expectations built up from experiencing certain regularities in the environment" (p.2).
4. Recently, Stein and Trabasso (in press) have suggested that children may have a concept of story that differs from that of adults; more specifically, children (particularly younger ones) are more likely to identify reactive sequences as "good stories" than are adults. Thus, younger children seem to consider reactive sequences and goal-directed episodes as equivalently acceptable structures for stories. However, "as children develop, their concept of story should become more detailed, so that if a sequence does not contain certain features, it will not be labeled a story)" (p.62). We have no disagreement with this, unless a necessary feature is considered to be a goal, as is implied by Stein and Trabasso, and by Glenn and Stein.