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ON IMPORTANCE HIERARCHY AND EVALUATION DEVICES IN NARRATIVE TEXTS*

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INTRODUCTION

Narrative texts — like other texts — consist of diverse information which can be organized into narrative units like actions, events, moves, etc. These units relate to one another in various ways: structural relations, coherence relations, causal relations, relations of hierarchical importance, and so on.

The last mentioned — the relations of hierarchical importance, has received relatively little attention within literary and text theory, despite the fact that they are so crucial. Their centrality is conspicuously revealed in recall and summary experiments, which reflect the various levels of the comprehension and processing of the narrative (and non-narrative text). The results of such experiments show clearly that the organization of narrative units into hierarchical relations is a dominant factor in the process of comprehension and storage of information. Generally, the "important" information is stored in memory, and it is this information which is retrieved by subjects in recall and summary tasks. The other information which is considered "less important" is likely to be "forgotten" or deleted in these tasks.

Since not all the information in a text can be stored in memory, the reduction and storage of important parts to stand for the whole plays a central role in the cognitive processing of the text.

* This paper is a revised version of a chapter of a PhD thesis written at Tel Aviv University under the supervision of Prof. Tanya Reinhart.

I am indebted to Tanya Reinhart for her fruitful suggestions and help during the writing of this article, as well as for all the time she devoted to discussions of the various issues presented in the article. Thanks are also due to David Fishelov and Inbal Gozes for their helpful comments.

1. The hierarchy discussed in this paper is a relation holding between narrative units and other narrative units, and not between non-narrative and narrative units.

Considering this and other psychological and linguistic evidence supporting the existence and centrality of hierarchical relations within the text, we can postulate that a full theory of narrative-text structure should account for the hierarchical structure of the text. Such a theory should describe and explain the principles underlying this hierarchical structure.

In this paper I would like to introduce an argument concerning the problem of the hierarchical organization in the narrative text,² and use it to discuss several rudimentary parameters within which I think the issue could be fruitfully treated. The first three sections will introduce two basic polar approaches to the question of what factors determine the hierarchy in narrative texts.

Section one will introduce Labov and Polanyi's position, that the hierarchy is not usually determined by the structural and/or semantic relations holding between narrative units, but by devices in the "expression" level of the text — the *Evaluation* devices. Sections two and three will introduce in a detailed manner the opposite position, common to a wide variety of Structuralist and Cognitive theories of the narrative text. According to this position, the hierarchy is determined solely and unequivocally by the structural-semantic relations. (A detailed discussion of these relations will appear in section three.) The immediate implication is that elements belonging to the "expression" level do not play any role in the process of constructing the hierarchy.

In section four I shall argue that although the hierarchy is usually determined solely and unequivocally by the structural-semantic relations, there is an important exception: the case of *Hierarchical-Ambiguity*. In this case, the structural-semantic relations and the hierarchy rules applied to them, provide the reader with two (or more) alternative hierarchies, i.e., there is ambiguity as to the *actual* hierarchy in the text. My second claim will be that in such texts, a primary means for removing the ambiguity are the evaluation devices. Both claims are validated by an (informal) experiment which tests readers' understanding of such a case. The conclusion will sum up the main parameters developed in the course of the argument for handling the hierarchy problem.

1. EVALUATION DEVICES AND THE HIERARCHY

Let me begin by introducing the notion of evaluation as developed by William Labov (1972). Labov deals with the structural formal description of stories presented orally. According to his analysis,

2. The term "hierarchy" as used in this paper, refers exclusively to hierarchy of *importance* and not to other possible hierarchies. The term "narrative text" is used here to refer to short and relatively "simple" narrative texts, although the conclusions could be developed in order to include less simple narratives.

relating the sequence of events is not the only function the story fulfills. Another central function is the *evaluative function*, i.e., conveying to the reader the purpose or the aim of the story — its *raison d'être*, why it is being told at all, and what the narrator intends.

This function is essential, since usually the sequence of events alone is not particularly interesting, and it is impossible to infer from it the story's *raison d'être*, a function fulfilled by what Labov defines as evaluation devices.

Tanya Reinhart, who further developed the study of evaluation devices and their functions,³ classifies these devices in a somewhat different manner to that of Labov.⁴ Moreover, Reinhart suggests a sharper distinction between two basic functions (not distinguished explicitly by Labov or by Polanyi (1976), who developed Labov's theory) of the evaluation mechanism: 1. Building (or marking) the meaning of the story. Since the assumption is that events by themselves are usually neutral, we need devices to mark their meaning. 2. Marking the important (or central) points in the sequence of events. These points are marked by what might be called *evaluation focus*, i.e., a concentration of evaluation devices at a given point which specify the point as an important one.

This latter function links the discussion of evaluation devices to the issue raised by the present paper — the importance of hierarchy in narrative texts.

The question now arises why the narrator should mark the important or central narrative events. It is possible to take the same

3. This was developed during a course ("Information Structure") held in 1980/1981 at Tel Aviv University, and in a lecture given at the Porter Institute for Poetics and Semiotics in 1981: "A Functional Approach to the Aesthetics Function."

4. For the reader who is not acquainted with Labov's notions, I shall specify them along the lines suggested by Reinhart, who redivides the evaluation devices into two main groups: 1. external evaluation, e.g., direct commentary of the narrator about the importance of a certain event. This type will be left untouched in the present paper; and 2. internal evaluation. I shall refer here to two main groups that are relevant for the example to be discussed in section 4.3: I. Equivalences; II. Comparatives.

I. *Equivalences* are of two sorts: (a) *semantic equivalences*: e.g., synonyms, and (b) *repetitions*, e.g., lexical repetitions of the same lexical item, syntactic and prosodic repetitions. These repetitions stress certain meanings which are thus marked and can be assigned to the neutral events in the story.

II. *Comparatives* are of two sorts: (a) *metaphorical expressions* in which there is a comparison between two states or objects, one of which actually exists, and (b) *modalities*, which term refers to comparisons between an actual state and a state which is wished for, feared, which happened in the past, or is morally condemned, etc.

Both in metaphorical expressions and modalities, the actual situation (state or event) is evaluated by the non-existing situation through the comparison. For example, an actual event is interpreted not as just a neutral event — which would be the case without the comparison — but rather as one which has never been, happened, or a highly desired one, etc. This is the sense of evaluation used here.

line as taken in the case of the first function (i.e. marking the story's meaning). In other words, we could say that the hierarchical relations are not presented within, nor are they inferable from, the narrative units themselves, since those units are neutral and/or equal to one another with respect to their importance.

Such a position would claim that narrative units do not possess hierarchical organization independent of the actual text in which they appear. An event which is central in one text might be peripheral in another text comprising the same sequence of events but which, for example, uses the evaluation devices differently. Therefore, we need devices outside the sequence which will signal the central events; such devices are the evaluation devices.

In fact, this is the position taken by researchers like Polanyi, who says: "The only difference between crucial and background information is that one is seen as important within the context of the narrative text and the other is not. Crucial details are crucial only because they are evaluated by the narrator as important *or* because they are *believed* to be crucial by both narrator and audience because they contain materials which *would be important* if it occurred in real or extra-narrative life" (p. 61, crucial information here means information that has been evaluated. Y.S.). According to Polanyi, then, information is important only if it is evaluated or if its semantic or cultural "load" is high (for example, information about extreme danger).⁵

The main implication of such a position, with the uninteresting exception of semantic-cultural "load," is that the hierarchical structure is not determined in relation to or by the semantic and/or structural relations holding between narrative units; the reader's need to construct such a hierarchy is fulfilled by the evaluation devices.

2. THE COGNITIVE-STRUCTURALIST APPROACH

A basically different approach to that of Polanyi is presented in various theories of narrative-text structure which have addressed themselves to the hierarchy issue to various degrees of specificity. In this paper I will deal mainly with structuralism in literary theory and text theory, for example, Propp (1968), Barthes (1966), Pavel (1978), Prince (1973), and others, and the theories investigating cognitive aspects of the comprehension of a story, for example, Rumelhart (1975), van Dijk and Kintch (1977), Mandler and Johnson (1977), and others.

5. Ljvia Polanyi (personal communication) made it clear that she is aware of the central function of story-schemata and story structures in the construction of the hierarchy by the reader. Therefore she felt that my formulation of her position is presented in too extreme a manner. But given Polanyi (1976) and Polanyi and Hopper (1981) I still feel that my formulation of Polanyi's position is adequate in view of her claim quoted above.

The position common to these theories begins with the basic assumption that a given story can be narrated in various ways but will nevertheless remain the same "story." This heterogeneity in representing the same sequence of events (i.e. the "story") belongs to what is called the *expression* level, or alternatively the "surface" level, of which the evaluation devices are a part.⁶ Therefore, a theory dealing with the structure of narrative, does not have to include reference to the expression level. Prince, for example, states explicitly: "A grammar of stories does not have to be concerned with the description of the expression side of stories" (1973:13).

Therefore, since the description of a narrative text does not have to include the expression level, and since we can assume (as is done in these theories) that part of the narrative-structure description (in Prince's terms the story grammar) has to reflect the hierarchical organization of narrative units, we can conclude that the hierarchical structure is not dependent on such elements as evaluation devices.

As I have said, this approach is common to at least two main streams of structural research into the narrative text ("Structuralist" and Cognitive theories). In order to take my basic argument one step further, I would like to describe and explain, albeit briefly and schematically, the characteristics of the basic approach common to these theories vis à vis the hierarchy problem.

2.1. The Cognitive Approach

The cognitive approach investigates narrative structure from the point of view of the comprehension and processing of the narrative text.⁷

Since what actually goes on in the cognitive process is not given to direct observation, the only observational evidence on which the investigator can rely are the protocols of subjects recalling and/or summarizing stories they have read. The assumption is that these protocols reflect the comprehension process of the readers. It is further assumed that the information recalled, or selected to function as the summary of a given story⁸ is the "important" information which is stored in memory to represent the whole text.

Since assigning a hierarchical structure to a narrative is a central part of comprehending that narrative, and since this hierarchical structure is reflected in the reader's selection of the "important" information from the rest of the text, it is possible to conclude

6. By definition, the evaluation devices are not part of either the narrated events or the background information which is a part of the causal chain of events.

7. The empirical study of the way stories are comprehended and stored in memory is quite new. For a general introduction, see van Dijk (1980), Sanford and Garrod (1981).

8. According to several theories in this field, there is a high correlation between the recalled story and the summary of the story, for example, van Dijk (1980), Sanford and Garrod (1981).

that the protocols reflect (at least a part of) the comprehension process.

Schematically, this comprehension process is comprised of two sub-processes which are ordered logically rather than chronologically:

1. The organization of the information into cognitive schemes. These schemes are abstract representations of knowledge with which the reader approaches the actual text. The first sub-process, then, is the assignment of the text's propositions to the abstract categories of the scheme, such as a move, a problem, a solution, etc., depending on the scheme suggested. At this stage, the text is organized into structural units (the categories) and the structural and semantic relation holding between those units.⁹

2. In the second sub-process, occurring parallel to the first, the reader organizes those units (for example the moves) into hierarchical relations of importance. This is done by assigning hierarchical rules which work on the structural and semantic relations holding between the narrative (structural) units. These rules state, for example, that if a given unit maintains a given (structural or semantic) relation to another unit, then the first unit will be placed lower in the hierarchy. (I will discuss this in greater detail in section three.)

These sub-processes result in a hierarchical structure. What should be stressed at this point is that a particular description of the hierarchical structure of a text is merely a description of the text itself and not a description of a real *cognitive* organization of that text. In order for it to become a description of a "real" *cognitive* organization and processing of the text, it has to become a good predictor of readers' recall and summary protocols. In other words, if information located higher in the hierarchy tends to survive in recall and summary more than information located lower down

9. Two further remarks should be added to this description. Firstly, the difference between structural and semantic relations is not included within the scope of the paper. However, in order to explain the difference as it is used in the present paper, we can refer to the right half of Table 1. Here we find under "strong causal relations," two semantic relations under the label "problem-solving relations," and structural relations under "strong structural causality." In the case of semantic relations (i.e., mean-end and part-whole relations) what determines the relations between the moves are the semantic relations holding between the *same* structural categories (i.e., the solution in Move A and B). The difference between the semantic relations of the same category, then, is what counts here, and not the structural relations. Structural relations, on the other hand, are indifferent to the specific semantic relations holding between two given moves. In the case of "strong structural causality," it is not relevant which semantic material is included in the solution of Move B and the problems of Move A (as long as they are semantically equivalent). What counts here in determining the relations between the moves is the different structural role that the same semantic material fulfills.

Secondly, it should be noticed that each hierarchical rule is defined for cases where all other things are equal. If it is not the case, then other factors should be considered.

this structure, then we can assume that the structural scheme has cognitive validity.

The point I wish to emphasize is that *the hierarchical relations holding between the narrative units are based on (or are determined by) the structural and semantic relations holding between those units*. The connection between these two kinds of relations (i.e., the hierarchical and the structural-semantic) is determined by the rules which relate hierarchy to structural and semantic relations. (A more detailed description of this is given in section 3.2.)

2.2. The Structuralist Approach

The hierarchy problem is marginal or at least less central within structuralist literary and text theories than within cognitive theories. Nevertheless, there are several characteristics common to the cognitive and the structural approaches.

In order to demonstrate this, I will mention briefly two representative references¹⁰ to the problem. (Pavel's position, which might represent the structuralist-theory approach to the notion of embedding is discussed briefly in section 3.1.)

Propp (1968), in his classic study, characterizes the eighth function in the folktale (the villain performing his villainy) as a "particularly important" one, whose importance is reflected by the fact that it can never be deleted from a folktale, while almost all other functions may be. The criterion for determining this is what might be called the principle of *structural control*: the function "controls" a large group of the functions, in the sense that some of them serve as *preparatory functions* (Propp's term) for it, while others are affected directly or indirectly by it (e.g., the kidnapping of the heroine's brother which gives rise to rescue sequences).

Barthes (1966), who also refers to the hierarchy problem defines the function as a basic narrative unit, and locates this unit at the *story level* (as opposed to the *discourse level*). He distinguishes between *kernel*s versus *catalyses*, i.e., between major and minor functions respectively. The criterion underlying this distinction is similar to that of Propp: kernels are those functions that open, maintain, or end alternatives affecting the continuation of the chronological sequence of events.

According to Propp and Barthes, then, the hierarchy is determined by the structural-semantic¹¹ relations. Moreover, there is no reference in their approach to whether or how the expression (discourse) level may affect the hierarchy. In these respects, the structuralist and cognitive approaches are identical.

10. I assume that the reader is better acquainted with the general approach of these theories.

11. In both Propp and Barthes, the distinction between structural and semantic relations is less clear than that within the cognitive approach. (See note 9, above also.)

3. SEMANTIC AND STRUCTURAL RELATIONS AND THE HIERARCHY RULES

3.1. *Combination of Narrative Units*

At this point I need to introduce some of the semantic and structural relations as well as the relevant hierarchical rules which determine the hierarchical structure of the narrative text. Once this has been done, the next stage will involve demonstrating that there are cases where we cannot assign those hierarchical rules to the relevant semantic and/or structural relations.¹² In order to introduce the general picture, I will make partial use of Pavel's (1978) basic narrative unit, the *Move*.¹³ The move is performed by a *Character* and it consists of a *Problem* (P) confronted by the character, and a *Solution* (S) to that problem. In addition, there are *Auxiliary* (AUX) events or moves (the system is a recursive one), intermediating between the P (problem) and the S (solution). The moves might be further organized on a higher level into combinations of moves. As claimed by several researchers (for example, Prince), in a partial analogy to the sentence level, we can distinguish three types of combinations:

1. *Conjoining*. A given move simply conjoins to another move. For example: Move 1: X wants a book (P₁) and gets it (S₁). Move 2: X wants a car (P₂) and gets it (S₂). If these moves appear one after the other chronologically, then they are conjoined.

2. *Alternation*: Move 1 alternates with Move 2. For example: X is drowning at sea (P₁) because Y tried to get rid of him by drowning him (P₂ — since it creates a problem for those who want to punish Y). X is saved by praying (S₁) and then (without a causal connection to the saving itself) Y is punished by X's friends (S₂). In this example, the chronological order is not such that one of the moves starts *after* the point that the other ended (i.e., conjoining) but rather the two moves overlap chronologically.¹⁴

12. I want to stress that this is only a very partial and rough description of the structural-semantic relations and the hierarchy rules; moreover, only some of them appear explicitly in the cognitive and structuralist theories while others can be inferred.

13. This unit is basically similar to traditional units like "Episode," used by Rumelhart (1975), and others, and "Move" as used by Propp (1968), etc. For that reason, I use this unit as representative.

14. In Prince (1973), Todorov (1971), and others, this is actually a combination of embedding, since one move is "embedded" *chronologically* within the other move. Here I use a criterion for embedding different from that of Prince. Following Pavel (1978), I define embedding in terms of the *causal* connection between moves. The result, then, is that alternation in my classification includes both alternatives and embedding as defined by Prince. Alternation according to him is a case where an event belonging to Move₁ is followed by an event belonging to Move₂, followed by an event belonging to Move₁, followed by an event belonging to Move₂. Embedding is thus a different phenomenon according to my classification.

3. *Embedding*. Move 1 is embedded in Move 2. For example (taken from Pavel): Move 1: A priest catches a commoner in adultery (which creates the priest's problem), and arrests the commoner (the solution). Move 2: The commoner is under arrest (the commoner's problem), and by discovering information about the priest's own adultery, and hinting as much to him (an "auxiliary" in Pavel's terms) he wins his freedom (the solution of the commoner's problem). In this case, the priest's solution is semantically equivalent to the commoner's problem. Since, according to Pavel, the solution is the more central part of the Move, and since the solution of Move 1 is semantically equivalent to the problem (i.e., the less central part) of Move 2, it is assumed that Move 1 is embedded within Move 2. Note that this notion of embedding is based on direct *causal* relations between moves, whereas the two former combinations (i.e., the conjoining and alternation) involved only chronological relations between moves (see also note 14).

Although there are apparent similarities between these combinations and the ones used to describe combinations at the sentence level, the main difference is that a theory of text structure must reflect the fact that in *all* those combinations there exist hierarchical relations whereas it is not certain that a sentence level theory must meet this requirement.¹⁵

3.2. "Basic" Versus "Preference" Hierarchy Rules

As I have already said, embedding is based upon *causal relations* that exist between the moves, while the other combinations do not, by definition, include such relations. The distinction between the two types of combinations directly correlates with another distinction: that between "basic" and "preference" (or "weak") rules. The "basic" rules operate when causal relations exist between moves, i.e., where embedding is involved, whereas the "preference" rules operate in all other cases, where alternation or conjoining are involved.

The distinction between "basic" and "preference" rules means that when a "basic" rule and a "preference" rule are in contrast (i.e., when each of them determines a certain hierarchy in contrast to the hierarchy determined by the other), then the actual hierarchy as perceived by the reader is determined by the "basic" rule. The procedure for determining the hierarchy is then based on the following steps: (1) We look for causal relations between moves. If they exist, then we use the relevant "basic" rule. (2) If there are no such causal relations, we look for other structural semantic relations and try to use the relevant "preference" rule. When neither

15. It seems that on the sentence level the problem of "importance" hierarchy is limited only when we speak of embedding (see for example Erteschik-Shir and Lappin 1979).

the basic nor the "preference" rules are operable, we make use of a third procedure — namely evaluation devices. This procedure will be discussed in section four.

The whole scheme just outlined is represented in Table 1. There are several points to be noted in this table:

1. The correlations between three distinctions: the types of move combinations — embedding versus conjoining and alternation; the kinds of relations — causal versus non-causal; and the types of hierarchical rules — "basic" versus "preference." Hence, embedding on the one hand, and conjoining and alternation combinations on the other, correlate with causal and non-causal relations respectively, and both correlate with "basic" and "preference" rules respectively.

2. For each semantic or structural relation there is a relevant hierarchy rule (under it in the same column). For example, in the extreme right-hand column, the semantic relation between the two given moves is that the solution of the one is the means to achieve the solution of the other, and the relevant hierarchy rule (located under it in the column) states that the "Mean" move is to be placed below the "Solution" move.

3. It should be noted that the hierarchy rules are not automatically or logically implied by the structural-semantic relations. The connection between the hierarchy rules and the structural-semantic relations must be constructed in terms of the way actual readers use their cognitive competence in comprehension and storage of information, and *not* in terms of some logical or other implication. Hence it is clear that the connection must be confirmed empirically by recall and summary experiments.

3.3 Intermediate Summary

The main points of the cognitive-structuralist approach to the hierarchy problem may now be summed up:

1. A theory of the narrative-text structure should account for the hierarchical structure of the text.
2. This hierarchical structure is determined by hierarchy rules operating on the semantic and structural relations holding between narrative units.
3. The immediate implication of these theories (which is stated explicitly by some theorists, as for example Meyer 1975) is that elements belonging to the "expression" level of the text do not influence this hierarchy. The most these elements can do is to mark as important those narrative units already determined as important by semantic and structural factors. What these theories do not account for, in theory as well as in textual analysis, is the possibility of hierarchical ambiguity, i.e., a case in which the narrative units can be organized into alternative hierarchical structures. Moreover, even if this case could be accounted for by these theories, it seems

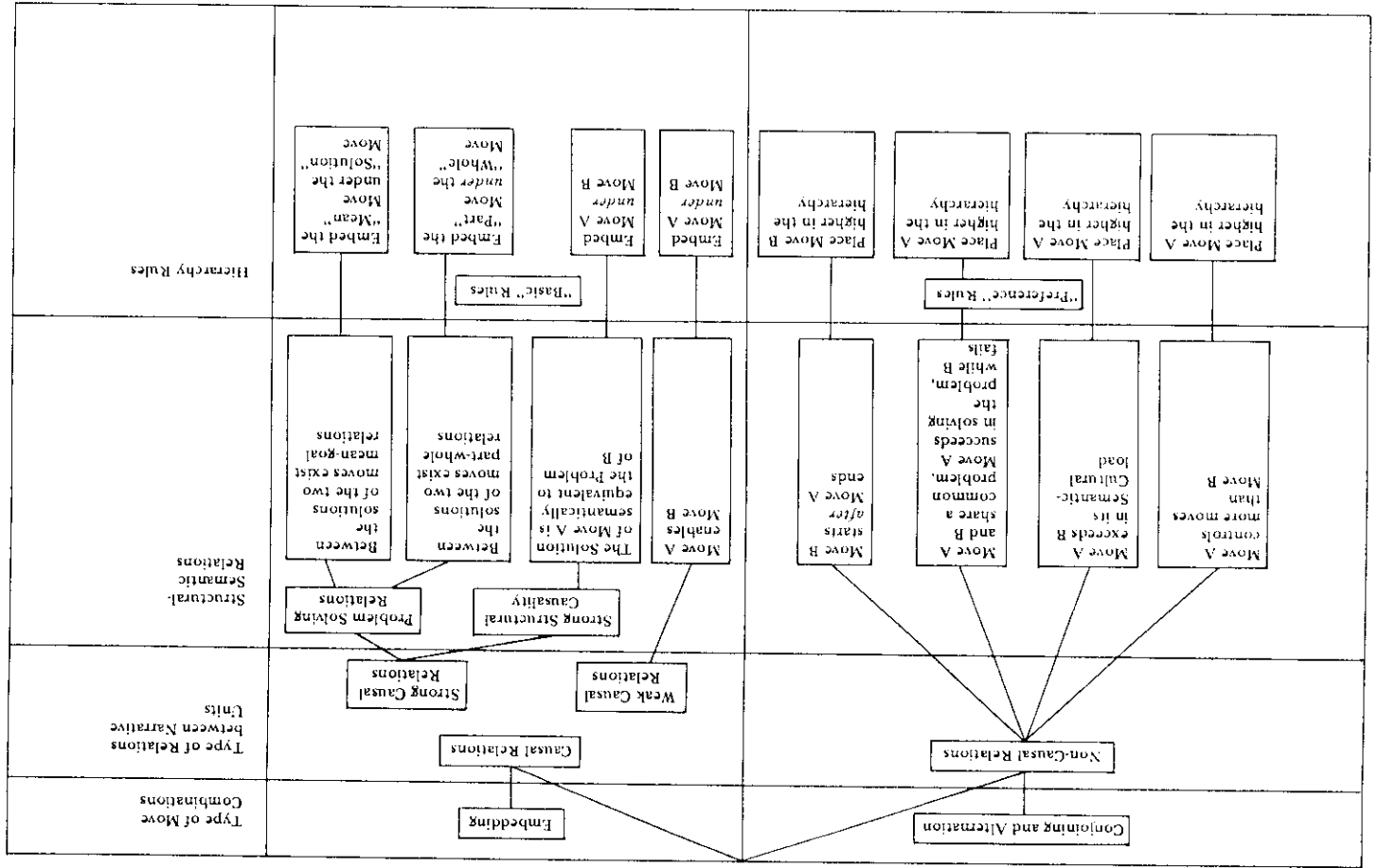


Table 1

impossible within this framework to explain the empirical fact that readers actually do organize the text into one unequivocal hierarchy.

The inability to explain this empirical fact is the result of excluding text as part of the description of the "story" structure and, by implication, the hierarchy of the story (see section 2). In the next section I will argue that in the case of "hierarchical ambiguity," a primary means used by texts to remove the ambiguity is the evaluation mechanism, which is part of the expression level.

4. HIERARCHICAL AMBIGUITY AND THE EVALUATION DEVICES

4.1. *The Evaluation Devices: The Second Answer*

Before I discuss the case of Hierarchical Ambiguity let me return to the starting point of this paper, namely the question of why the narrator should use evaluation devices to mark the important narrative elements. The use of such marking devices seems redundant in the light of the cognitive-structuralist approach which states that the hierarchical relations are determined by structural-semantic factors. One way to solve this potentially problematic redundancy would be the following argument: In building the hierarchical structure, a distinction can be made between two phases of the reading process: 1. the various stages of the reading process itself; and 2. the end of the reading process. When the reader reaches the end of the text (the second phase), he has *all* the information required for constructing the narrative units, their semantic and structural relations, and the whole hierarchical structure. On the other hand, while the reader is still in the middle of the reading process (the first phase), he does not have all the information required for constructing the hierarchical structure. Therefore, he needs "instructions" from the narrator as to how he should treat data encountered in the reading process. These instructions are the evaluation devices.¹⁶

4.2. *The Case of Narrative Ambiguity*

We could accept this as the only answer if we assumed that the narrative hierarchy is always determined unequivocally on the basis of the semantic and structural relations.

But I want to counter this position by suggesting a third answer to the basic question of why we need evaluation devices to mark the important information.

This answer will, on the one hand, reject the position taken by Polanyi (see section one), who says that there is no hierarchy which

is independent of the evaluation devices (with one exceptional case), and on the other, will also reject the cognitive-structuralist position that the hierarchy can always be determined unequivocally by the relevant semantic and structural factors.

I would like to claim that there is a set of texts for which we cannot construct the hierarchy using these (and other) hierarchy rules. This occurs in those cases where sequential moves have no direct causal link, hence "basic" rules are not operable; similarly, the other, non-causal, relations are not such that the "preference" rules can be applied. This may be the case either because they are equivalent (e.g., when their semantic load is roughly the same,¹⁷ when the two moves control approximately the same number of other units), or because they are in conflict, and there is no other reasonable criterion of decision (e.g., when Move 1 is semantically more loaded, but Move 2 structurally controls a greater number of narrative units). These are cases of what I call *hierarchical ambiguity*. Secondly, and more importantly, I suggest that a principal device used by texts to remove the ambiguity is the evaluation mechanism.

4.3. *The Experiments*

In order to confirm my claims, I examined a very simple and schematic short story,¹⁸ of which the following is a brief summary. Halafu, a Jewish fisherman, would not agree to fish using explosives, as demanded by the Arab fishermen of his village. Because of this the Arabs decided to harm him. One day, they invited him to go fishing with them, and in the middle of the sea, while Halafu was swimming in pursuit of a big fish, they abandoned him. He began to drown, but after an hour and a half of fighting the stormy sea, suddenly recalled the Jewish prayer, "the Song on crossing the Red Sea," and started to repeat it; by so doing, he was saved. Later, the Jewish fishermen in Halafu's village prosecuted the Arab fishermen, and the court punished the Arabs severely.

The Story can be divided into three moves.

Move 1. The *Problem* for the Arab fishermen is their hatred for Halafu. The *Solution* is their attempt to drown him, an attempt which ends in failure.

Move 2. The *Problem* for Halafu is his drowning. The *Solution* is his praying and being saved.

Move 3. The *Problem* for Halafu's friends (and Halafu) is that the Arabs committed a criminal act. The *Solution* is the prosecution and punishment of the Arabs.

17. A case in point is the example I analyze immediately below. Here my assumption is that being saved from death by prayer and an attempt to drown a man have roughly the same (high) "semantic load" in our culture.

18. This story was taken from a collection of Libyan Jewish folktales (in Hebrew) entitled *Stories of Libyan Jews*, collected by Dov Nov.

In the case of this story, there are two possible Moves, either of which may be the candidate for being the main move: Move₂ or Move₃ (Move₁ is accordingly embedded into either of these moves, since its solution can be interpreted as semantically equivalent to the problem of either of these moves).

When we try to use the hierarchy rules to determine which of the two moves is the main move, we find it impossible to reach a conclusion. The two moves cannot be handled by these rules, as they are not in the kind of semantic and structural relations where the relevant hierarchy rules can operate: the moves are not linked in a direct causal relation in the sense described earlier, i.e., the solution of either is not the direct cause of the problem of the other. The two moves are of the Alternate combination (see Table 1). The "semantic load" of the moves is more or less equivalent (i.e., saving one's life by prayer and punishment for attempted murder); they both end with the achievement of the solution, the structural control of each is equivalent, and so on.

This situation enables the reader to organize the story into two alternative hierarchies: either with salvation through prayer as the main move, and the punishment as a concomitant result — the explanation for its entering into the story being "poetic justice"; or with the punishment of the criminals as the main move.

The evaluation devices were totally deleted from the text,¹⁹ leaving us with *the text minus its evaluation devices*. This reduced text was presented to 66 subjects,²⁰ who had no limitation on reading time.

After the reading, the subjects were presented with the following question: What do you think is the central topic of the story? They were given a choice of three possible answers: 1. Attempted murder and the punishment for it; 2. The danger of death and salvation through prayer; 3. Undecided.

The assumption was that choosing either of the first two topics would indicate the subject's determination of the actual hierarchy: choosing the first topic would indicate choosing the third move as central and the second move as peripheral, whereas choosing the second topic would indicate the reverse ordering of the moves. My hypothesis was that since there is no way to determine the central move of the story there would not be a clear-cut or unequivocal trend in the way the subjects chose between the possible topics (and in addition, a relatively large percentage chose the third, neutral, answer).

19. In identifying the evaluation devices and in changing the remaining sentences in a controlled and reasonable way, I was aided by Tanya Reinhart, whose help I here gratefully acknowledge.

20. The subjects were students from Tel Aviv University, Haifa University, and Beit Berl College.

The results were as follows. Out of 66 subjects, 25 chose the first topic (38%); 29 the second (44%), and 12 subjects chose the third possible answer (18%). These results confirmed my hypothesis, that there was no clear-cut tendency towards one of the topics suggested (the difference between 38% and 44% is not statistically significant); in addition, 18%, a high percentage by comparison with the second experiment, chose the third possibility, i.e., a relatively large group could not decide about the hierarchy.

The second experiment was intended to confirm my second hypothesis, namely, that in the case of hierarchical ambiguity, the evaluation devices can be a primary means of determining the actual hierarchy. In order to test this hypothesis, the original text about the fisherman (i.e., the text containing the evaluation devices) was presented to 61 subjects.²¹ In this case, the evaluation devices clearly mark the hierarchy relevant for the second topic (the danger and salvation), since the *evaluation focus* (i.e., the largest concentration of the evaluative devices) is located between the drowning of the fisherman and his being saved by prayer.²²

The subjects were presented with the text, again with no limitation on reading time, and were then asked the same question and given the same three possible answers as in the first experiment. My hypothesis was that since the evaluation devices clearly mark the second topic, there would be a strong tendency towards choosing the second topic, and in addition, fewer answers choosing the third, neutral possibility.

21. This time of course there were other subjects, but from the same academic institutions.

22. The evaluation focus of the story is located in the following extract: "Halafu swam for about an hour and a half, and lost almost any hope of staying alive because he was tired and weary from his great effort. Suddenly, he recalled the 'Song on Crossing the Red Sea,' sung on Saturdays during the reading of *Parshat HaShavua* [the weekly portion from the Torah — Old Testament]. Since he had been a boy he had listened to the 'Song on Crossing the Red Sea,' and he remembered that this holy song, whose meaning he did not understand, was a remedy against drowning, and that it was appropriate as a submission to the master of the sea. Now, when the stormy waves were about to wipe him out, and there was none there to save him, he suddenly recalled the holy words, imprinted in his mind from his youth, and started to repeat them . . . and suddenly he felt that his legs were standing on the rock."

This passage is a concentration of evaluation devices, to mention only a few of them, note the following: (1) semantic equivalence: "tired and weary"; (2) metaphorical expressions: "the song is a remedy imprinted on his mind"; (3) modal expressions of various kinds: "he almost lost any hope of staying alive," a comparison between his actual situation and the (desired) situation of being saved and staying alive; "were about to engulf him out" — an allusion to the Bible, i.e., a modal expression; etc.

This concentration of the evaluation devices, which includes others not mentioned above, "suspend" the flow of the narrative clauses, and by this concentrated suspension construct the "evaluation focus" of the story, which marks as of exceptional importance the event which is going to happen, i.e., his being saved by the prayer.

The results were as follows: Out of 61 subjects, 9 chose the first topic (15%), 45 chose the second topic (74%), 7 subjects could not decide and chose the third answer (11%).

These results confirmed my hypothesis. There is a strong tendency towards choosing the second topic and rejecting the first one. The results become more convincing if we compare it to the results of the first experiment. There is an impressive increase in the number of those who chose the second topic — 70%. At the same time, there is a decrease of 60% and 39% in the number of those who chose the first and the third answers respectively. This data clearly shows that the evaluation devices removed the ambiguity, and enabled the readers to construct the hierarchy unequivocally.

CONCLUSION

The primary aim of this paper was to present an argument concerning the construction of hierarchy in the text. But beyond presenting this argument, the aim was to indicate several initial and partial parameters of how the problem could be fruitfully handled. Three points should be stressed:

(1) The basic distinction here is between the two fundamental axes by which the general lines of constructing the hierarchy in a given text can be drawn. Firstly, the semantic and structural relations holding between the narrative units; and secondly, the lexical-textual devices which belong to the expression level, and function as hierarchy markers. In light of the argument presented, it would appear that these axes are mutually dependent. In each of these axes there are several options open to the narrator. The choice of one of the options on one of the axes (the choice itself might be constrained by extraneous poetic and other stipulations), directly influences an option chosen on the other axis. From Table 1 it appears that, in principle, there is a scale of three basic options in the structural-semantic axis: (a) There is a clear-cut and continuous causal chaining of moves, and the hierarchy is unequivocally determined by the "basic" rules; (b) There is no single continuous causal chain, i.e., it is my hypothesis that in recall or summary tasks, there would be a less marked tendency than in the former case to recall or use as summary those pieces of information determined "important" by the preference rules, *ceteris paribus*; (c) The case of hierarchical ambiguity.

My hypothesis, then, is that there is a dependency between choosing one of the options and the use and functionality of the evaluation devices. In the example analyzed, the choice — for poetic and other reasons — of the option of hierarchical ambiguity, stipulated that *evaluation focus* should be used and located exactly to mark the narrative main move (it should be stressed that the evaluation-focus does not always mark exactly the main move; it

can be placed elsewhere in the text), and to function as the only factor which determines the actual hierarchy of the story.

Future research along these lines can develop the exact dependency relations of the use, location and functionality of the evaluation devices when a narrator chooses the other two options of the structural-semantic axis.²³

(2) Another basic parameter for handling the hierarchy problem concerns the distinction within the scope of the semantic and structural axis, between basic hierarchy rules and the preference rules.²⁴ This distinction is necessary in order to handle those cases where poetic and other constraints compel the narrator to choose a causally cut-off plot (e.g., plots parallel to each other, although admittedly this is an extreme possibility). In such cases, since the text has to be organized hierarchically, we need weaker rules in order to prefer one hierarchical possibility over another. The existence of these rules enables the narrator properly to handle his poetic and other requirements on the one hand, and the necessity of enabling the reader to construct the hierarchy on the other.

(3) The third important parameter developed in the course of the argument concerns the closer connection between the hierarchy problem and the notion of *causality*. As can be seen from the cognitive theories mentioned in section 2.1., the causal organization of the narrative units plays a dominant role in the construction of the hierarchy. The causal organization, in this respect, is not just one more type of organization (equivalent to other types like temporality, analogy, etc.), but rather a dominant factor in the comprehension and storing of information by readers (for a similar and explicit view, compare Schank, 1975, and Mandler and Johnson, 1977). In this paper I have tried to illuminate some additional aspects of the connection between the hierarchy problem and the distinction between causal and non-causal relations.

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23. An initial and informal examination of various stories in Hebrew supplied some evidence of the fruitfulness of that direction.

24. This distinction is the result of a discussion with Tanya Reinhart.

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NOTES TOWARDS A THEORY OF TEXT COHERENCE**

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1. INTRODUCTION

It is widely acknowledged in the field of text linguistics that for a text or a text segment (e.g., a paragraph) to be pragmatically well-formed, it must meet the requirement of cohesion. Of the many recent studies concerned with connectedness as a textual phenomenon that has a linguistic manifestation — such as: Bellert (1970), Vuchinich (1977), Daneš (1974), Enkvist (1978), Gutwinski (1976), Halliday and Hasan (1976) — Reinhart (1980) is the most comprehensive. Reinhart argues that for a text to be coherent it must meet the requirements of consistency, cohesion and relevance.

For Reinhart, cohesion is viewed in terms of linear relations between pairs of sentences that are "either referentially linked [...] or linked by a semantic connector" (1980:168). She further specifies that for a referential link to count as a cohesive device, the linked referent in the second sentence of the pair must be part of the topic or scene-setting expression of the sentence. She adds, however, that if a text fails to be referentially linked it can still be cohesive "if its sentences are connected by semantic sentence connectors" (p. 176).

My controversy with the various theories of coherence regards the function of cohesion in the construction of a well-formed text. I will argue that cohesion as a linear relation that obtains between pairs of sentences is neither a necessary nor a sufficient condition for text coherence (section 2). Moreover, coherence does not obtain linearly between pairs of sentences, and it is thus not transitive in those cases where pairs of sentences do cohere (section 3). My claim is that

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