

## STRATIFICATION IN STORY

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Since the 1960's studies of structures (structuralism in art) and studies of systems underlie language behavior (semiotics) have led to increased effort to formalize theoretical questions of story understanding. The decisive push in this direction is due 1) to the work of folklorists and anthropologists, particularly that of Levi-Strauss; and 2) to the discovery of Vladimir Propp and other Russian theoreticians of the 1920's (Bachtin, Shklovsky, Mikiforov, Eikhenbaum, and others). A number of studies of folklore and literary works appeared under the labels of narratology, grammar of stories, narratics, structural analysis of narrative (Dundes, 1962, Greimas, 1966, Nathhorst, 1969, Hendricks, 1972, Petofi & Rieser, 1973, Prince, 1973, 1974, Van Dijk, 1975). Numerous studies discussed text structure and text composition (Lotman, 1977, Uspensky, 1973), typologies of formulaic and non-formulaic (nonce) texts (Rastier, 1971, Syrkin, 1975, Permyakov, 1979), the status of the narrators in the story (Booth, 1967, Dalezel, 1967, Pelc, 1971 and others). Fewer studies dealt with the aspect of the addressee or the reader (Todorov, 1970, Eco, 1979).

In search of a story understanding model, recent literature in Artificial Intelligence has raised a number of interesting questions. For example, what are the stories and what are non-stories (Black and Wilensky, 1979); what are the subordination principles between various elements of the story (goals and sub-goals), how do you tell if elements go together and what are the relations between these elements (Rummelhart, 1980); what are the elements in the story which are "candidates-for-deletion", when one models the story; is the aristotelian division of story into setting, characters, action and events a helpful segregation for present day analysis and what is the unit of analysis referred to as "event" (Black and Wilensky, 1979); how can we account for the embedding phenomenon in story or discourse; is there a primordial story structure concept (or a traditional one) which allows expectation-driven processing of stories (Mandler & Johnson, 1980); will a layered analysis of texts/stories be productive, specifically if we isolate in our analysis the level of narrative sequences from the level of the world of represented objects (Hobbs & Agar, in preparation).

I propose to outline several topics in story analysis which have received special attention in semiotics and in one way or another intersect with questions raised in artificial intelligence and cognitive science literature.

I will consider some differentiations which can be made between types of texts in grammar building. Specifically I will consider the case of differentiating texts according to whether they require an unequivocal single interpretation or not. I will then consider "within text" differentiation of strata which also may affect grammar building, as is the case with the grammars capturing events in the world of the story, as opposed to grammars capturing events of the narrative sequences (see for example stories with multiple flashbacks).

### Two Types of Texts: Type A and Type B

One of the principal typological distinctions between texts is that of the type "A" (factual text) which calls for a single interpretation and the type "B" text ("mythic" text) which allows for ambiguity and polysemantic interpretation. Type A text may also be referred to in the literature as scientific or "practical" text while type B as artistic text (see Greimas, 1968, Rastier, 1971, Syrkin, 1975, Zavarin & Coote, 1979).

### Content and Expression

In regards to the question raised by Black and Wilensky (1979) as to the kinds of knowledge which are needed to understand story content, one of the first steps is to discriminate the content of the story from whatever else there is in the story. One possibility is to start with the dichotomy of content of story vs. expression.

An important distinction between the two types of texts A and B is that in one type there is an obligatory regulation of the level of content while organization of the level of expression is optional and vice versa (Syrkin, 1975). A factual or scientific text (type A) strives towards an unequivocal organization of the plane of content and towards avoidance of contradictions, while regulation of the expression plane is not required. In a type B text (folklore or artistic text) equivocal interpretation or polysemanticism is desirable since it allows different societies, cultures and different periods to interpret a text in various ways. For example, there seems to be an infinite possibility to come up with a new interpretation of a classic artistic text (see multiple interpretations of Shakespeare's plays; see also controversial interpretations of classic works by the recent French critic Barthes, 1964). Type B text (artistic, mythic text) however, requires strict regulation of the expressive plane. Here the system of expressive means may be represented by elements of style, genre, artistic school, and the conventionalities attached to them. Different expressive systems are also superimposed by the language, its multiple cultural expressions and dialects. Artistically accomplished texts have been traditionally viewed as texts in which the artist "striked out the unnecessary", ergo the tabu of adding, or deleting something on the expression level of the artistic text. A type A (scientific) text may or may not be stylistically accomplished and may or may not have metaphorical or figurative expressions as its elements. The only obligatory feature is that this type of text must yield only one and not multiple interpretations. It should be noted that type B (mythic, artistic) text may be clear of metaphoric or other figurative devices and only be figurative (metaphoric) as a whole, yielding multiple interpretations applicable to many real life situations.\*

\*Type A texts are as well represented in folklore as are type B texts. Compare:

#### Type A Texts:

- 1.--Ishodo gave Indai a pot in which poison had been prepared. Indai asks: "If I cook food in it will those who eat the food die?" Ishoko responded: "Take the pot, put hot coals in it, and put it on fire. When the coals are burned up, you can cook food in the pot." (Bushmen text)
- 2.--Rye says: "Sow me in ashes and in time." Oats says: "Stamp me in dirt and I will be the king."
3. It should be noted here that Black & Wilensky's (1979) text about how to catch a fish is a perfectly justifiable example of a story text. Procedural texts such as how to catch an animal, how to make clothes, or how to prepare food, etc. are abundant in folklore. The differences between Black and Wilensky text and a folklore one is that theirs is a nonce, type A text as opposed to a formulaic type A text found in folklore.

#### Type B Text:

The Perishing of an Eagle. An eagle was flying in heaven, and shot down by an arrow, he was astonished. Who did that? He looked at the arrow and saw his own feather, he then said: "Woe is me! I am the cause of my own destruction."

Examples of contaminations of various types of texts can be exemplified as follows: the detective story demands a necessary regulation of content as all type A text; but

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### Within Text Differentiation of Strata

In proposing a story grammar Rummelhart (1980 and previous work) explains that at its basis is a theory of summarization. According to Rummelhart (1980) the important question is to determine the relevant portions of a story for summarizing. But we can always ask the question: relevant for what kind of summarizing and relevant in what way. If we consider that coherence may occur on a number of strata it is necessary to state which stratum one is subjecting to analysis and summarization. We can segregate

- 1) the stratum of sound;
- 2) the stratum of the world of represented objects-- here we could study separately within the world of represented objects, represented space, time, or alternations of points of view, etc.; next we can investigate and summarize
- 3) narrative sequences; and
- 4) the stratum of meaning units and relations between the actants.

Let us exemplify some of the levels by using the selection of the "Margie" story by Rummelhart (1980).\* I will not discuss the stratum of sound and thus start with Stratum Two.

### The Stratum of the World of Represented Objects: The Diachronic Model (Stratum 2)

In Rummelhart's analysis, the story summary has the following schema: something happens to the protagonist, the happening triggers a goal, the protagonist gets involved in problem solving activity. The stratum of the world of represented objects has been given special attention by Propp (1968) and Greimas (1966) under the title of functional model. The Propp-Greimas model gives us an elaborate enumeration of story events or functions which may or may not be explicitly mentioned by the author. Propp's scheme can be summarized as follows: first, details about the birth of the protagonist; an initial situation which is unstable; a state of affairs with a certain contractual relation between the protagonist and the environment which is unsatisfactory; the breaking of the contract which leads to an initial event triggering a goal. After the initial event a number of changes occur which lead to a goal or to the final state. A new equilibrium is then established. A number of helping agents or antagonists modify the action along the way.

The particular "changes" have been sketched out by Propp-Greimas and Schank and Abelson in similar terms. The functional model can be compared to the model of "plans" in the Schank & Abelson tradition (Schank & Abelson, 1975, Abelson, 1975). Propp-Greimas functions (hereafter referred to as P/G) and "deltacts" in Schank & Abelson (1975) (hereafter referred to as Sch&A) may be seen in parallel. The 2 models assign special importance to:

(cont.)

it may also have elements of type B. Ancient poems of Parmenides and Lucretius and didactic writings in India and Persia are examples of contaminated types. Aphoristic literature requires regulation of both planes as exemplified by scientific works of Hippocrates, Leonardo da Vinci, and some works by Tolstoi. In humorous texts there is a strict regulation of connections, both formal and semantic, between both levels.

#### \* The Margie Story Version I.

Margie was holding tightly to the string of her beautiful new balloon. Suddenly a gust of wind caught it. The wind carried it into a tree. The balloon hit a branch and burst. Margie cried and cried.

"change in obligation to do something for somebody"-Sch&A

"breaking of a contract"-P/G

"change in the control of an object"-Sch&A

"the communication of an object-ultimate good (on the parameter "to have")-P/G

"change in what an actor knows"-Sch&A

"communication of a message" (or communication along the parameter of "to know")-P/G

"change in some quality of an object"-Sch&A (first version of 1975 paper)

"communication of quality" or enablement conditions (along the parameter "to be able")-P/G

There is also in addition to the previous functions the realization of

"change in the proximity relations of objects and actors"-Sch&A

"translocation in space"-P/G

It should be noted here that in order to perform a functional analysis on any story (analysis of the stratum of represented objects) events have to be first reconstructed in chronological order.

### Expansion and Condensation

If we look at a skeleton of a story such as The Margie Story Version I, we know that an author has various options of expanding the story in its various parts. He may use stylistic distancing such that events in the story may be told by a special 1st person narrator. He may follow a complex chronology in what he will tell first about the world of represented objects and what will be left for last. The flow of narration—Redezeit, according to Laemmert (1967), has its own logic. There may be numerous flashbacks and embedding of narrator's testimonies about the events in the story. The author may also leave certain parts unsaid creating missing links in the story for a special effect. The narrator may take the role of an omniscient retrospective testifier about the action or there may be many testimonies by people of various intelligence and insights who will interpret and misinterpret events. In this respect a story is not different from a set of judicial protocols.

### The Stratum of Narration Time (Stratum 3)

First person narratives may add a superstructure upon the events as they happen in the world of represented objects. This level can be exemplified by Rummelhart's summarization of the Version II Margie Story. Although Rummelhart himself believed that summaries of events which are not in chronological order lose the quality of story, we can perfectly well project Rummelhart's summary II into a story told in the first person:

Margie Story Version II (Rummelhart, 1975, with comments by the present author\*)

1. "Margie cried and cried" (said the author about a scene he observed);
2. "The balloon hit a branch and burst" (explained an

\* We are proposing the comments with reservations always to be taken when we deal not with a real story or communication but with something invented to illustrate a point as did Rummelhart. Thus no more weight should be attached to this analysis than what is granted to the original example.

observer of the scene);

3. "The wind carried it into a tree" (said another observer);
4. "Suddenly a gust of wind caught it" (said another observer);
5. "Margie was holding tightly to the string of her beautiful new balloon" (said the father of Margie, and everything became clear to the author).

In real stories an author may choose to present events in chronological order or narrate them in a different order. "Margie Story I", the chronological story would normally be told in the third person by a pseudo-objective omniscient author whose personae will be hidden. "Margie Story II" would normally be told in the first person singular or plural by a narrator who is part of the world described in the story. It is a much more complex story as it incorporates Margie Story I and superimposes another level on it. The special effects created by embedding of narrators' voices should also be considered.

#### Embedding

Embedding of events (flashbacks) and narrators' voices is a common phenomenon in artistic works. Narrators' voices have been recently referred to as "registers" in psycholinguistics and journalism. Differentiation can be made between the real author-narrator and the apparent narrator (explicitly named or not). Characters in a story may become second level apparent narrators. Third level apparent narrators' testimonies may be embedded in the latter's speeches, etc. A story often consists of cascaded quotations where the real author and various apparent narrators and characters narrate about the objects in the represented world (see comment No. 1)

#### The Stratum of Meaning Units: The Paradigmatic Model (Stratum 4a)

Any story can be viewed as the author's solving of some problem about the world. In the case of the Margie Story we can infer that the elementary notions are those of "possession of beautiful objects" and "noxious acts of nature." The expanded story would have to precise the final design. The paradigmatic model of signification will then specify the deep meaning of the relation between the two terms (Greimas & Courtés, 1979).

#### Relations Between Invested Roles: The synchronic Model (Stratum 4b)

Various roles are embodied by different characters. According to Propp-Greimas "actants" are invested roles held by characters or objects. The possible relations are: one, of a teleological order--relations between the protagonist and the object of his goal; two, relation of an etiological order may be seen between the figure that sets the goal ("donor") and the "obtainer" of the new established order (society, for example); three, antagonists and helpers are the modifying forces in the action (Propp, 1968, Greimas, 1966). These are the basic roles which the author can distribute amongst multiple characters and significant objects which change the action.

#### Generation of Narratives

The question we can ask now is what would a full blown text of the Margie Story look like? What are the possible versions which can be generated from the given schema.

In discussing the generative aspect of narrative grammars Greimas (1971) raises the question how to account for various intermediary processes which lead from the deepest narrative structure level to the surface struc-

ture. Under the manifest level of the narrative (which only hides the signification), we find narrative structures consisting of syntagmatic chains of functions (Propp's functions & deltaxts). Under the units of the narrative syntax (defined by Propp) we find the deep meaning of the myth-like signification of the narrative (paradigmatic signification defined by Levi-Strauss).

Between the deep structure level and the linguistic surface structures are various sub-levels: (1) the level of temporalization and spatialization, (2) linguistic expansion and condensation which accounts for elision and presupposition of some narrative blocks as well as the expansion and multiple re-enactment of other narrative blocks. Finally we have (3) the stylistic distancing level which superimposes metaphore, metonymy, and other figurative devices masking the content. The realization of each of these levels in their various forms is available to the author. A simple schema such as the Margie story can become a newspaper factual account, a poem, a myth, a tragedy or a comedy.

Particularly in artistic works, the level which the author selects for presentation of the deep narrative structure, depends on the intended effect upon the reader which the author is trying to achieve. (See comment No. 2)

In conclusion, one should consider that in present day discussions related to story understanding such basic questions were asked as "how comprehension might occur" (Rummelhart, 1980). The study of how to understand and structure stories has a long history if we consider the fact that Aristotle's treatise on the topic is 2,000 years old. On the one extreme we have available a problem solving model with goals and sub-goals (either for the hero or for the author). At the other extreme we have the coherence between images and scenes and in poetry coherence of sound, which leads to a different understanding of a text (Bergson, Proust). We should thus consider that a story grammar has to specify what kind of understanding one expects from an analysis or more specifically, what stratum one intends to analyze.

#### *Comment No. 1*

Pelc describes different possibilities of embedding narrators' voices in stories:

To make a distinction between the real narrator, i.e., the author of the work in question, and the character who in the text of that work "utters" the narrative monologue, let the latter be termed the apparent narrator. That apparent narrator is always a person about whom the real narrator (the author of the work) narrates. But it often happens that the real narrator narrates about the apparent narrator without mentioning him explicitly. In lyric poetry and in novels written in the form of memoirs, he uses for that purpose verb forms and personal pronouns in the first person; in epic literature he often pretends that the apparent narrator is absent; in invocatory lyric poetry he implies the existence of the apparent narrator by using verb forms and personal pronouns in the second person; and in the drama he specifies him explicitly by naming the dramatic personae...As is known, in literary works, especially in novels and stories, it happens very often that the characters narrate about something in their dialogues and/or monologues. When this happens, they become second-level apparent narrators. And if in their narratives there is a person who in turn narrates himself, we have to do with third-level apparent narrators. None of them, however, except for the author of the work in question himself, is the real narrator... When analyzing the semantic structure of narratives we have to bear in mind that we have to do with cascaded quotations.

Pelc, 1971

A Special Case: The Reader's Model

An important distinction has been made by Mandler and Johnson (1980) about story understanding if the "reader's model" is to be considered. Does a story have a unique structure or is there a conventional structure which should be considered when we analyze the process of reading, asked the authors.

Mandler and Johnson postulated a kind of primordial story structure which allows an expectation-driven processing for the reader/listener. Knowledge of conventional structures are particularly important and *sine qua non* in a reading of artistic works. Lotman (1977) sees the model of the reader as follows:

The perception of the artistic text is always a struggle between the reader and the author...having perceived a certain part of the text, the reader

constructs the rest of the structure in his mind. The author's next "move" may confirm this conjecture ...or it may disprove this guess and demand a re-structuring of the model. Each subsequent move of the author again brings about these two possibilities. And so it goes, until the moment when the author having "vanquished" the previous artistic experience, the aesthetic norms and prejudices of the reader, compels him to accept his model of the world, his view of the structure of reality. This moment of acceptance is the "closure" of the literary work; it may occur, in fact, before the end of the text, if the author uses a familiar model, the nature of which is accessible to the reader from the beginning of the work.

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