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HEURISTIC PROCEEDINGS IN THE SEMANTICS
OF NARRATIVE TEXTS

If we consider this particular form of reception which is reading, it appears that, on the whole, narratologists have not been much concerned about knowing how or not readers could arrive at the meaning (or meanings) of the texts that they have studied and tried to describe. Moreover, concerning reading, it seems that some of them have been tempted to consider the descriptive representations that they have proposed as being linked in some way with the steps of treatment and elaboration undertaken by a reader. For example, concerning "character", A. J. GREIMAS (1) opposes the "reader's reading", as a psychological phenomenon and particularly mnemonic, to semiotic reading which, in the analysis of manifested configurations, leads to the deep thematic roles, and which in the synthesis goes from the thematic roles to their manifestation.

He writes: "the character of a novel, supposing that he is introduced for example by the fact that he has a given name, is built up little by little throughout the text by consecutive and indirect remarks and only becomes totally clear and complete on the last page and this, thanks to the readers memory.

To this psychological, phenomenon of memory one can substitute analytical description of the text (its being read in the semiotic sense of the term), which must allow the discursive configurations on which it is built, to stand out and then to reduce them to the thematic roles as it has to do". (underlined by us).

The whole question obviously, is to know what is meant by "can be substituted to" when one says that the semiotic description of a text can be substituted to the psychological

reading that a receptor makes of it. In fact, what is at stake in this debate is enormous. The problem brought up here naturally gives rise to questions on method. It also gives rise to principles. After all, we have the right to demand that a model, which is said to have a certain degree of empirical efficiency, adequately represent the operations by which the subjects understand and interpret the texts.

Nowadays numerous studies exist on fluent reading (2). These studies bring out clearly enough the complexity and specificity of the mental operations that this activity sets in motion in order to propose with certainty that a text model not including a certain number of procedures, for example that of selection that of anticipation, has absolutely no chance of accounting for the phenomena of reading. The very idea of considering that a semiotic model of a narrative can supply, even an approximation, of the facts of reading is quite unthinkable... This does not mean, as we shall see now, that the representations of the narrative type of text that we know serve no purpose in approaching the phenomena of reading.

The phenomena related to reading have a semantic dimension which is extremely difficult to observe and to analyse. At this level all sorts of parameters must be taken into account. Firstly this elaboration is effectively based on the verbal material supplied by the text. This textual material is, of course, submitted to a syntactical organisation which limits the semantic elaboration. However, the syntactical disposition of the material only partially limits the semantic elaboration. In fact, the syntactical determinations can only be followed if they are not recognised in the first place by the subject who is reading. It is a well-known fact, though, that this recognition is itself a function of the semantic criteria based on the phenomena of anticipation.

The semantic investment of the written material perceived by the reader does not consist either of a pure and simple composition of semantic features attached to the lexical data. Besides, as soon as we consider the facts from the point of view of reception, we are no longer capable of reasoning in terms of the semantic content attached to a given fact. The problem then, must be transposed in cognitive and mnemonic terms (3). That is to say that we must take into account both the understanding that a subject - reader may have of the meaning of a unit of textual composition, of the aptitude he has of mobilising this understanding in his memory, of the way in which he is going to make the mobilised cognitive configuration work, and again of the capacity he has of modifying, after reading, the configuration initially called for! The whole of these operations makes up the semantic treatment of the text of which the result is a terminal elaboration.

Numerous empirical studies make it clear that this terminal elaboration is a semantic configuration of synthesis (4). Concerning narrative texts one has been able to establish that the treatment gave rise to the storing in memory of a semantic macro-structure representing, on a certain level, the global content of the text. The work carried out also tends to prove that the macro-structural configuration memorised serves as a basis of reference for recovering by deduction the data not contained by it explicitly and that may or may not figure in the treated text.

The terminal elaboration of a macro-structure supposes that, during the treatment phase, the reader accomplishes a certain number of operations of synthesis. T. A. van DIJK and W. KINTSCH, for example, have formulated several macro-rules enabling the construction of semantic representations of synthesis for a given text. Nevertheless the formulation of these rules leads to great theoretical difficulties and, in the way in which their authors present them, they have hardly more than an indicative value. One of the most in-

teresting results of the work carried out in the field of empirical studies is the fact that one has been able to establish that the treatment of a text is made much easier for a subject when he finds within the text a super-structural disposition which is characteristic of a type or genre.

This gave rise to the hypothesis that the subjects should have in their memory, for example, prototype representations of the story. These representations, probably induced from repetitive cultural practices, would act as guides at the moment of the reading treatment allowing the subject to construct, by anticipation, hypothetical terminal structures, thus making the application of the macro-rules easier. So it seems reasonable to advance that the semiotic models we know propose representations, which are more or less elaborated and convergent, of what one could call a psychic framework figuring an abstract mode of organisation of a verbal sequence relating actions. Once this framework has been acquired by the subject it would be stored in his long term memory. At the moment of reading, after selection and tests, this pre-established schema would come into action at the beginning of the treatment process of which it would programme the application.

This overall hypothesis has obviously only an indicative value. In order to be certain that things go as planned one should be able to carry out numerous observations likely to validate the slightest detail of the suppositions presented. However, these observations are extremely difficult to carry out. Because of these obstacles researchs on artificial intelligence, supported by the results of simulation, offer an alternative. Nevertheless, experiments of programming text-understanding can only be based in a primary stage on indications supplied by experimental observations. In this field, then, there still remains a good future for study. In particular it is not to be forgotten that one is relatively ignorant of the details of the treatment operations which come

into action during the reading of a text. The guiding framework mentioned above provides indications on the general orientation of the operations although it is still not clear how these operations interverne or how they are composed during the micro-structural treatment phase.

Empirical study

The experimental set up that I am going to present now was planned to control the approach of the treatment operations that a reader accomplishes as he discovers a text step by step. To be more precise, this test was planned in order to collect certain information capable of stimulating further hypotheses. This empirical study follows up my work of reflexion on text coherence: of my article "Toward an heuristic approach to text coherence problems" (5).

1 - Material used

The material used in this experiment was made up of the beginning of a mythical story reproduced by LEVI-STRAUSS in "Du miel aux cendres". This Toba myth is also known under the title of "The girl crazy about honey". Here is the part of the text used to elaborate the questionnaire:

"Sakhé was the daughter of the master of aquatic spirits and she liked honey so much that she kept begging for some. Irritated by her insistance people answered her: "Get married!" Even her mother when she pestered her for honey told her that she'd better get married".

The questionnaire has three parts in three sheets.

- The first part begins with a short introductory paragraph: "This is the beginning of a legendary myth told by the Toba people. The Tobas are a primitive tribe living in South America. The following story has been told by travelers and is known as "The girl crazy about honey".

Then the beginning of the myth is reproduced with a blank space for the answers of the men and the women:

"Irritated by her insistence the men and women answered her:

also for her mother's comments:

"Her mother told her she'd better:

The question asked is the following: "What could be put in the blank spaces? If possible give several solutions."

- In the second part the original passage is reproduced in its entirety preceded by the following: "Here now is the beginning of the story such as it was told by the Tobas". Each person is asked to imagine what happens after and to write it down.

- The third part has five possibilities. These five possibilities were found by interchanging the replies of the men and the women as well as that of her mother. The five possibilities kept were the following:

- a) "Cut your hair"
- b) "Go and see the sorcerer"
- c) "Go to the river"
- d) "It's a full moon"
- e) "A friend in need is a friend indeed"

Each subject questioned is given only one of the five possibilities which is said to come from a neighbouring Toba tribe. The question asked is the same as in the second part.

2 - The test itself

83 pupils aged from 12 to 15 answered the questions. The test was supervised in class by the French teacher. The pupils had never studied myths in class before, neither had they studied narrative analysis. In order to avoid creating a test situation which could lead to bias in the results,

the continuous narrative exercise was preferred to a formula such as: "How do you understand the answers given to Sakhé by the men and the women as well as by her mother?" In this way, the pupils who were used to continuous narrative exercises, did not notice anything out of the ordinary.

3 - Results and comments

3 - 1) Part one of the question sheet

The answers given are extremely varied. Tables I and II give an idea of the general groups of answers without taking into account the precise terms in which they were formulated. For each type of answer the tables also indicate how many times it was noted. In order to widen the scope of their answers the word "even" preceding the mother's remarks in the original text, was left out.

As a reference for the overall evaluation we can take the total of the answers proposed for the two blank-spaces. Out of the 320 answers only 6 allude to marriage. And again we must point out that for these six answers attributed to the mother 4 are formulated in relation to the fact that Sakhé was of a marriageable age ("You'd better think of getting married", "of having a family"), Only one out of 6 makes a link with honey "Your husband will buy you some honey". One other is neutral "Get married!"

These results show that for young French boys and girls the answer "Get married!" is not a routine solution to the request for honey made by the heroin in the situation described by the text. Even in the particular context in which they are asked very few of the pupils think of the real answer that Sakhé will get.

3 - 2) Part two of the question sheet

Given the results in the first part we can consider that almost all the readers who will be faced with the first paragraph of the original legend will also be faced with a problem of interpretation. If we admit that readers are going

to understand that the answers of the men, of the women and of the mother signify literally that they refuse to give the heroin the honey she is asking for, that they tell her to look for a husband, it is not enough to have an overall understanding of the exchange between Sakhé and the others. The pupils were asked to make up the rest of the story so that their answers would show how they interpret the "Get married!" in order to have a coherent development.

As in the preceding part the answers obtained are extremely varied. Besides, they lead to analysing many problems of interpretation. Table III contains all the solutions proposed and indicates how often they were given. Out of the 126 solutions 2 clearly indicate how impossible it was for their authors to interpret the "Get married!" in relation to the heroin's request for honey. They are papers in which Sakhé, after being told "Get married ", goes to ask the advice of her father or of the sorcerer who both tell her that marriage would not solve her problem.

Three other answers have a stereotyped ending of the sort "she got married and had many children" which brought no solution to Sakhé's request for honey. All the other answer require an interpretative assesment by the readers which give an intention of significance relating Sakhé's request for honey and marriage and attribute this intention to the answers of the men, the women and the mother. Here are some of the would-be meanings explicitly or implicitly attributed to the people speaking with Sakhé:

- "They say that for Sakhé to get married, They will only give her honey if and only if she gets married".
- "They say that so that Sakhé will have some honey for her wedding (gifts, dowery...) or after getting married (her husband has honey-bees or is a merchant or is wealthy anyway and he will give her some)".
- "They say that so that Sakhé will forget her desire (in order to find a husband she will have to stop eating honey and once she is married she will no longer feel the need for

honey or her husband will forbid her to touch honey".

- "They say that for her to go away and so she won't pester them any more for honey".

After this representation of meaning the pupils carry on with their story, imagining whether or not Sakhé recognises this intended meaning and reacts in consequence to it. She understands for example that their answers mean that marriage will find her a husband who will give her some honey and she takes the necessary steps to get married. On the other hand, we will find that Sakhé understands that they tell her to get married so that afterwards she will no longer be able to eat honey or to ask them for some. The heroin refuses this solution, does not try to get married and looks for other ways of getting honey. Sakhé can also take advantage of the representation that she gives to the remarks made by the tribes-folk. By taking the answers of the men, women and the mother as being signs of their deep desire for her to get married, Sakhé takes advantage of the situation to impose one condition: she will only get married if they accept to give her honey afterwards.

The easiest copies to analyse are those where the action development is preceded by an explicit interpretive elucidation. When the continuation shows only what Sakhé does after she has been told to get married we must reconstruct the underlying motivations in order to get back to the meaning to the "Get married!" That the author imagined for Sakhé. The most delicate cases to examine are those where Sakhé does not take the steps to get married and goes, for example, to ask other people for honey immediately after the replies of the men, women and mother. These cases are doubtful, since we have no means of knowing whether their authors imagined them because they failed to interpret the "Get married!" in relation to Sakhé's request or if, on the contrary, they interpreted these remarks as meaning, for the tribes people,

their intention of getting the girl to stop asking for honey. The heroin would understand this and thus would not take the steps to get married. In all, twelve cases of this type were noted. The 6 copies in which marriage was evoked in the first part of the question sheet give quite varied answers in the second one. In three cases Sakhé gets married and her husband offers her honey. In one case she gets married but this does not get rid of her desire. In another case she doesn't get married 'because she wasn't destined to be married!' Finally, among the six answers two had no solutions: Sakhé consults the sorcerer who is unable to solve her problem.

At least two elements are to be underlined in this second part. In the first place we observe that almost all the pupils have imagined narrative solutions which end in the success or failure to the lack (or "degradations") that can be "seen" in the initial situation: the heroin's lack of honey, the degradation or annoyance caused to the tribesfolk by Skahé's perpetual bothering them for honey or the fact that Sakhé is not yet married. This tends to prove that the pupils have a preestablished framework which enables them to develop an initial situation, recognised as degraded, by following various possible paths where we find the main categories of narrative organisation presented by narratologists. Then, we remark that in the overwhelming majority of the narratives written and examined the positive or negative development of the initial lacking depends on finding a solution to the relationship between the heroin's request for honey and the different replies to her request. In other words, all the subjects seem to admit that the continuation of the text must also serve as a solution to the lack of coherence of the exchange of conversation between the heroin and the others.

The two points underlined give rise to several comments on the operations accomplished by a subject who reads the beginning of the Toba myth. If we admit that the reader dis-

poses in his memory of an abstract framework of narrative organisation we may suppose that when he reads the beginning of the myth he is looking, in the initial situation set out, for certain characteristics which could indicate a lack or absence of something or a degradation. If this research leads to a positive result then the reader wait and see what happens in regards to this initial state. When the reader reaches the first then the second "Get married!" he is faced with a problem of establishing coherence. He has no means of classifying the remarks made to Sakhé, for example, as being positive advice or dishonest suggestions. At this stage two hypotheses are plausible. Either we imagine that the reader is going to stay in this uncertainty and is going to wait for the continuation of the text to provide a solution to the relationship between the "Get married!" and Sakhé's request. Or we imagine that the reader finds a solution by himself and continues in his programme. At this stage, the reader, having an anticipated solution for the meaning of what the tribesfolk say, would continue exploring the text to see if his hypothetical interpretation of the text is correct or not.

The second part of the questionnaire does not make for a clear-cut answer to this problem. Nevertheless, and in order to propose further hypotheses, it is quite plausible to accept the idea that the reader will tend more so to anticipate a solution to the dialogue between Sakhé and the others as it will be easy for him to find a solution of his own to the problem of the relationship between the heroin's request for honey and the answers made to her. Whether or not one has recourse to an anticipated solution would then be in function to the degree of difficulty presented by the problem of coherence met with during the reading. The last part of the questionnaire was planned to allow an approach of the notion of difficulty in coherence - problem-solving.

3 - 3) Third part of the question sheet

It is not possible here to examine in detail all the answers to this third part of the questionnaire. Suffice it then to bring to light one or two theoretical perspectives which could give rise to a detailed study of the answers.

The difficulties that a subject comes across when trying to find a solution to problems may be of various types. For the test in question here the subjects work is aimed at inventing at least one relationship between two types of information which in the present case are the state of knowledge of the initial situation and the state of knowledge of the situation after Sakhé's conversation with the others. In this test the problem has one constant basis. This constant basis includes a state of knowledge of the initial situation which will not vary from version to version.. This initial state of knowledge is made up of several groups of information. Some information is given (what the text tells us of Sakhé, of the other characters). Some information is deduced (Sakhé asks for some honey to eat, this request bothers other people...). In the same way, for the different answers considered, we have a constant basis of knowledge which is, for each element of information, given (for example the men, the women and the mother tell Sakhé to have her hair cut) and deduced (Sakhé's hair is "too" long). For the subject, then, the problem will consist in discovering a relationship between the basic knowledge of the situation and the further knowledge added to this.

Hence, we can consider now a theoretical framework of transformation of the states of knowledge to arrive at a solution. This framework takes into account several operations which are applicable in a specific order. These steps are the following:

1 - A general orientation of the meaning of the story.

For example, the subject interprets the basic information as being significant of one or of several degradations for

either of the characters. This interpretation allows an orientation of the relation which is sought: this interpretation should consist in making reparation for at least one of the damages done. After this step an orientation is then attributed to the supposedly underlying meaning of the added remarks.

2 - Activating background knowledge related to the initial information or added to it. For example, mobilising a known fact such as: "One can sell one's hair" or again "Bears have honey and they give some under certain conditions".

3 - Choosing out of this activated knowledge one or several points of information likely to make reparation for one of the damages done. For example, selling one's hair brings in money with which one can buy honey. Or again: bears only give honey to people with short hair.

4 - Applying the chosen solution to the situation; for example, the people of the tribe want to tell Sakhé that all she has to do is to cut her hair, sell it and buy honey with the money.

5 - A preferential evaluation throughout which the applied solution is judged in function of the representations the subject makes of the Toba's ways of thinking, acting, and of their speaking habits.

This theoretical framework was planned using the declarations of the subjects who were tested and who accepted to comment upon the operations when they passed the test. It is also due in part to the studies on problem-solving. Such as it has been presented, this framework enables one to see at what point difficulties may become apparent for the subjects tested. Thus we may suppose that some pupils will be stopped



because of their inability to interpret the initial data in the sense of a general orientation of the relationship sought. Others, either due to lack of background knowledge or due to lack of remembrance, will not succeed in mobilising the elements of information likely to lead to a solution. Others again, perhaps, will succeed in mobilising the background knowledge adapted for the solution but will not see how to apply it to the situation. Finally, others will find a solution but will reject it on the grounds that it is not applicable to their idea of the Toba universe or to this particular type of text.

An examination of the answers to each variant in the third part of the questionnaire brings forward some very interesting points on the type of background knowledge that the subjects used to try to find a solution to the given problem. For example, concerning the variant "Go and see the sorcerer" half of the pupils solved the problem by taking the idea that "the sorcerer can cure whims". The other copies bring out the idea that the sorcerer can give Sakhé the power of not suffering from bee-stings or even of seducing a rich man who will buy her honey. In other copies the sorcerer gives her honey or threatens her with hell. One answer indicates that on the way to meet the sorcerer Sakhé finds some honey.

The number of answers with no solutions or with doubtful solutions is also worthy of note because it is a good indication of the difficulties that the pupils come across. On the whole, it seems that the pupils had greater difficulty with the added phrases which contained no verb of action such as "the moon is full" or "a friend in need is a friend indeed". For the three variants containing a verb of action the percentage of success is greater with "Go and see the sorcerer" than with the two others. Some failures give quite a lot of information because they show at what stage the pupils had difficulties. For example, in the case "the moon is full"

two pupils used stereotyped expressions which are very common in the French language "demander la lune" (to ask for the moon) and "être dans la lune" (to have wandering thoughts) without being able to give them a definite orientation. It is to be noted, finally, that for the variant "a friend in need is a friend indeed" one reply, where Sakhé answers the proverb with another "once a thief always a thief", is just as little appropriate to the situation as the one that was attributed to the tribe. Besides, this last example leads to an idea which is worthy of thought. In fact, we can consider that, as from a certain degree of difficulties met with in solving coherence problems, a subject has the possibility of considering (or deducing) that the problem he is trying to solve is a joke or perhaps that there is no solution at all. So it is with Sakhé who is given any sort of reply and who can understand this to mean that one does not wish to reply to her at all. It is the same as with a little child who is a nuisance when we say "Go next door and see if I'm there" - which he generally understands very well!

Conclusion

My aim here has been to underline the fact that the operations accomplished by a subject throughout his reading acts are highly complex. In particular I wished to point out that the treatment of synthesis that one observes at the macro-structural stage covers a considerable quantity of local treatments where, for example, attempts to find a solution to a problem may intervene.

The empirical study presented was aimed at stimulating various hypotheses which, in my opinion, are worthy of consideration.

Notes

1. GREIMAS (A. J.) "Les actants, les acteurs et les figures" in "Sémiotique narrative et textuelle" p. 174. Paris, Larousse, 1973.
2. Cf. Among others: SMITH (F.) ed. "Psycholinguistics and Reading" New-York; Holt Rinehart and Winston, 1973.
BOURQUIN (J.): "Problemes linguistiques et psycholinguistiques de la lecture et de son apprentissage". Cahiers du CRELEF n°9, Besancon, 1979.
3. Cf. WINOGRAD (T.) "Procedural understanding of semantics" in Revue internationale de philosophie n° 117-118. Paris, Vrin, 1976. CHARNIAK (E.) and WILKS (Y.) eds. "Computational Semantics". Amsterdam, North Holland, Pub. Comp. 1976. LINDSAY (P.,H.) and NORMAN (D,A). "Human Information Processing". New York, Academic Press, 1977.
4. Van DIJK (T.A.) "Narrative Macro Structures. Cognitive and Logical Foundations" PTL Vol. 1 N°3, Amsterdam, North Holland Pub. Comp. 1976. "Recalling and Summarizing Complex Discourse" in BURGHARDT (W.) and HOLKER (K.) eds. "Text Processing". Berlin, De Gruyter; 1978. "Complex semantic information processing" in WALKER (D.) and al. eds. "Natural Language in Information Sciences". Stockholm, Skriptor, 1977. "Macro structures and cognition" in CARPENTER (P.) and JUST (M.) eds. "Knowledge Frames, Macro Structures and Discourse Comprehension" Erlbaum, Hillsdale, 1977.

DENHIÈRE (G.) and LE NY (J.F.): "Relative importance of meaningful units in comprehension and recall of narratives by children and adults". Poetics 9. Amsterdam, North Holland. Pub. Comp. 1980.

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MANDLER (J.M.) and JOHNSON (N.J.) "Remembrance of things parsed: story structure and recall". Cognitive Psychology n°9-1977.

RUMELHART (D.E.): "Notes on a schema for stories" in BOBROW (DG) and COLLINS (A.M.) eds: "Representation and Understanding-Studies in Cognitive Science". New-York, Académie Press. 1975.
5. CHAROLLES (M.) "Towards an heuristic approach to text coherence problems" in "Papers in Text Linguistics" Hamburg. Buske Verlag.

TABLE I - REPLIES FROM THE MEN AND WOMEN

GIFT OF HONEY: - followed by advice:			
"Don't eat too much"...	4		
- followed by threat:			
"You won't get any more"...	1	6	6
.....	...		(3,5%)
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<u>REFUSAL OF GIFT:</u>			
- <u>WITH JUSTIFICATIONS</u> -			
- Because Sakhé is/has: penniless	4		
: always asking for			
some	4		
: too greedy	7	32	
: obsessions	3		
: not human	7		
:		77
			(45,6%)
<hr/>			
- Because the honey makes Sakhé - too fat	12		
- too ill	19	22	
.....			
<hr/>			
- Because the honey is - a rare substance	4		
- completely lacking	6	13	
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- <u>WITH ADVICE OR A COMMAND</u>			
- Sakhé most do α to obtain honey			
α = ask others	17		
α = work	4	48	
α = go and look for some herself	24		
.....			82
			(48,8%)
- Sakhé must do β having no connection			
with honey			
β = a woman's work	3		
β = activities concerned with			
water	3	14	
.....			
- Sakhé MUST EAT γ other than honey	2	2	
- Sakhé MUST NOT BOTHER other people	13	18	
<hr/>			
- <u>WITH A THREAT OF PUNISHMENT</u>	3	3	3
			(1,7%)
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TOTAL OF REPLIES			168
AVERAGE NUMBER OF BLANKS per PUPIL			2.04

TABLE II - REPLIES FROM THE MORTHER

IT WOULD BE BETTER FOR SAKHE TO

- EAT - something else	26	
- less	3	30
.....		(20%)
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- DO α TO OBTAIN SOME HONEY		
α = make some herself	4	
α = ask other people for some	5	12
α = buy some	1	(8 %)
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- DO β IN RELATION TO HER OWN SITUATION AS...		
- a young girl	18	
- a girl of working age	10	
- a girl able to help her parents	26	89
- a king's daughter	2	(58%)
- a daughter of aquatic spirits	9	
- a sick girl (because of honey)	15	
.....		
<hr/>		
- β = GET MARRIED	6	6
		(4 %)
<hr/>		
- TO STOP ASKING FOR SOME		
- because she bothers everybody	8	
- because honey is a rare commodity	4	15
- otherwise there will be a punishment	1	(10%)
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	TOTAL OF REPLIES	152
	AVERAGE NUMBER OF BLANKS PER PUPIL	1.83

TABLE III : SIMPLIFIED RESULTS

SAKHE GETS MARRIED			
- she gets some honey from the tribes folks	2		
- she gets some honey through marriage	19		
- she gets some honey from her husband	52		
- she no longer feels like having honey	12		
- she leaves the country and no longer asks for honey	5	104	87 %
- she doesnt get any honey	11		
- she has children	2		
- her husband dies	1		
SAKHE TRIES TO GET MARRIED BUT SHE DOESNT	5	5	4 %
SAKHE DOESNT TRY TO GET MARRIED	10	10	9 %

TOTAL OF ANSWERS 119

AVERAGE NUMBER OF SOLUTIONS PER PUPIL 1,43