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Title of the chapter: The semiotic analysis of discourse.

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## INTRODUCTION

The semiotic analysis of discourse elaborated by A.J.Greimas and his followers took its starting point, almost twenty years ago, from the 'crucial' encounter of European linguistic schools (Saussure, Hjelmslev) and the pioneer structuralist work of V. Propp on the "morphology" of fairy tales. Linguistics provided the theoretical bases for a system of meaning, meaning being not dependant on signs as such but on their articulation within a system. Proppian studies furnished a clue to the regularities and constraints underlying a narrative (how a meaningful story is constructed).

Semiotics is thus a rather new approach to discourse analysis, and its elaboration is still in progress: it deals with the study of signifying systems. A signifying system is considered as whatever "makes sense", whatever has meaning; "meaning", of course, is not rooted in things or phenomena: the apprehension of meaning takes place in the mind. Thus, even natural phenomena, or the practices of everyday life, or accidental features such as smiling, pulling faces, which were not intended as communication can be considered as meaningful by someone who decides to interpret them. Therefore, the limits of a signifying system are greater than the ones which would arise from the consideration of a simple wish to communicate, though, of course, cases of intentional communication are also included. By 'intentional' communications, we mean those in which the onlooker recognizes in an object the construction by an author-creator of realisations of the human arts, like texts, discourses, poetry, painting, music, photography, or a combination of several means, as in a film or an opera. Even here, the onlooker takes his part : understanding results from perception, and perception has its grids, breaking the continuity of what is seen or heard into 'signs'. It is less trivial (but not specific to semiotics) to make the general hypothesis that an isolated sign usually does not convey any meaning: it has to be taken up into a system of signs. This is, in semiotic theory, the principal legacy of Saussure: meaning appears where a difference is perceived. Of course, certain signs are fixed by usage, such as words of a given language which indicate precise things, or such as written letters, which refer to particular sounds. Nevertheless, the immediate recognition of these signs should not make us forget that they are recognized only because they are somewhat different from other words or other letters which are also known to the listener or the reader.

Furthermore, the general hypothesis of a system of **differences underlying the meaning effect** accounts for the new use of already-known signs, and for signs which are created directly in the discourse, by an immediate convention, as in mathematical texts, or in children's games (this (chair) is a jet now...).

The hypothesis that signs make sense only as parts of a system has another interesting result: the question of the referent is left outside the area of meaning by European linguistics. Thus, the relation of the sign to the referent can be of any nature, it does not play a role in the meaning effect. It can happen, of course, that the sign mimics or evokes the referent, especially when visual objects like paintings are studied. On the contrary, a sign can be arbitrarily chosen to designate something, like words in natural languages. Such signs can even designate things which do not exist in the world, or abstract concepts. According to Saussure, the sign has to be broken into a "signifying" (defined as a unit at the level of perception) and a "signified" (the unit of 'meaning' in the mind of the receiver). But, since meaning is perceived through a system articulating several signs, semiotics usually prefers the terminology of Hjelmslev. This linguist distinguishes the expression level (where discontinuities are perceived, discriminating several signifyingings), and the content level (where the signifieds are identified). There is usually no isomorphism between the level of expression and the level of content. Let us take as an example the state of 'dullness', a signified attributed to an actor on the content level. This same signified can be expressed by several expression levels, music or painting, for example; furthermore, even within the same expression substance, language for example, 'dullness' as a signified can be conveyed either by the single word 'dullness', which is then the signifying, or by other ways like describing the posture or the behaviour of the actor, or even describing the landscape which surrounds him. Thus, the 'meaning effect' can arise from a unit of the expression level larger than a word or a sentence, and it can be studied in substances of expression other than language. In summary, the manifestation (poetry, story and so on...) is viewed as the combination of a certain form (organisation) at the content level with a certain form at the expression level, a form whose corresponding substance adds its own possibilities and constraints (linearity for language, a planar organisation for painting).

The other basic assumption of semiotic analysis is that the 'meaning effect', produced by a particular manifestation, is linked in a generative way to an underlying signifying system. A certain manifestation is viewed as one of several possible outcomes of its signifying system. The 'meaning effect' is thus described as the result of selections and developments on the basis of a 'deep' semantic structure articulating elementary units by contrasting relationships or organizing them into a hierarchy. To take once more the example of 'dullness', the meaning effect is described as the result of a selection of this term within the couple contrasting the state of a 'dull' actor with that of an enthusiastic one, or simply with that of a serene one; indeed, there are two sorts of differences, that between two qualifications (dull versus enthusiastic), and that between the presence and the absence of a qualification (dull versus serene). The developments would consist in either contrasting the state of the 'dull' actor with that of another one, within the manifestation, or contrasting the present state of the same actor with a preceding or following state (giving a 'history' to the states); then, a further step would consist in either describing the 'mood' or telling the story of a change of mood. The different possible developments are presented as a generative path.

It should be noted that a different text could use another contrast (dull versus sharp, for example), and, as for the hierarchical relationships, this contrast could be overdetermined by another one, comparing the human mind to a knife, both being subject to dullness or sharpness, or prone to change from one state to the other.

It is especially when the differences characterizing the signifying system are manifested in a text as changes in the states of different actors that semiotic analysis benefits from the studies of V. Propp on folktales. V. Propp studied a corpus of about one hundred Russian tales, and showed that despite the large diversity of the actors involved, there is a relatively simple set of recurrent roles: for example, those of the 'hero', who performs a task usually consisting in the restoring of the order disturbed by a 'villain', the 'Object' at stake in the struggle between the 'hero' and the 'villain', and the 'king', or some powerful person knowing what is right and wrong. Furthermore, he showed that each role is characterized by a certain set of functions (i.e. the actors corresponding to a role perform certain actions rather than others). Propp distinguished 31 functions, but Greimas succeeded in organizing some of them into homologies,

and so limited their number; he then devised a few models for changes in state.

With a structural model of the semantic deep structure and a few narrative models, it becomes feasible to reconstruct from the manifestation the particular signifying system underlying it. The analysis method is, at the present time, best operative for short written texts and for visual texts (painting, ads, and so on).

Nevertheless, the reconstruction of a signifying system underlying the 'meaning effect' should not be taken as a method of interpretation; indeed, semiotics does not claim that the generative path from deep structure to manifestation represents the 'real' production of a manifestation by its author; it does not claim, either, that what is reconstructed is the 'original' sense, the one intended by the author. Semiotics is thus at variance with methods of text analysis aimed at interpretation through the events of the author's life, or the cultural medium in which the work was produced. Furthermore, even if it can be applied in principle to a natural phenomenon, the result of a semiotic analysis would not interest a scientist concerned with explaining the manifestation as an outcome of interactions between 'real' natural actors.

The reconstruction of the signifying system is mainly a communicable way of explaining how a 'meaning effect' can be evoked. Dealing with artifacts quite complex in their meaning, the semiotic method provides a ground sounder than mere intuition for interpretation, especially when interpretation is largely dependant on the cultural medium informing the reader. Since semiotics takes into account in the 'meaning effect' of an element of the text all the relations which link it with the other elements of the text, making them 'vibrate' against each other, it provides a grid opening new possibilities of interpretation that the 'naive' reader could have overlooked, and eliminating others because they are not coherent with the text system. Therefore, semiotics offers itself as a flexible method for studying manifestations of cultures foreign to the reader, or very personalized works of art. Nevertheless, interpretation is the domain of the reader, and he will be involved in giving sense to a particular text production through his own patterns of knowledge.

A good example of the use of semiotic analysis is to be found in the recently developed studies on psychomotor therapy for children.

I. Darrault (cf.3-e), the semiotician involved, collaborated with the therapist in video-recording the sessions and viewing the tapes with him. Semiotic analysis first provided the tools, based on spatial disjunctions and conjunctions and proxemic relations between the child and the therapist, for an ordered description of the different happenings in the sessions; it thus helped to distinguish types of units of signification. Secondly, by comparison of these 'scenes' with the already recognized and classified varieties of relationships between two subjects, the semiotician was able to indicate to the therapist the recurrence of certain models and the total absence of some others. For example, a child would never simply ask the therapist for something but always evidenced a provocative attitude, which could be analysed from a semiotic point of view as the fact that the child kept for himself the role of Sender (which corresponds to the 'king' in fairy tales, knowing the difference between good and evil), and thus did not consider the therapist as a reliable person, and not even as a worthy playing partner. In another case, the semiotician was able to point out to the therapist that the child systematically refused to perform certain functions. Therefore, it was through his capacity to abstract and classify that the semiotician was helpful to the therapist (in any case, his role could not be to give a psychoanalytical interpretation or to indicate what was to be emphasized in the therapy: that was the therapist's responsibility).

The semiotic method of analysis is not only useful for describing how a 'meaning effect' is evoked, it can serve too for describing persuasion. Indeed, it is not enough for a production or a discourse to be understood, to be judged of interest by the reader or to seem valuable to the onlooker. Semiotic theory makes the hypothesis that a discourse contains in itself elements aimed at the valorisation of what is communicated, when the communication is 'intentional', and a kind of 'directions for use' grid insuring a correct interpretation on the part of the reader. As stated earlier, the first progress in semiotics, the description of the 'meaning effect', arose from analysis of tales, myths, and novels; the next step, towards the description of persuasive effect, was the result of the extension of analysis to biblical texts (or religious texts in general), political discourse, advertizing, and scientific texts. Those discourses, obviously, do not apparently solely convey a view of the world (or human society) but are also aimed quite openly at convincing the receiver in

order to provoke a change in his behaviour, or at least a change of mind.

It is in this respect that, in my opinion, semiotic analysis can make the most useful contribution. Indeed, Greimas' theory considers discourse as 'closed' (self-sufficient in conveying the 'meaning effect' and the 'valorizing effect' (persuasiveness)). It makes no use of an external referent to verify the 'reality' or 'truthfulness' of what is being said in the discourse: thus, it offers no means of calculating the truth of a proposition; but it begins by exploring and classifying the different procedures which, in the discourse, can be recognized as elements aimed at convincing explicitly (argumentation) or implicitly. Among those, the 'truth effect' appears the most important nowadays, since our 'scientific' civilization values have replaced as social regulating media the tales and the myths of old. Describing the 'valorizing effect' may be considered as a double-edged tool: it can help publicity agents check the coherence and impact of their advertizing, but it can also help the onlooker analyse coldly how the desired effect is produced, and therefore, decide for himself how he stands before the 'message'.

1) Semio-narrative structures.

## a) The narrative program (giving and taking).

Since, as we said in the introduction, Geimas' theory is founded on the fact that meaning arises out of difference, we will define the elementary narrative unit as an action rather than a state. The most straightforward way of describing an action is to say that it changes the way things are organized in the world. Action creates a difference which can be represented as the passage of an Object from one Subject to another Subject; for example, within the short story we are going to use as an illustration during this first part, the very short paragraph 3 points to such a passage: "he stole only the cat" supposes that cats, given the role of Object, are removed from their legitimate owners; those owners are in the role of passive Subject, whose state is transformed: from a conjunction with the Object (their cat), the passive Subject undergoes a disjunction, while for the burglar, the action has the reverse result, from disjunction to conjunction. The burglar deserves special consideration: it should be noted that he fills two roles: that of a passive Subject whose state is changed, and that of an operating Subject who does the action.

A narrative program brings into relation the three actantial roles: Object, passive Subject, operating Subject, the two possible states of a passive subject: disjunction and conjunction with the Object, and the doing of the operating Subject.

We can abbreviate the formulation of a narrative program by using a symbolic representation:

$$DO (S op) \quad [S p \wedge O \rightarrow S p \vee O]$$

where  $S op$  stands for the operating Subject actantial role,  $S p$  for the passive Subject and  $O$  for the Object; in the initial and final states,  $\wedge$  and  $\vee$  represent respectively the conjunction and the disjunction of the passive Subject with the Object; and  $DO$  means the transformation brought about by the operating Subject.

The writing of the above narrative program was made according to the point of view of the cats' owners since they obviously are the passive Subject in disjunction with the Object as a result of the doing. From the burglar's point of view, it should be formulated as:

$$DO (S op) \quad [S p \vee O \rightarrow S p \wedge O]$$

In this particular case, called 'performance', the two roles of passive Sub-

ject and operating Subject are assumed by the same actor (the burglar), but it is nevertheless necessary for the analysis that actantial roles and actors be carefully distinguished.

This second narrative program is manifested in § 3, and the disjunction between the owners and their cats as a result of the thefts appears in § 4; but this last program is obviously presupposed by the realisation of the first. Our tools for analysis are concepts localized at a level underlying the manifested text, which results from the selection of one point of view or the other made by the author. Thus, the narrative program, to be complete, should be written as two mutually implicating transformations:

$$DO (S op) \quad [S p1 \wedge O \rightarrow S p1 \vee O] \mp [S p2 \vee O \rightarrow S p2 \wedge O]$$

where S p1 refers to the passive Subject undergoing the disjunction (the former owners of the cat), S p2 the passive Subject undergoing the conjunction (here, the burglar) and the sign  $\mp$  means mutual implication.

As we shall see, this general formulation can be used in order to represent different actions. In §10 (for example), the burglar, after being arrested, gives an explanation for his thefts; the general narrative program can account for this action provided that the actantial role of S op is attributed to the burglar, in addition to the role of S p1, the role of S p2 being given to a collective actor; i.e. the Chief of Police, plus the reporters, this now being an action of giving instead of <sup>taking or</sup> stealing (as in the first example). The objection might be raised that the giver does not lose the Object since the latter is a piece of information; we shall discuss this aspect later (2 b). However this is not the case when we are concerned with a material object, as for example the jar of "instant pussy" the amateur scientist would have given to mankind, had he succeeded in finding the "formula". The difference between the "formula" and the jar of "instant pussy" is the same as the one existing between the explanation sought by <sup>the</sup> reporters concerning the cat burglaries and the newspaper articles printed for the public, namely: that between a cognitive and a pragmatic Object (furthermore, in such cases, the first Object is necessary for the production of the second).

It might seem, because of the above examples, that passive and operating Subjects are necessarily human, and that the Object is necessarily non-human - and, one might add that the jar of "instant pussy" is more of an 'object' than the living cat (which could resist the burglar). This, however, is not the case, because in the formulation of the theft program, the actantial role of S p1 could just as well be assumed by the empty house as by

the owners of the cat, an empty house being only a given place in space, belonging to the cat owners. And, in the "trap" episode (§ 6-7-8), it is the thief who, lured from his home (or any other place where he was free) falls into the hands of the police: he thus, in this part of the story, assumes the actantial role of <sup>an</sup> Object which is displaced, since the formulation of the action of the police is identical to that of an action of stealing... The fact that the thief went willingly to the Siamese-cat house is not, at the level of the narrative program, a problem (see 2 b). It should be therefore noticed that the same actor can assume different actantial roles in different programs. The operating Subject can even be non-human: this can best be seen in the analysis of scientific texts, where the operating Subject can be a natural phenomenon or an apparatus designed for the purpose. It can be said that such is the case in the "trap" episode, where the trap can be considered as the operating Subject (i.e., a cognitive apparatus, and not a material one).

Until now, we have chosen from our text illustrations of several narrative programs without care for their order in the text or the way they <sup>are</sup> related to each other. There are two ways programs can be linked :

Succession of program-anti-program : the anti-program is defined as the action having the contrary result to that of the action described by the program : if the first change of state was towards a disjunction between a particular passive subject and its object, the anti-program will be the one which results in conjunction. For example, if we assume that a cat, "natural" or under the form of instant powder is a cat anyway (both actors having the same role of Object), the program of stealing produces a disjunction between cats and owners, while the corresponding anti-program (if it were successful) is the giving back of cats to owners. (The term anti-program is more usually employed for the program describing "bad" actions, such as stealing, but that is a moral question and does not enter <sup>into</sup> the definition ; furthermore, there is a class of negative Objects which constitute a nuisance for their owners and the gift of such an Object would be well named an anti-program !). Such a succession is very usual in folk-tales where at the beginning a horrible dragon kidnaps the king's daughter, and then a chivalrous hero bring her back to her father, or where an evil sorcerer gives for example a poisoned apple to Snow-White and then a Prince Charming takes it away from her.

Hierarchy of programs : this occurs when the conjunction with one Object necessitates first the conjunction with another Object : in order to

tell the whole story to the public, the reporters need an explanation for the cat thefts, and to get this explanation, they first have to catch the Burglar, who is the only one who can give it. The first program (Object : whole story) depends on the realization of the second (Object : explanation), which, in turn, depends on the realization of the third (Object : the burglar under lock and key) ; the first one is called principal program, and the subordinated ones, auxiliary programs.

b) acquisition of competence

The doing of an action by someone, or, in a semiotic formulation, the realization of a narrative program by an operating Subject, presupposes that the latter has the competence *to do*, which can be expressed as */being-able-to-do/* or */knowing-how-to-do/*.

In fact, while speaking about the hierarchy of programs we were already tackling this question of competence : the Object acquired in the auxiliary program is nevertheless usually not enough for the realization of the principal program and does not represent the whole competence ; it is just the last thing needed by the operating Subject for the doing. To get the explanation of the cat thefts, it was enough for the reporters <sup>to</sup> interview the Cat Burglar himself ; but, obviously, to find the "instant pussy" formula, getting a living cat was not enough for the amateur scientist, since he failed and had to try again and again.

Let us once again consider the narrative program from a theoretical point of view. Since there are two passive Subjects and a transformation for each of them, there should be a competence for each of the transformations. When the operating Subject and one of the passive Subjects are the same person, the corresponding transformation raises no problem ; but this leaves the question of the other passive Subject. The operating Subject has to meet him (to take or give the Object) : that could be called a spatio-temporal competence, and then, he has to take the Object away from him, or make him take the Object (according to one of the programs of taking or giving). Only spatio-temporal competence seems to be needed by the reporters, since once the "Cat Burglar" has been caught, the latter is willing to give all the necessary information on his motives ; but, to a certain extent, the other kind of competence is also involved, namely the */knowing-how-to-do/-police interrogation* : there is obviously a technique involved in the questioning of "hard" criminals that was not needed in the case of our Burglar - but we can say that despite the curiosity

of the public, the Cat Burglar had not told his story before being caught and questioned by the police.

For the Burglar, both competences are manifested in the text : he has to have spatio-temporal competence, the acquisition of which is best manifested in the trap episode : he needs to know where cats are available. Then, he has to /be-able-to-do/ the stealing, i.e. to break and enter locked houses to get the cats.

This competence is best described as "being stronger" than the passive Subject if the latter objects to the program involved. It could be said that, in our case, the houses, not being human, cannot object, and that, being a passive Subject, they cannot object or resist anyway. This is nevertheless a matter of degree : the hero of a tale usually has to kill the dragon to bring the kidnapped Princess back to her father : in this life-and-death struggle, he has to have a better /being-able-to-do/ than the dragon. Of course, the cat burglar does not need any /being-able-to-do/ as regards a potential program of murdering the cats' owners : he waits until their departure, so he only has to "overcome" the locked doors they leave behind to protect their property. These considerations raise the question of non-realized programs : these cannot be written, since there is no resulting change. This type of narrative program consists in either resisting the taking away of an Object or resisting the giving if the Object is a negative one, and should be kept in mind for the understanding of the competence question : this special narrative program, sometimes called identical transformation, is in fact the failure of an anti-program, and thus it is only right to credit its operating Subject with the corresponding competences : flying away or hiding for spatio-temporal competence, resisting for the other competence of /being-able-to-do/ or /knowing-how-to-do/.

These latter two different formulations of competence are used to distinguish between an operating Subject using his strength in an open conflict (/being-able-to-do/) and an operating <sup>Subject</sup> "using his head" (/knowing-how-to-do/). Most of the time the distinction is not very easy to make : in our case, is the thief being prudent (by waiting for the cat owners' departure) or strong (by forcing "window or door")? And more generally, do the police use their ingenuity or the power (to say the least!) attached to their position in getting a confession from a suspect? Thus, we will, from now on, use only /being-able-to-do/ to refer these competences. Another distinction may be founded on the fact that strength is quite often an intrinsic property of the operating subject

while /knowing-how-to-do/ may be acquired ; but this last point raises the problem of built-in competences which we will consider later (3 a).

Before we close this discussion of the narrative program, it should be noted that a part of the competence of an operating Subject can be represented in a text by a different actor (the helper) as well as by an Object as we have seen. For example, the reporters form part of the spatio-temporal competence of the police chief for the action of catching the burglar in the trap episode. Sometimes, an actor can even represent the whole competence, being delegated to realize the action. An analysis of this last point, with a more detailed model, will be the topic of our next section.

## 2) Discursive structures

### a) The quest pattern

The discursive structures are finer articulations of what happens in and around an action : with the corresponding models, we get nearer the manifested text (as written by the author) when the text is a story or a tale where motives and consequences of actions are developed. Compared to the narrative programs, discursive structures are richer, involving more actantial roles and the corresponding competences, and accounting for processes unfolding in time, including travel from place to place.

The pattern we will now describe is quite a common one, in tales as well as in scientific texts: it accounts for the successive events which are interrelated when an Object is first missing, then looked for and eventually found; that is why we call it quest pattern. Let us take first the simplest case, when the nature of the missing Object is known from the beginning.

This is the case of the cats in our story, with which the reader is now familiar : nineteen stunned owners notice that Pussy is missing, and obviously has been stolen! It is not possible for the owners to right this wrong : it is a police matter and the owners advise the police about the thefts. This is the first step of a quest pattern, called manipulation. The owners, unwilling or unable to challenge the burglar themselves, in the hope of getting their cats back, delegate the police chief to carry out the quest in their name. The manipulation step sets up a new actantial role : that of Sender, in relation with the operating Subject. The term manipulation should not be systematically given negative connotations : it means the operation of /making-to-do/ ; it can be done gently, the

Sender persuading the operating Subject or entering into a contract with him ; here for example, the robbed people have only to ask, since a contract is already effective in the case of theft between the Midland City inhabitants and their Chief of Police. There are, however, other ways of /making-to-do/, and kicking and threatening are also examples of manipulation strategies.

Manipulation can also result in /making-not-to-do/. Instead of taking into account the point of view of the owners deprived of their cats, we can take the point of view of the "public" (who still perhaps have their cats), supported (and represented) by the reporters. These reporters, involved in setting the trap, take the role of Sender in relation to the burglar in order to prevent him from stealing <sup>any</sup> more cats. This is a /making-not-to-do/. Indeed, Laws, including those forbidding stealing for example, are most often manipulations of the kind /making-not-to-do/. In summary, the actantial role of Sender can be filled by one actor in particular (the King, in folk-tales), by a collective actor (society, etc..) or <sup>by</sup> an abstract entity (Justice (thus laws), or in other texts, Truth, Science or Charity).

Manipulation results in the attribution of a new competence to the operating Subject : the /having-to-do/, without which he would perhaps not realize the doing, even if he had the competence of /being-able-to-do/ which we defined previously ; the exception occurs when he already has a personal /wanting-to-do/ of which we will speak later on.

Our earlier description of the actions of giving and taking in terms of the narrative-program model did not take into account time-progression or changes of location. The discursive structures, on the contrary, account for delays, and the unfolding of processes which will thus have a beginning and an end. The unfolding of a phenomenon is best understood by considering a movement in space : if an operating Subject has for example the task of carrying an Object from one place to another, the corresponding actor can be represented on his way, nearer to or farther from his place of departure or his place of arrival, and a new encounter can take place in this intermediary place or time (travelling takes time anyway) ; this causes a narrative to be enclosed in a more global one (one can think of Little Red Riding Hood and the wolf for example) . Nevertheless, the representation of the intermediate step of a process, for example a voyage, presupposes, even if the text does not mention them, that there had to be a beginning to the trip, when the Subject left the departure point with the Object, and <sup>that</sup> there will be an end, when he reaches his

goal and "deposits" the Object. Instead of a regular progressive movement from one place to the other, the unfolding can be represented by a cyclical movement between the two places (if the operating Subject makes several voyages to move an object piece by piece). This particular kind of unfolding by repetition of the path is manifested in our text by a temporal unfolding : what is described in § 2-3-4 is a summary of a series of cat thefts (a repeated action) reproduced over a period of a few weeks. This presupposes the first cat theft (which is not manifested in the text) and the last one . The process could have been stopped because the amateur scientist had succeeded in finding the instant pussy formula : that would <sup>have been</sup> (the end of his own quest process ; instead, the last burglary happens as a result of the success of the Chief of Police in his quest, at the 20th repetition.

It should be noted that unfolding has special consequences on actantial roles (sometimes we speak of actorial unfolding, together with spatial and temporal unfolding) : if, instead of being removed from an original place and deposited elsewhere, the Object is to be removed from one actor and given to another, the operating Subject, initially, receives (or takes) the object from an "origin" passive Subject, then holds the Object during the unfolding, and then gives it to a "terminal" passive Subject. The terminal passive Subject is called Receiver in this pattern. The operating Subject accomplishes in succession two contrary elementary programs, taking and giving ; this is characteristic of unfolding and does not mean that this Subject, half-way along his narrative path, changes role from Subject to anti-Subject (of an anti-program).

As we stated earlier, introducing an unfolding process instead of an instant action means delaying the realization of the doing ; this delay is a potential invitation to every kind of "incident" which could be included as narratives in the larger one ; these narratives can also put a definitive end to the doing the operating Subject was /having-to-do/ according to the will of the Sender. These incidents can extend from error, for example : removing the wrong Object from the origin passive Subject and giving it to the Receiver or removing the real Object but giving it to a wrong Receiver (different from the one intended by the Sender), to actual trickery, when the operating Subject, having done half of his task (removing the Object, possibly after a difficult struggle) is stopped by someone (usually called the traitor) who takes the Object from him, performs the rest of the task (which consists of simply giving the Object to the Receiver) and claims to have done the whole. Thus, in

such a pattern, the result has to be checked by the Sender. This last part is called sanction.

Before we begin a detailed description of sanction, however, let us summarize the quest pattern: it is constituted of three parts:

manipulation ; action ; sanction.

As for the actantial role distribution, it can be simplified to the schema:

Sender → Object → Receiver  
                                   ↕  
                                   operating Subject

This straightforward representation cannot account for all possible incidents; to do this, we have to reproduce this first schema, rewriting every item as "anti-":

anti-Sender → anti-Object → anti-Receiver  
                                   ↕  
                                   anti-operating Subject

Indeed, the anti-operating Subject must have a Sender like the operating Subject: he has to have motives for his actions. Of course, the two patterns would not interfere with one another if at least one actor were not playing at least one actantial role in each of the patterns.

Object and anti-Object can be the same actor: for example the cat, stolen in one pattern, given back in the second...(as instant pussy) or, more realistically, money and jewelry, which would have been of more concern to an "ordinary" burglar engaged in more normal thefts: in the first quest pattern, money is stolen, in the second, it is given back after the thief is caught by the police; or, in the first, money is acquired, in the second, money is stolen. It should be noted that the second (anti-) pattern can have actors far more abstract than thieves: money, for example, disappears of its own accord (as well experienced in everyday life!) and thus is always needed, and a cat eventually reaches eternal rest, even if his way does not cross that of a scientist!

The sanction is quite simple in this case: it consists for the Sender, (usually defined as a Sender-judge in order to avoid confusion with the Sender of the manipulation process), in verifying that the Object he found missing at the beginning has been returned to its place at the end. Such a judgement puts an end to the quest pattern. For example, the Sender of the reporters is satisfied: the tide of curiosity whipped up by the cat burglaries

has been stilled: the explanation for <sup>the</sup> cat stealing is found; the public, as Sender, will now turn its attention elsewhere. In contrast, the question of the cats is not resolved, since they are dead as we learn in the last paragraphs.

Instead of being returned, the Object can be replaced by an equivalent; the task of the Sender-judge is more difficult then, since he must evaluate the correspondence between the two Objects. Is the pleasure afforded by the cats, now missing forever/replaced, in the view of their owners, by the pleasure of seeing the thief punished after his judgement? Or, taking it the other way around, since the suffering caused by the absence of an Object of pleasure can be described as an anti-Object, the taking of the first being equivalent to the giving of the second, stealing cats is equivalent to giving suffering. Is the suffering experienced by the cats' owners, which was given them by the thief equivalent to their giving him the anti-Object represented by the extreme limitations of imprisonment? Or is this analysis -which was just an example for describing the evaluation of equivalence by a Sender-judge- improperly reducing 'justice' to 'revenge' ?

The other way of having the patterns interfere one with the other is a situation where the same actor plays the roles of anti- and operating Subject; crossing the boundaries between the patterns, he can give the anti-Object to the Receiver or the Object to the anti-Receiver. If he does it intentionally, this is a fraud; if not, it is a mistake (situation often encountered in scientific texts).

In this case, the sanction consists for the Sender-judge in deciding whether or not the realized doing is consistent with the doing he planned for the operating Subject; if so, the actor receives a reward, or at least an expression of gratitude. If not, the actor is judged as playing the part of the anti-operating Subject and is punished. That is precisely where our story surprises the reader: the punishment of the "Cat Burglar" is almost a reward, when he reveals himself as an amateur scientist looking for an "instant pussy" "formula": " he received an exceedingly light sentence since even the judge agreed that (...) his purpose (...) had been laudable" (§10). That can only mean that the Sender acknowledges the discovery of "instant pussy" as consistent with one of his planned /making-to-do/s, even if he resents the

auxiliary program ("method of acquiring cats").

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This last comment raises the question of the sanctioning of a program when the precise nature of the Object has not been specified beforehand, and the operating Subject is sent on his quest path not knowing exactly what will fulfil the need. The Sender-judge may have to make a choice, especially if several Objects, furnished, perhaps, by several competing operating Subjects are presented for this purpose. This is a problem of appropriateness and not of mere equivalence as before.

Instead of having to choose between several operating Subjects each bringing a different Object, a more complex situation arises when two different actors present themselves to the Sender as the operating Subject of the realised doing; the Sender has to decide which one is the true operating Subject. Usually, the Sender will weigh their respective abilities by sending them out to perform an equivalent task under careful observation. This would appear in the analysis as a second quest pattern following the first one. The first quest related to a pragmatic Object, but the second one is the quest of the circumstances in which the pragmatic Object was acquired, i.e., relates to a cognitive Object.

The sanction or the related problem of describing the function of the Sender-judge is the most intricate part of the quest pattern because it consists in fact of two different elements: the evaluation of the states of the passive Subjects according to the quality of the Objects ('bad' or 'good') with which they are conjoined or disjoined, and the reward or punishment of the operating Subjects who have brought about the changes of state of the Subjects. Thus, the first element may be considered as a screening of the states by way of an evaluation of the Objects; it is simple when the judgement is made by comparison with a particular Object previously lost (identity or equivalence); more complicated when the reference is a need which an appropriate Object is to fill: the need and appropriateness are checked against a general system of values of which we will speak later on (3 c). This Sender-judge function takes place at the beginning of the quest, relayed by the manipulating Sender who distributes the /having-to-do/ and /having-not-to-do/ according to the evaluations, and it takes place in a final evaluation of the states, bringing the quest eventually to an end (when everything is as it should be, at least in stories with an happy ending) . But the evaluation can

also take place all through the text, especially during an unfolding process with several steps (auxiliary programs). Furthermore, most often, and especially in the final state when there are two or several operating Subjects in competition, or when the evaluation is of the appropriateness-of-the-Object type, the Sender-judge takes into account the competence of the operating Subject (either the ability, or the auxiliary programs, or the motives and/or the nature of his Sender) . This would appear on analysis as a check on the circumstances of the doing (or even as a new quest); a cognitive Object is thus produced, which can in turn be evaluated. In scientific texts describing discoveries, the evaluation of the final state is entirely dependant on the evaluation of the competence of the operating Subject; this is easily understood since, in a situation of discovery, the Object eventually reached by the quest is not known beforehand.

The second function is, as we have already stated, to distribute rewards and punishments among the operating Subjects. It should be noted that, in certain tales in which the hero has to kill the dragon which abducted the King's daughter in order to bring her back to her father, the punishment (death sentence!) is already given to the anti-operating Subject guilty of "wrong" doing; this punishment is administered by the hero delegated by the Sender. On the contrary, the reward of the 'good' operating Subject takes place at the end of the quest as part of the Sender-judge function (usually in the form of the wedding of the hero and the King's daughter). This, however, does not make things easier. The reward and punishment matter can be more adequately handled if taken as a kind of screening between 'right' and 'wrong' doing; rewards and punishments are Objects the role of which are to force /having-to-do/ and /having-not-to-do/ on would-be operating Subjects who will rise up from the collective actor, society. Thus the role of the Sender, in this case, is to prevent any change for the worse and encourage changes towards 'well-being'. Rather than a Sender's forcing onto an operating Subject a precise /having-to-do/ consisting in giving a definite Object to a definite Receiver, it would be more adequate to describe this role as the promotion of a general /wanting-to-do/ the 'right' doing and /wanting-not-to-do/ the 'wrong' doing. For example, the reward in the form of a "best-of-show" prize won by the owners of the twentieth cat <sup>creates</sup> in other people a /wanting-to-do/-raise (beautiful) cats. Rewarding, or its contrary, punishing, thus appears as a form of manipulation, but since it is not directed towards

any actor in particular, we will not use this term; the case will be considered together with the cases where the Sender is an abstract value, interiorised into the operating Subject as a /wanting-to-do/.

The distinction we have made between a manipulating Sender and a Sender-judge is a practical one; it must be kept in mind that they are two aspects of the same actantial role of Sender, useful for describing separately manipulation and sanction in the quest pattern. Indeed, the sanction of an action can serve as manipulation for a new one. Thus, as a convenient rule, the manipulating Sender function is oriented towards the future: planning of actions, including delegation of operating Subjects and designation of an Object needed to promote the change of state of some Receiver; on the contrary, the Sender-judge function is oriented towards the now: is everything as it should be ? Question which can involve a return to the past: has everything been done as it should have been ? This taking into account of the past to evaluate the now by the Sender-judge is in keeping with the idea we have put forward from the beginning: in narrative analysis, a state has to be considered as the result of a transformation (state is not a pertinent elementary unit for analysis) . But there are two cases where narrative program and state are quite similar: when an attempt to change states does fail and the states remain identical; and when a state is viewed in the frame of an unfolding program and does not change while other states are changing (a text can put together unfoldings of different duration, a life-long process and a shorter one). In both cases the Sender may exert his function not only at the beginning and end, but during the unfolding of the quest, and the difference between manipulation and sanction is not so obvious.

It can already be guessed that an analysis of the different functions fulfilled by the Sender (either actors or abstract values) in a text gives convenient access to underlying ideologies ; thus, even if the analysis of actions as narrative programs in some texts seems to be detailed enough to account for the manifestation, it is nevertheless useful to make explicit the steps of manipulation and sanction, always presupposed, if not always included in the narration. Furthermore, taking into account the complete quest pattern is useful when several actions are described; it helps to organise the different narrative units of the text into a hierarchy, since manipulation and sanction can appear as narrative programs (when manifested) as well as quest patterns in their own right.

## b) The message communication pattern.

The message communication pattern is, within the frame of the discursive structures, an alternative to the quest pattern. It was primarily intended to describe the specific problem of circulation of information where a text manifests such a circulation; thus its nomenclature bears the marks of its origins as was the case for the quest pattern, the denominations of which relied heavily on common folktale plots. Nevertheless, the communication pattern proves useful even when the circulating Object is a material one, provided that the text describes the transfer of an Object as the result of some kind of cooperation between two actors. Such cooperation is obvious for the question of message communication, <sup>from which</sup> the pattern gets its name: for an oral message, one of the actors has to speak, and the other to listen; for a written message (such as a letter) someone writes and someone reads it.

We will take as an example, from the trap episode, the "story" of the prize-winning cat, accompanied by its picture, Object designed for the capture of <sup>the</sup> "Cat Burglar". Informative practice has to be separated into two different practices: an emissive practice, which is here represented by the publication of story and picture in the newspapers, and a receptive practice, which consists in noticing this particular piece of news when reading the newspaper. The message communication pattern sets up two new actantial roles: the role of Addresser (here the reporters) involved in emissive practice, and the role of Addressee (the burglar) involved in receptive practice; it can be represented as follows :

$$Ar \rightarrow O \rightarrow Ae$$

Where Ar stands for Addresser, Ae for Addressee, and O (as before) for the circulating Object.

This formula is reminiscent of the quest pattern formula, but, in fact, is quite different, since in the quest pattern, the Sender does not have the Object and needs to delegate an operating Subject, first to get it, then to deliver it to the Receiver, whereas, in the communication pattern, the Addresser has the Object and emits it himself; furthermore, the Object is not delivered automatically into the hands of a Receiver: it is necessary for the Addressee to take it. In fact, the communication pattern is closer to a narrative program of giving and taking than to a quest pattern; it

could be said to represent the taking of an Object from the 'origin' passive Subject (S p1) and the giving of it to the 'terminal' passive Subject (S p2). The quest pattern emphasized the role of the operating Subject in the transformation of the states of both passive Subjects; on the contrary, in the communication pattern, the actors in the roles of Addresser and Addressee each operate their own transformation of state: this reduces drastically the importance of the operating Subject, which is, in this case, a mere channel of communication (such as a mailing system), or a passive support for the message (such as newspapers). Furthermore, the spotlight is now directed more onto the practice of Addresser and Addressee than onto their change of state. This is why emissive practice can still be formalized as a disjunction from the Object-message, even if the content of the message, being a piece of knowledge, is obviously not lost to the actor playing the part of Addresser (if he is considered as a cognitive Subject in conjunction with an Object-information); and why receptive practice can be represented as the conjunction with the Object-message, even if the actor playing the part of the Addressee disregards the message content afterwards. Informative practice can thus be summarized as a double transformation related to the narrative program representation:

$$(1) \text{ DO (Ar) } [Ar \wedge 0 \rightarrow Ar \vee 0]$$

$$(2) \text{ DO (Ae) } [Ae \vee 0 \rightarrow Ae \wedge 0]$$

Nevertheless, it should be noticed that there is no longer a double implication between parts 1 and 2 (this is due to the disappearance of the actantial role of operating Subject, which made the link): an Object-message can be emitted and lost to everyone; an Object, which was not intended to be a message, can be received. The two practices are independent. One can imagine that the "Cat Burglar" could just as well not have bought the newspapers, or, while reading them, overlooked the news about the Siamese cat: this would be an example of a lost message. As for the possibility of a received message which was not intended as such, we can think of the "message" the reporters received and then circulated as a piece of news entitled "Cat Burglar": the surprising nature of the thefts (cats stolen instead of money or jewelry), which arouses the curiosity of everyone, Chief of Police, reporters, and the public. These actors are in the position of Addressee as regards this message (to be deciphered), a result the burglar, playing

unwillingly the part of Addresser, did not intend, since secrecy is the best protection for the continuation of his activities.

It could be said that these two examples point towards an improper communication, or the failure to establish <sup>communication</sup> ~~it~~; indeed, the communication pattern is also a model for describing inter-subjective relationships. One could hardly speak of inter-subjective relationships in the quest pattern, where, for example, the hero, playing the part of the operating Subject meets the anti-Subject only to struggle with him, a 'relation' usually ended by the killing of the latter. Even with the Receiver, the relationship usually reduces to the delivery of the Object; the kind of unfolding we find is spatio-temporal: it is figured by time-taking travelling. The communication pattern, on the contrary, accounts for unfolding relations between partners (as the use of the term 'practice' instead of 'doing' may already have suggested). In this case, as shown by the improper communication we mentioned, inter-subjective relationships have an opposite: no communication at all; the informative practice is considered in its diachronic dimension. Therefore, the problem of the beginning and of the ending of the inter-subjective relationship is raised. Since beginning and ending are 'doing', they call for certain competences, as did the narrative program; but, since there are now two Subjects, Addresser and Addressee, responsible for their respective practices, we shall have to consider how their respective competences interact.

For example, in our story, the cat owners, in the view of the "Cat Burglar", are Addressers: a cat left alone in a house is equivalent to a 'message', intended for an Addressee to 'pick up' (of course, this 'message' is a pragmatic Object). We shall not use the competence called /being-able-to-do/ to characterize the state of 'receptivity' of the "Cat Burglar" caused by the absence of the householders, since he actually does nothing to provoke their absence: he just waits; we shall rather call this special kind of competence /being-able-to-be/. It defines the state of one partner as encompassing the action of the other partner of the communication. In our example, the departure of the householders (equated with the beginning of emissive practice on the part of the Addresser), triggers in the "Cat Burglar" a change of state from /not-being-able-to-be/ to /being-able-to-be/, and this state lasts until the owners return, whether our hero decides to take the cat in question immediately after their departure or sometime later, or decides

to wait for another such occurrence. This competence is thus different from the one needed for an actual doing (breaking and entering the house to catch the cat). The competence of /being-able-to-be/ can as well characterize the Addresser, when his emissive practice is dependant on the presence of someone listening: the competence ends with the other partner's departure, or when he stops listening.

Instead of being opposed to no communication at all (silence) in a diachronic setting, the inter-subjective relationship can result from the selection by an Addresser of a particular Addressee among several possible; the competence for selection is also expressed as a /being-able-to-be/. The selection has its counterpart, the capacity to exclude would-be Addressees, expressed as /being-able-not-to-be/; it will be, for example, the sending of <sup>a</sup> coded message, or the holding of a secret ceremony for a particular set of Addressees. In much the same way, an Addressee can select a particular Addresser among several; his /being-able-to-be/ will be represented by the capacity to concentrate on the Object emitted by the selected Addresser, and the correlative capacity of refusing other concurrent Addressers. The inter-subjective relationship is thus now defined as a selection among several on-going communication patterns, in a synchronic setting. It is a special kind of communication pattern, which presupposes that both Addresser and Addressee have the competence of /being-able-to-be/ as regards the practice of the other partner, which could be called selective practice. In the frame of the communication pattern, the inter-subjective relationship shows the highest degree of cooperation between Addresser and Addressee.

But why should an Addresser (for example) have a selective practice, and, for that matter, why should he have emissive practice at all? We have seen that the "Cat Burglar" was an unwilling Addresser towards public and reporters; on the contrary, the Chief of Police, helped by the newspapers, publicized intentionally the news about the prize-winning cat, and even added a "beautiful picture" to be sure that the burglar would notice it. This is called persuasive practice, here aimed at the "Cat Burglar", so that he will not discard the Object-message, but on the contrary, keep it in mind for future use; this keeping-in-memory is another form of the link between Addresser and Addressee in an inter-subjective relationship. Persuasive practice is thus aimed at the establishment of such a relation (this persuasive practice was indeed absent from the emissive practice of the "Cat

Burglar" who did not want such a relation with the Chief of Police). From an abstract point of view, the persuasive practice of an Addresser is intended to produce a change of 'mood' in the Addressee, so that he will take the Object offered by the Addresser or will not turn it down, and <sup>will</sup> reject other alternative Objects; it can be described as a change in the Addressee to a /wanting-to-be/directed towards a particular Addresser or the Object he is emitting.

The 'arguments' the Chief of Police uses in his persuasive practice (news and picture of the Siamese cat) are devised according to his previous knowledge of the behaviour of the "Cat Burglar"; this knowledge was acquired when he was in the position of Addressee of the 'message' conveyed to him by the peculiar nature of the burglaries. He thus engaged in an interpretative practice, as a result of which he knew that a piece of information on cats was likely to lure the "Cat Burglar" into a trap. The practice of the Chief of Police we just described (an interpretative practice followed by a persuasive practice), is very close to the actions performed by an actor playing the part of a Sender in the manipulation step of a quest pattern (in fact, we used the same example when studying the quest pattern, disregarding at that moment the 'cooperation' of the burglar). Indeed, the manipulation step often takes the form of a message communication. We can well imagine the diverse elements a Sender acting as an Addresser will introduce into his communication when he is trying to convince an actor to become an operating Subject for the realisation of a particular program: he would describe the 'wrong' state of the Receiver deprived of the Object of the quest, and the 'right' state <sup>to be</sup> attained after the giving of the Object; he would describe the 'wrong' doing of the anti-operating Subject who deprived the Receiver of the Object, and indicate to the would-be operating Subject the 'right' doing he should perform; he can even describe the punishment for 'wrong' behaviour and make the promise of a reward awaiting the hero who succeeds in the quest; furthermore, he is likely to stress to the actor he wants to convince how easy it will be for him to accomplish the quest, due to his exceptional strength or his uncommon ability, or due to the weakness of the anti-operating Subject. To summarize, the Sender produces a description of the present state of affairs (including an assesement of the competence of the involved operating Subjects), and makes promises about the future state of affairs (including the punishments and rewards he will give). Those are

two different strategies designed to change the 'mood' of the would-be operating Subject towards a /wanting-not-to-be/ as regards the present state of affairs and a /wanting-to-be/ in keeping with the future state of affairs, which should incite him to act as an operating Subject. Of course, several elements of this complete persuasive practice can be omitted from a persuasive practice manifested in a text, either because they already are agreed upon by both Addresser and Addressee, or left to the Addressee to interpret for himself; this can be considered as a sign of respect for the partner, or, alternatively, as a convenient means of deluding him.

Indeed, the "Cat Burglar" does not guess what kind of relationship is being offered to him, otherwise he would not fall into the trap. Thus, in his interpretative practice following the persuasive practice of the Addresser, he fails to see the 'real' purpose of the Addresser; his interpretative practice can be deduced from his reaction: the fact that he went to the owners' house shows that he believed that there was really a cat there (belief in the correspondence of the description and 'reality', or to say it in another way, in the 'truth' of the utterance emitted), because of his belief that reporters are reliable news Addressers. He did not suspect that the reporters in question were the accomplices of the Chief of police. The burglar's interpretative practice contains the same elements as those of the sanction the Sender-judge applies to the operating Subject after the quest: an evaluation of the competence of /being-able-to-do/ - in this case, collect the 'real' news and not the 'false' news (which would be an anti-Object); and an evaluation of which one of the Sender or the anti-Sender was responsible for the /making-to-do/. This is where the burglar failed: in the absence of any contrary elements in the persuasive practice, he believed the origin of the /making-to-do/ exercised on the reporters was the public, as usual... while it was instead the anti-Sender (from his point of view), the Chief of Police, who had kept his role in the publication of the news item secret. Nevertheless, it should be observed that interpretative practice, even if it takes the form of a sanction, is, for a particular action, an 'anticipating sanction', and thus does not correspond with the definition given in the quest pattern. Furthermore, while the quest pattern had a unique Sender, deciding about 'reality' (of course, we are speaking of the reality manifested as 'facts' in a text) and fixing 'right' and 'wrong', the communication pattern, on the contrary has room for several 'realities' and several sets of evaluation (as many as there are

Addressers for a particular Addressee and Addressees for a particular Addresser), and for the interplay of their transformations by way of persuasive and interpretative practices. It is within the frame of the communication pattern that we consider the case of actors evaluating their own state or behaviour; we acknowledge that such actors share the role of Addresser and Addressee, the Addressee performing an interpretative practice on himself as if he were considering his image in the mirror as an Addresser.

The interpretative practice of an Addressee unavoidably raises the question of the reliability (or credibility) of the Addresser. This evaluation of reliability is based, as we have seen, on previous experience of the behaviour of the Addresser; it may also be guaranteed by someone else, or by a general idea of how an Addresser with an institutionalized function (such as a reporter... or a scientist) should behave. The reliability has to be evaluated for the two possible Objects an Addresser can emit during an emissive practice: a 'picture' of the reality for the Addressee's benefit, or a promise for the future (as for example the implicit promise to eventually find the formula for instant pussy that the amateur scientist makes to the public, promise that everyone seems to believe in the story, since nobody questions his reliability).

The question of 'reliability' we asked in the case of the interpretative practice of an Addressee towards an Addresser can also be asked in the case of the Addresser (a reliability envisaged this time from the point of view of the Addressee). The persuasive practice of the Addresser was aimed at a change of /wanting-to-be/ in the Addressee. The new /wanting-to-be/, which can also be expressed as a secure and long-lasting conjunction with the Object sent by the Addresser, is correlated with a /wanting-not-to-be/ concerning the 'silence' of the Addresser, or other Objects sent by possible concurrent Addressers. The change of 'mood' (as we have sometimes said), is expected by the Addresser to produce immediately or eventually a change in the behaviour of the Addressee, whether the Object is a new 'picture' of the world, or the promise of a reward if the behaviour is consonant with the proposed evaluation of what is 'right' and 'wrong'. Thus, the new /wanting-to-be/ is to play the role of a Sender for the Addressee (an abstract Sender interiorized by the latter as a piece of knowledge or a set of evaluations). But, of course, since we are dealing with a communication pattern, it is up to the

Addressee to adopt this Object or not. If he does, the Addressee will be 'reliable', or rather, 'faithful' to the Addresser. It is common that an actor playing the part of an Addresser will try to secure an agreement from the Addressee by displaying his own reliability, or by denying the reliability of other possible Addressers. This would be a second-order communication pattern, where the object could be called 'reliability' (that of the Addresser, in producing the first message object, and that of the Addressee, in making good use of it). A corresponding practice of the Addressee will meet this second Object. For lack of a different denomination, we shall again call those practices persuasive and interpretative practices; but there is a proposal within Greimassian theory to consider this second order communication (dealing with agreement) as a fiduciary communication pattern.

### 3) Valorisation of actions and Objects.

#### a) Themes and thematic roles

Until now, we have described ways to account for actions which are manifested at length in the text, but, as we have seen, the text can take short cuts and we had to <sup>reconstruct</sup> several implicit programs as well as some of the conditions necessary for a program to be realized (i.e., the competences of the operating Subject). This reconstruction was based on implications arising from the narrative logic of the models. There is, however, another way for a text to communicate undeveloped programs or competences of Subjects, and that is by naming them (using semantics); we will now describe this procedure.

For example, "burglaries" (§1) presupposes quite a definite kind of action; it could be called a stereotype: it consists of making one's living by stealing the property of someone else and selling it for money. Once a particular set of conditions <sup>is</sup> found, a programmed series of actions ensues: watching for the opportunity (owners' absence), breaking into the house, and reaching home again safely, and later selling the stolen items, without being caught immediately, at the scene of the crime, or later on, elsewhere (by the police). Such a series is called a theme or a discursive path. This use of

the term 'theme' is, of course, to be distinguished from that found in texts of literary criticism, where the term refers either to the 'subject' of the discourse under discussion or to a recurring idea (this latter meaning can be happily compared to the Greimassian idea of 'isotopy' -see 4 a). The path described above forms a complete quest pattern, and is valorized negatively: it meets with the disapproval of a society of owners, the police are involved, and in case of arrest, trial brings punishment to the criminal. In a text, such a path, because of its consistency, can be called up in the reader's mind either by its denomination or by the description of the successive actions (definition); it is not necessary to describe more than one typical action to call up the idea of the entire path. Our text proceeds by combining the denomination and description of a few elements of the path: what is said of the burglaries is just enough to underline the specificity of this "Cat Burglar". His entering the house in the owners' absence installs him as a burglar; the fact that we are not told that he climbs to break in means that he is not a 'cat burglar', but what he steals makes him one - even though he is still not a 'cat burglar' in the proper sense: thus the 'cat' part of "Cat Burglar" is first denied and then reintroduced in the form of actual cats.

The story takes as its start this divergence from the theme of "burglary", but other elements of the path are nevertheless present in implicit form: watching for the opportunity (entering the house only when unoccupied) is suggested by the sentence " (the police)... had the owners of it leave, and in an obvious manner"; the non-exchangeability of the stolen item for money is suggested by the curiosity of the public, the reporters, and the Chief of Police, since a cat does not seem to belong to the category of exchangeable objects...it is not even food one could live on! In that respect, a prize cat is a value of doubtful classification, because it could be sold for breeding purposes; the nature of the cat selected for the "trap" reflects well the perplexity of the above actors.

Almost every word of a text could be called a theme (i.e., every word has a dictionary definition) but few of them would contribute to such a precise and rich path: for example, entering a house presupposes going out of it and may initiate a path providing for somebody to be waiting outside - otherwise, this theme would not seem very pertinent for analysis; we will later list the themes which seemed pertinent for the analysis of our story.

A theme can be summarized as well by the denomination of an actor: "burglary" supposes a burglar: "burglar" is called a thematic role; others are "the Chief of Police", the "judge" and the "householders", all depending on the theme of "burglary". In a story, an actor can be given a name which specifies him as the same 'person' whatever he is doing: in this case, the name is like an available, unoccupied space in the reader's memory where the qualifications underlying the actions the actor realizes are summarized during the unfolding of a story. A thematic role, on the contrary, is already an occupied space. When the individual name has also a meaning (like "Cat Burglar"), the distinction between name and thematic role may vanish; interestingly enough, the only proper names of this story are those of the dachshunds of the Chief of Police, "Little Note" and "Long Remember".

The thematic role, a ready-made pattern, always indicates an action which is repeated or may be so; the actor invested with such a role has therefore the competences needed for the action: these could be said to be built-in competences, because their acquisition is not described by the text. These competences have, as usual, a component of /being-able-to-do/ and a component of /wanting-to-do/ or /having-to-do/. For example, the "judge" mentioned in § 10 does judge; his competence of /having-to-do/ is not even alluded to in the story; we may deduce it from knowledge of the thematic role as the result of a contract with the public, stating that he has to subject a suspected criminal to trial if one is presented to him. His competence of /being-able-to-do/ may be partly deduced from the thematic role: it is a general knowledge of what is 'right' or 'wrong' for society, or rather, lawful and unlawful; the other parts can be reconstructed from the description of his judgement: acquisition of information on the behaviour of a particular suspect, comparison of this with the law, and power to give a sentence (a competence quite reminiscent of that of a Sender-judge). Part of this competence, as already seen, can be represented by other actors who are like a constellation around the thematic role: the police, the owners, and the burglar himself are sources of information, thus part of the judge's /being-able-to-do/. We shall make a distinction between two kinds of /being-able-to-do/: one is of a general kind, and built-in once a thematic role is attributed to an actor, the other is the special condition which triggers an actual doing, and which comes from outside; that was, for the "judge", to be presented with the par-

ticular case of the "Cat Burglar". We could make the same remarks as regards the thematic role of <sup>the</sup> "amateur scientist" : since he is not in the pay of a public or private research organisation, his /wanting-to-do/ may be expressed as the will to present the public with the gift of a new valuable Object (in other words, he has an abstract Sender like Science or Progress); his general /being-able-to-do/ includes the astuteness necessary to find the formula of "instant pussy", and material items like "crematory", grinding instruments and so on; but the particular /being-able-to-do/ represented by the cats themselves is a problem since the 'scientist' has seemingly no money to buy them. It should be noticed that this theme, contrary to that of burglary, is valorized positively by the judge.

The correlation the text establishes between the two discursive paths of burglary and amateur scientific production is a good example of how a text can exploit several themes while keeping its consistency: the 'graft' is ensured by a narrative link (burglary is an auxiliary program for scientific production), a discursive link (the same actor performs both) and a semantic link (cats and instant pussy).

In addition to the thematic roles of burglar and of amateur scientist, a third thematic role, that of "owners", appears at first obviously subordinate to that of burglar. Nevertheless, the pets' owners deserve special consideration in view of the first sentence of the story which puts the Chief of Police among them; the detail that he "owned two dachshunds" is important for two reasons: the very names of the animals ("Little Note" and "Long Remember") are of course directly related to the thematic role of "Chief of Police" - they are an expression of his 'detective' competence; but the Chief of Police is also a pet owner (indeed the names chosen for the dogs seem very appropriate for the shape of dachshunds!): even though the pertinence of this role is immediately negated by the author ("but this fact has nothing to do at all with..."), the reader cannot escape the question of why it is included. It is to be noticed that this thematic role of "owners" is not a thematic role given to an actor playing the part of an operating Subject; on the contrary, the pet owners of our text have the actantial role of passive Subject; for this reason, such a role may be distinguished as a pathemic role.

In contrast, a fourth theme does not seem an intrinsic component of the burglary theme: it is the theme of the press, including news, newspapers

and reporters. It is grafted onto the principal theme of burglary by a special qualification of the reporters, their "curiosity" about the "Cat Burglar"; this curiosity can be analysed as a /wanting-to-be/ competence (as encountered in our discussion of the communication pattern); but this curiosity is in the name and for the sake of the public; thus, the reporters can be described as intermediaries (and perhaps the regulatory instance) between the Addresser and Addressee represented by the same collective actor, the public; in this intermediary role, they are at the same time the Addressee of images given of itself by the public and Addresser of those images back to the public (who after looking at them, may behave accordingly).

b) Spatial and temporal organisation.

Spatial and temporal organisation shall be studied at two levels: firstly, at the level of the notations of times and places which provide the manifested text with an underlying topology and chronology; these work, together with the appearance and disappearance of actors from the 'scene', in differentiating actions; they create discontinuities, and organize the text into sequences; secondly, times and places are to be considered at the level of themes and thematic roles where, in a more abstract way, they have a part in the definition of roles and competences.

The sequential organisation of our story appears to be quite simple, and it can serve as an example of analysis at the first level.

At the beginning of § 6, a temporal marker: "not until his twentieth (...) burglary..." establishes a break between what could be called the first sequence and a new one. The first sequence could be entitled "the concerns of the Chief of Police" : it shows an unfolding process extending over a rather long period, "a few weeks", i.e., the average pattern of repetitive burglaries, with no precise location for them (19 houses of owners scattered across Midland City). On the contrary, the second sequence, which we named "the trap", shows a shorter unfolding in time (cf. "only two hours...") and a precise location: the house of the prize-cat owners. This sequence is separated from the third by a spatial marker: "downtown, at the police station...". This third sequence could be named "the interrogation": it contains, enclosed in it, a fourth, very short sequence, "the trial", whose beginning is indicated by a temporal marker "eventually, he was tried..."; it ends with

no special mark, but since it involves a specialized actor, the judge (and, from the theme, a special place, the lawcourt), once this actor disappears from the scene (at § 11) it can be said that the story returns to the third sequence, "the interrogation".

This sequencing could be refined, for example in distinguishing in "the trap" two successive sub-sequences: planning of the trap, and the actual realisation, separated by a temporal marker "once this story...". And, of course, within the first sequence, the first sentence concerning dachshunds could be separated as an autonomic sequence on the basis of the following denial: "but this fact has nothing to do at all..." (a rhetorical marker). As it is, however, this sequencing is a good example of the division of a text into units distinguished by time and space notations, with either a consecutive organisation, or an enclosing organisation (indeed, a text can present several systems of enclosure, in a sort of concentric pattern). Sequences, distinguished by elements of the manifested text, are not necessarily related term to term with elementary narrative units like narrative programs or more complex elements such as quest or communication patterns: the fourth sequence is the sanction step of the quest pattern of the amateur scientist (which includes the thefts); while the second sequence of "the trap" is a quest pattern complete with manipulation and sanction, where the "Cat Burglar" plays the actantial role of Object.

For the second function of times and places, we will take only a few examples. The thematic role of "owners" presupposes a spatial organisation: the house, which is the property, is opposed to the "outside"; this organisation is well manifested in the text precisely because the burglar violates this distinction by entering the closed space; the house, in the theme, is like a shell, isolating an enclosed space of private property, and of privacy as we shall see; this is true also for our unlawful cat "owner", who is an amateur scientist, doing research at home. The outside space is the space of interaction and sanction: several outside places play this role for the burglar: the area around the twentieth cat house, and public places like the police station or the lawcourt. As for Midland City (its name is quite expressive of this enclosed situation), the outside is represented by the "nearby city" where certain <sup>Midland City</sup> inhabitants are rewarded for their cat breeding. This spatial organization underlies an organization

of values : an enclosed space of private pleasures, where one can enjoy cats' (or dachshunds') company, or enjoy research ; an outside space of public sanction : approval or disapproval <sup>of</sup> actions, in any case, social recognition. Time organization is parallel to the enclosed/enclosing structure of space, where pets are concerned : two valuable possibilities are at stake here, either the long unfolding of the relationship between the owners and their pets suggested by the name "Long Remember" of one of the dachshunds of the Chief of Police, and that between the owners and "instant Pussy", enclosed in the unfolding.

As well as for values, time and space can stand for competence attributing the operating Subject with a /being-able-to-do/ he would not have otherwise : we only have to think of a place like the police station, which invests the Chief of Police with the right to carry out an interrogation, or of the special time of the cat show in the nearby city which allows him to set the trap.

#### c) modalities

We shall now try to summarize and organize the items we have classified as competences, and which have been described when needed and thus scattered among the above-treated questions.

Competences are separated in two groups of modalities : those called /wanting-to .../ and /having-to.../ and those called /being-able-to.../ ; in each group there are modalities of doing, for example /wanting-to-do/, and modalities of being, related to the state of a subject as a result of an other subject's doing, for example /wanting-to-be/. We sometimes refered to as a "mood" what could be a third group, or perhaps, a special part of the modalities of state : this is related to evaluation by the subject of the reliability of the other subject (aspect mentioned in our discussion of the communication pattern), This question of reliability, in relation to that of belief, is under investigation by the Greimas' group of research, and thus so far lacks precise definition and specific denomination.

The different modalities can be tackled in three ways :

- (1) They can be competences non-manifested in the text but presupposed by the realization, or the unfolding of a particular action, which have to be made explicit by the analyst ; but because of their presupposed nature, a descriptive definition of the competences is not possible.
- (2) They can <sup>appear</sup> as a semantic investment, either embedded in the thematic roles,

or manifested as qualities possessed by actors, or as deficiencies (the hair-dependant strength of Samson).

(3) They can appear under the form of Objects which are acquired (or lost) by the Subject ; this adds a narrative definition to the semantic definition of modalities : the modality appears in the actantial role of Object in a narrative program, in a quest pattern or in a communication pattern. This case may seem more intricate, since, in (2), the expression of the modality is closer to the expressions found in a text ; but such a practical definition draws attention to the basic principle that the modalities must be defined without reference to any psychological background.

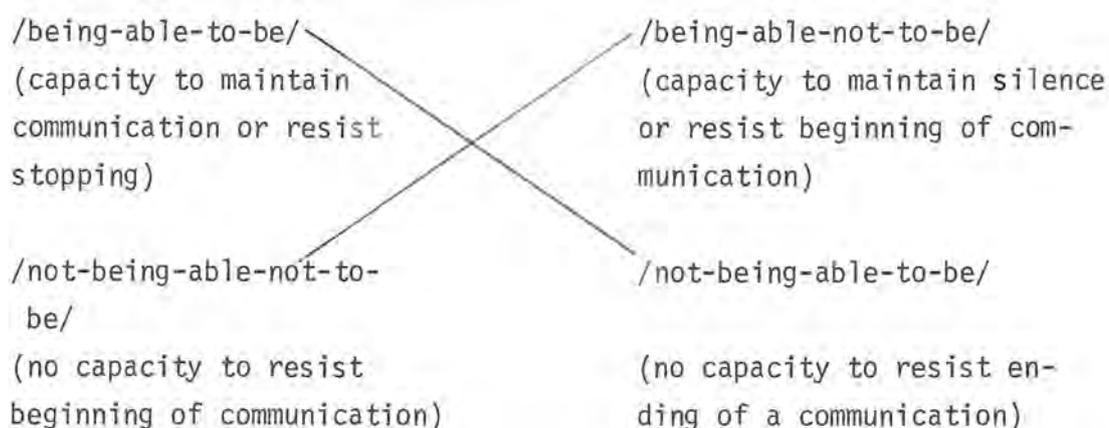
(4) They can appear as separate actors collaborating (or interfering) with the operating subject and invested with certain competences.

The modalities of /wanting-to-do/ and /having-to-do/ are sometimes called virtualizing modalities in the frame of the quest pattern, because the operating Subject, having at least one of them, is, in a way, already linked to the Object of his quest in a virtuality of doing. This virtualizing modality can be received by mediation of a Sender, in the step of manipulation ; if we want to resort to a definition involving an Object, this modality is a representation or a description, partial or complete, of the program to be realized. It can also be a promise of benefit or reward (or a sample of the reward), or, on the contrary a threat of inconvenience or punishment. When the manipulation is irresistible, the modality thus acquired is named /having-to-do/, while if the manipulation takes the form of a message communication pattern, with persuasive practice, the modality is rather named /wanting-to-do/ when the two partners reach an agreement, or enter into a contract. A subject involved in a previous contract will also be qualified by a /wanting-to-do /. Indeed, such an individualized actor as a Sender or an Addresser may not be manifested in the text : the actor playing the part of operating Subject or Addresser appears to decide for himself according to his own interest ( a personal abstract Sender) or to the interest of someone else or that <sup>of</sup> a collective actor (an abstract Sender like Justice, love and so on).

The modalities of /being-able-to-do/ (or, sometimes /knowing-how-to-do/) summarize all the conditions other than the will (or the obligation) which are necessary for a particular doing : these range from information needed to localize or identify the different actors implied in the doing,

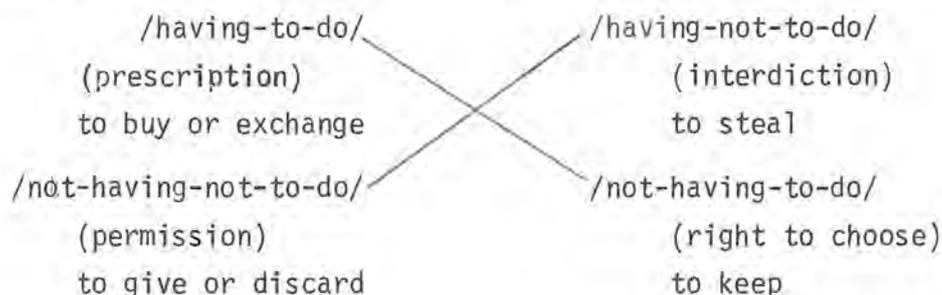
to recipes, pragmatic instruments, or objects for transforming or exchanging (money for example) ; from finding helpers or accomplices to devising cunning traps ; from means of transportation to warfare (or capacity to enter closed spaces). These modalities, usually called actualizing modalities, can be acquired part by part in endless strings of auxiliary programs or they can qualify from the beginning the actor playing the part of operating Subject.

The corresponding modalities of state are encountered either in unfolding processes or in <sup>the</sup> communication pattern, and by extension when a program devised to change a state fails. A /wanting-to-be/ characterizes the partner in an on-going communication, or both Addresser and Addressee when they are in agreement. A /being-able-to-be/ can either indicate capacity to insure communication, and thus resist its ending, or the contrary capacity to end a particular process of communication or resist its beginning : this capacity keeps a process going on even if it is silence, which means either resisting the ending of a process or the beginning of a new one (depending on the point of view). This complex situation can be analysed by considering that /being-able-to-be/ can be broken into four different states : in addition to the /being-able-to-be/ concerning a particular on-going state, and the /not-being-able-to-be/ which is the absence of any capacity to resist ending, we shall introduce /being-able-not-to-be/ as the capacity to resist the beginning of a new communication, and the corresponding /not-being-able-not-to-be/ as the absence of such a capacity. The four possible positions of a subject are usually presented as a square of modalities :



The construction of such a modalities square is quite simple : the second term of the first line is obtained from the first by the negation of the state (-to-be) while the two terms of the second line consist in crossed negations

of the terms of the first line (negation of the modality itself). This square, a convenient representation of the articulation of the different possible states of a Subject as regards the doing of another Subject, is not to be confused with the semiotic square we will describe later, which has other constraints. The above square can also be used for the representation of the modalities of doing: we will illustrate the square of the /having-to-do/ modalities with the example of giving and stealing from our story:



It can be seen that /having-to-do/ and /having-not-to-do/ refer to the behaviour of an operating Subject endowed with respective values of 'right' and 'wrong' (according to laws, or to the public as Sender). Of course, the abstract Sender of the burglar provides him with another set of values in which theft is permitted.

By extention, a Sender, instead of classifying the doing, can classify the Objects involved in a quest pattern, the result being the same, i.e., an evaluation of the states of the passive Subjects, in relation to the Object they are to obtain or to lose, as 'right' or 'wrong'. Of course, an actor playing the part of a passive Subject in a quest (the Receiver, for example) can also play the part of a "self-Sender" evaluating his own state; this will show in the manifested text as the description of "feelings". This point is still under investigation in Greimas' seminar, under the old-fashioned title of 'passions'. It has been proposed that the modality-type /wanting-to-be/ be used in that research. /wanting-to-be/ would thus express the state of a Subject towards a particular Object, as, for example, desire, need, or, on the contrary, fear, or resignation to necessity. Being an expression of what we called above the 'mood' or the 'interest' of the passive Subject, it can as well be embedded in a pathemic role (thematic role of a passive Subject) as curiosity (desire of a cognitive Object) is in the role of reporter. Instead of being the result of an evaluation by a Sender, the classification of Objects as 'right' or 'wrong' can appear as if established

beforehand under the form of a micro-universe of values; for example, curiosity, as the term is employed in the text, means that in the micro-universe of the reporters, openness - acting out one's life in public view - is 'right' while secrecy - concealing one's actions like the "Cat Burglar" - is 'wrong' (of course, the micro-universe of the burglar has the reverse orientation). Instead of a kind of moral evaluation of 'right' and 'wrong', the micro-universe can bring in other grounds for evaluation: use values (useful or superfluous), aesthetic values (beautiful or ugly), knowledge values (true or false) - the list is not exhaustive. Of course, such a polarized orientation admits a neutral value, and a whole range of intermediate values between the neutral and each of the poles; the two poles, whatever the grounds of evaluation are, are usually referred as 'euphoric' and 'dysphoric'.

In the case of the modalities related to the reliability of the other partner we encountered in the communication pattern, the reliability, as we have seen, concerns two kinds of doing:

(1) It can involve the future: this is the case when one actor promises an Object, and his partner thus evaluates the promise in relation to the probability of its fulfilment.

If the partner is judged reliable, the actual doing will be judged as certain; if he is not reliable at all, the doing will be judged as excluded (or improbable).

In between, we find several gradations; among them, 'almost reliable' would indicate 'not excluded', while 'not very reliable' would indicate 'not certain'. Since there<sup>are</sup> four terms, it is possible to organize them into the figure of a square; but since in fact the intermediate terms are part of a gradation, the corresponding square would represent a different phenomenon from the modalities square we drew earlier.

(2) The reliability can involve the competence of an intermediary (informer or observer) to give an image or a representation in keeping with 'reality' (as established by a competent actor, or the Addressee himself, if he was able to verify the 'facts' with his own eyes), or to select the image given by a single Addresser (the one wanted by the Addressee) without interferences. If the intermediary is judged as reliable, the representation will be described as 'truth' or 'reality';

if the intermediary is judged as unreliable, the representation will be described

as 'mistake' or 'delusion' or 'lie' or 'concealment', depending on whether the unreliable partner is credited with awkwardness or a will to deceive.

Matters are even more complicated when the reliability itself is not a matter of knowledge but of estimation: the degree of certitude on reliability will thus interfere with the degree of faithfulness (to reality) of the Object.

#### 4 Semantic organisation

##### a) Isotopies

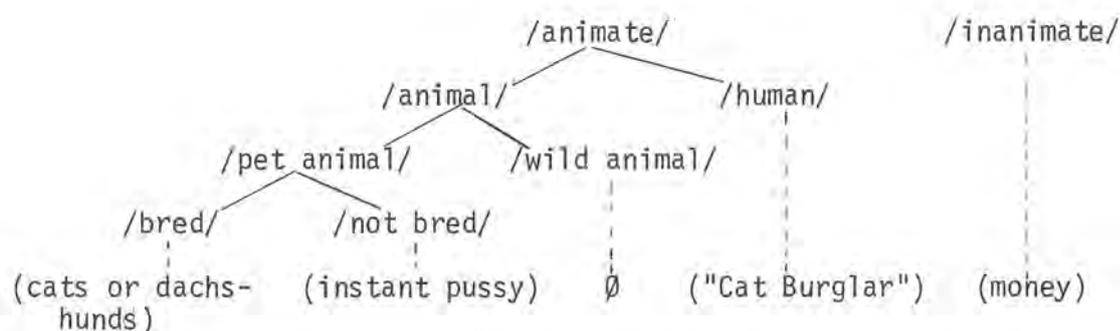
In the preceding section (3 a and b), we dealt with large-scale differences having a semantic basis, at the discursive level which displays themes and thematic roles, times, places and actors, within the frame of quest and communication patterns. We shall now consider semantic analysis at a level more distant from the manifested text, in order to describe how, according to the semiotic theory of discourse, elementary units of meaning are organized. This point is difficult to explain solely from a theoretical point of view, and we will therefore rely heavily on our short story for examples.

Let us consider, as a point of departure, the information we collected about the Objects circulating in our story: in the quest patterns, there were the cats, the "Cat Burglar" himself, and instant pussy, and, in the communication patterns, news, among which reward of the Siamese cat's owners, confession of the burglar, and his punishment. The items of that odd list are called figures. Figures are seen to be arrangements of semes (much in the same way as themes were seen to be the arrangements of particular actions); the semes are organized into a hierarchy and linked together (articulated) under the form of elementary semantic units of meaning, just as actantial roles and transformation were shown to be constitutive parts of the elementary narrative unit of meaning, the narrative program.

Semes, constitutive parts of the meaning of a word, can be found in the dictionary but as with the actions in a particular theme, not all of them will be used in order to articulate the meaning of a word in a particular story; furthermore, we will only be interested in those semes that allow a comparison to be made between the Objects we quoted in our listing.

Comparison implies that some semes are common and some different; taking the figure "cat" as an example, it seems obvious that a seme like /feline/, issued by a scientific classification, and which would make the cat a smaller cousin of the tiger, is not pertinent for our story, where cats have something to do with dachshunds, as we have seen, and must be compared with instant pussy. We will thus select, among the possible a common seme we shall call (arbitrarily) /pet animal/, as suggested by "pussy", and a seme like /bred/ intended to include the idea of the unfolding life of an animal 'raised' from natural birth to the age of natural reproduction, in order to differentiate 'cat' from 'instant pussy', the seme /bred/ being absent in the last case, where cat is generated from powder and hot water.

From the theme 'burglary', we can extract further semes to define 'cat'; cats are to be compared with Objects not stolen, such as 'money and jewelry'; we will thus add a common seme, /valuable/, to these Objects, and distinguish cat from money by the semes /animate/ vs (versus) /inanimate/; the "Cat Burglar" himself is also a /valuable/ Object (to the reporters and the public), because he can solve a problem which has aroused their curiosity by telling his story; we will distinguish the "Cat Burglar" as a /valuable/ Object from other Objects 'cat' and 'money' by setting up within the seme /animate/ the distinction between /animal/ and /human/; we thus get the following hierarchy from the most general to the particular semes:



Except for the distinction we have made between pet animals and other animals (we called them wild because of the 'tiger' we hinted at, but they could just as well be <sup>live</sup> stock), which is not pertinent for our story, we obtain an articulation of the minimal semes needed to account for the four figures representing values in the different quests. Those semes are called nuclear semes; they are intrinsic to the figures since they differentiate between them;

they have in common to characterize life (by first opposing it to what is not living); they are related by what is called a semiologic isotopy (here, globally, 'living').

The four figures are invested by the text with the seme /valuable/; this is a general contextual seme we shall now analyse more precisely. /valuable/ refers to the euphoric pathemic state of owners, or to the euphoric use which can be made of the Objects; the seme /valuable/ can thus be broken into two elements: /euphoric/ (which has its opposite /dysphoric/), and a specific qualification: from the point of view of an owner, money has /exchangeable/ or /economic/ value (economic being taken in a broad sense), while cats have none, and could be characterized by a /companionship/ or /affective/ value. As for the value of the "Cat Burglar" for public or reporters, we dare not propose the seme of /gossip/ value (which would also seem appropriate for news regarding prize-winning cats) because we suspect there are more serious concerns underlying the humour of the figures. To bring the latter to light, we only have to take into account the last items of our list, reward and punishment. As regards the punishment, we read of "an exceedingly light sentence, since the judge agreed that (...) his purpose (...) had been laudable": since everyone agrees to praise the amateur scientist (as were praised the owners of the Siamese champion), we can call the corresponding seme /social recognition/ or /celebrity/; this seme distinguishes the values of the corresponding Objects (reward and punishment) from the cats' /affective/ value and from money's /economic/ value (both of which, furthermore, are personal Objects, as a burglar should well know).

We shall call semantic isotopies the three trends we recognized in the different figures of our text, which articulate into /social recognition/ vs /personal property/, and within the latter, /affective/ vs /economic/ values. Semantic isotopies deal with contextual semes in the same way as semiologic isotopies were related to nuclear semes; the contextual semes insure a homogeneity of meaning to the whole text by connecting figures as different from each other as are cats and news. Having in common the background of the relationship of a Subject with his living environment, the three isotopies specify this relation in three different ways; the Siamese cat figure can be read on the three:

as a cat, it represents the possibility for its owners of an /affective/ relationship;

as a prize-winning cat, it is worth money (possibility of an /economic/ relationship);

as the subject of a piece of published news, it represents the possibility of /social recognition/ for its owners.

The semantic isotopies can be discovered by the ways a text organizes its figures; the denominations we gave to the semes are fairly common-sense, they are left to the intuition of the analyst, who tries to find a term general enough to convey the common features of several different figures, and, at the same time, suggestive enough to express the differences which seem pertinent. There will be hopefully (as semiotic research progresses), a list of the most often encountered isotopies in a given culture producing texts; such a list can be found in the work of Levi-Strauss on Amer-Indian myths, including for example isotopies like /culinar/, /sexual/ or /cosmological/.

The figures relative to the circulating Object happened to be representative enough of both semiologic and semantic isotopies, but, of course, other words are figures too, and must be taken into account for the identification of isotopies, for example verbs or adjectives. The /social recognition/ seme could have been deduced from figures like : "with the help of the newspapers", "publicizing", "show", "prize", "beautiful picture", "obvious manner" and so on. This list is not exhaustive, and took into account only § 6 and 7. Those figures all express a kind of interest in other people's actions, either directly by watching them, or indirectly by circulating news about them,<sup>an</sup> interest obviously oriented towards sanction, a sense we tried to convey in the seme /social recognition/. The selection of a seme is in fact done through a constant interplay between a particular figure and the other related figures in the text which seem to be on the same isotopy.

The fact that the Siamese cat figure can be read on the three semantic isotopies (such a figure is called an isotopy connector) challenges the pertinence for analysis of the first three lines in the semiotic isotopy of 'living' we established before ; we shall thus concentrate on the differences the text suggests between two particular /affective/ values: the cats (or dachshunds) and the instant pussy. The two types of relation may be charac-

terized by a difference as regards the length of the relationship (cf. "Long Remember", name of one of the dachshunds); we indicated this difference by using the seme /bred/ to differentiate cats from instant pussy. But it should be noticed that the length of a relationship is also dependant on its ending; there are in our story two figures of ending of the /affective/ relation, stealing and death, linked by the practice of the burglar-amateur scientist: "the stolen cats he had (...) put mercifully into eternal rest". This is a premature death that the amateur scientist gives to the cats (compared with natural death); but, had he found the "formula", the cats would revive, without birth, fully grown, toilet-trained, ready to serve, and when not needed, they could be sent back to eternal rest. That would be the easy way, a relationship available at will, instant and repeatable, with an anonymous pussy, instead of a long relationship from the problems of childhood and adolescence to the worries of old age and eventually death, with an individualized pet. To express this opposition, we propose the semes /unfolding/ vs /instant and repeatable/.

This new set of semes taken from the semiologic isotopy of 'living' will as well distinguish within the /economic/ relationships the relation with money (which <sup>usually</sup> has a high turn-over rate) from the relation of owners with their (closed) house (or with jewelry), which should be of the /unfolding/ kind. The seme /bred/ which we introduced especially for pets, should thus receive a more general definition in keeping with the /economic/ isotopy; since it was related to the beginning of the unfolding relationship, the corresponding term in the case of the owners should be related to a process like earning and saving money in order to invest it in stable property; the brutal end (equivalent to premature death) is translated by the figure of burglary, which draws into the circulating flow of goods Objects which, being personal property, should not be found there. The /unfolding/ seme, projected upon the /economic/ isotopy as a way of living will thus be represented by the thematic role of owners, while the /instant and repeatable/ way of living will be represented by the thematic role of the burglar.

If it is simple to find inside the semantic isotopy of /economic/ two thematic roles corresponding to the two poles of the semiologic isotopy, there is nothing in the text which could be opposed to the role of reporters in the isotopy of /social recognition/: they are obviously, through news

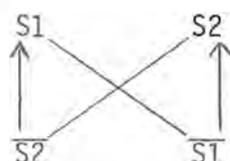
and newspapers, representatives of the seme /instant and repeatable/. What would be the mediating thematic role of 'learning' and 'keeping' celebrity consonant with an unfolding? We find, nevertheless, that the "Cat Burglar" managed unwillingly to get a certain amount of long-range celebrity by his discretion, his uncommunicativeness; this idea could (surprisingly enough) be the seme offered in the story as an equivalent to the seme /bred/, marking the beginning of an /unfolding/ celebrity, while its premature end occurs when he is caught in the trap which brings him into the open. We thus have to take into account an opposition like 'secret' vs 'open' quite reminiscent of the spatial organization we described as <sup>the</sup> 'enclosed' (and closed) inside of the house vs the 'enclosing' and open outside space in the thematic role of householders, which gave the opposition /personal/ vs /social recognition/: the burglar breaks into <sup>the</sup> personal property of <sup>the</sup> owners in much the same way as the reporters break into the secrecy of the "Cat Burglar". Therefore, we shall state that the opposition /unfolding/ vs /instant and repeatable/ (or high turn-over rate) is based upon an articulation of /inside/ vs /outside/ which generates an opposition we shall designate as /closed/ vs /open/; those terms are convenient for summarizing both secrecy and closed personal property on <sup>the</sup> one hand, and, on the other hand, the circulation of Objects like goods (by burglaries) and news. It is a little more difficult to justify the use of this opposition <sup>for cats, unless we admit that the process of death and resurrection</sup> intended for them by the amateur scientist breaks up the natural (and mysterious) process of living.

#### b) Semiotic square

We shall now describe the semiotic square, which is a convenient means of summarizing, in an organized model, the semes and figures found during analysis, and which allows, in certain cases, for the prediction of missing semes or figures.

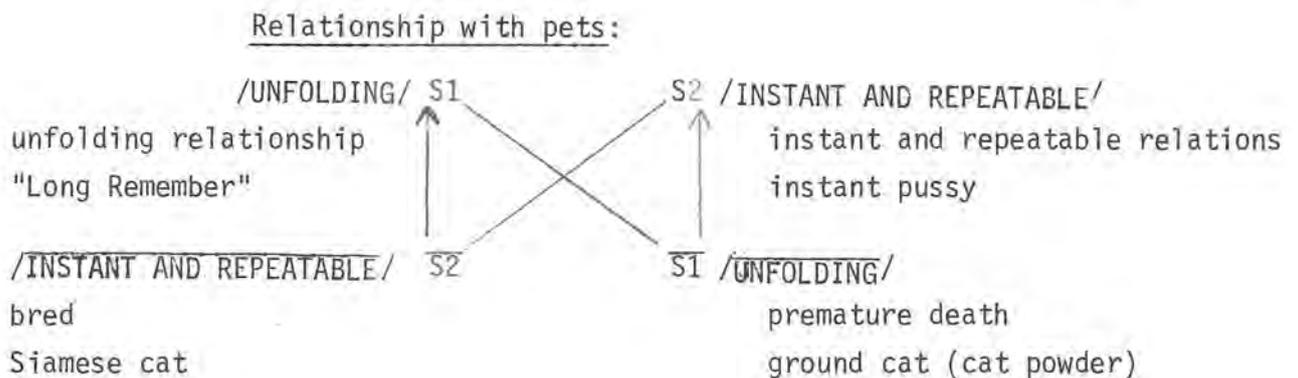
When extracting semes, we encountered two kinds of differences between the figures: the lack of a seme in one of the paired figures, and the presence of a different seme in each of the paired figures; for example in the first case, the figures of cats (or dachshunds) and instant pussy were paired as /pet animal/, but instant pussy lacked the seme /bred/, while in the second case, /closed/ vs /open/, a pair of semes related to

space, will be analysed as an opposition involving two different semes in order to characterize spatial organisation. The semiotic square is designed according to the hypothesis that the full organisation of meaning it summarizes has to take into account in a syncretic model both types of differences. Differences based on two different semes generates a couple of contraries (or contrasting terms), while differences based on the lack of a seme in one of the terms generates a couple of contradictories. Let us call two semes S1 and S2; the semiotic square then is drawn as follows:



The contraries, S1 and S2, are written on the first line and the contradictories, expressed as  $\overline{S1}$  and  $\overline{S2}$  and usually read as non-S1 and non-S2 (the upperlining standing for the lack of seme S1 in  $\overline{S1}$ ), are crossed on the second line. The specificity of the semiotic square in relation to the modalities square we drew above is the presence of an implication between  $\overline{S2}$  and S1 and between  $\overline{S1}$  and S2: these are called couples of complementaries. If S1 is taken as a point of departure, the negation of S1, which gives  $\overline{S1}$  (the absence of S1) is considered as an invitation to (or the virtual presence of) all the alternative semes to S1, for example S2, S3...Sn, among which S2 is selected by a particular text. Thus the semiotic square is also different from the logical square (or square of Aristoteles) because there is no double logical implication between S1 and  $\overline{S2}$  (or S2 and  $\overline{S1}$ ) but a one-way implication between complementaries.

As an example, we will use the model of the semiotic square to represent the organisation of the semes we found in studying isotopies : S1 and S2 are the poles of the semiologic isotopy of 'living'; thus S1 is /unfolding/ and S2, /instant and repeatable/. Into this frame, we will put the semes of the semantic isotopy of /affective/ relationship with pet animals, and, to be more concrete, the corresponding figures of pets of the text; we should thus get the elementary semantic unit of meaning for the relationship with pets:



Since we positioned /unfolding/ at  $S1$ , the negation of it ( $\overline{S1}$ ) is represented by premature death. As regards  $S2$ , we could think of other possible way of survival opened up by the negation of unfolding life which would follow death in different texts (for example, life in the lower world as a shade, eternal life of the soul, ghost life, or even different kinds of resurrections) : our short story selects a new and quite unexpected way (cats are not coffee beans!) for  $S2$ , /instant and repeatable/, which, in our text, is implied by the premature death and the ensuing treatment that the amateur scientist applies to cats. The square provides a predictive definition for  $\overline{S2}$  ; in fact, we earlier chose the seme /bred/, which, as mentioned before, is absent from /instant and repeatable/ relations with instant pussy, and is represented in the story by the "best of breed" prize won by the owners of the Siamese cat.

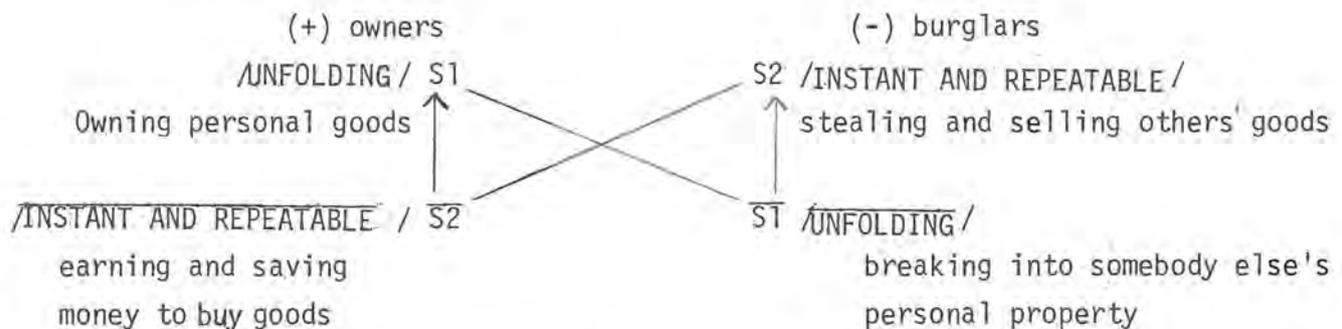
The axis which supports the contraries,  $S1$  and  $S2$ , is called the semantic axis ; it can be named after the hierarchically superior seme which embraces both semes i.e. /pet animal/, or after the general name of the semantic isotopy, i.e. /living/, since further distinctions proved useless. The lines drawn between the contraries  $S1 - \overline{S1}$  and  $S2 - \overline{S2}$  are called schemas, while  $S1 - \overline{S2}$  and  $S2 - \overline{S1}$  are called deixes. We can name the deixes by the complementary figures provided by the text: the left deixis will be that of natural pets and the right deixis that of instant pussy.

Usually a square is oriented, one of the deixes (positive) supporting figures invested with euphoric values while the other (negative), figures with dysphoric values ; but our text proposes no orientation, since everyone agrees that 'instant pussy' is a laudable goal.

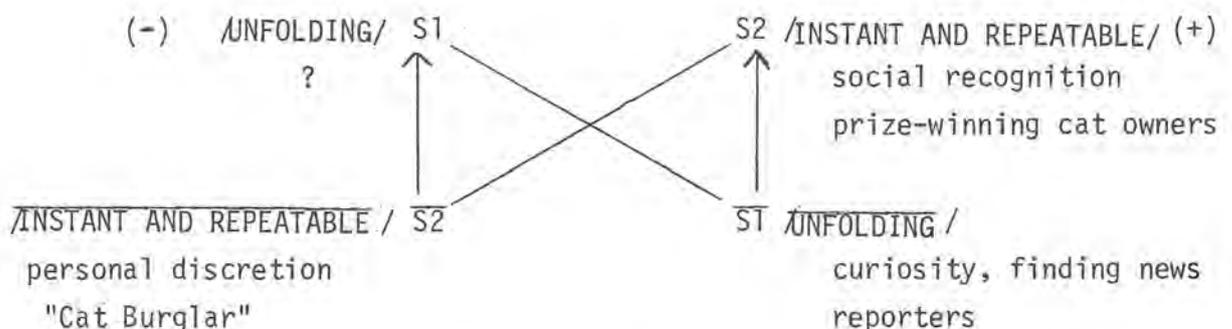
On the contrary, if we draw the equivalent square for the seme characterizing the figures of <sup>the</sup> behaviour of owners and burglars as regards their /economic/ ways of living, we find a strong negative orientation in the deixis of

burglars, according to the laws. But, after the trial of the "Cat Burglar", the orientation vanishes, because of the "exceedingly light sentence" the latter receives.

/economic/ semantic isotopy, figures of behaviour :



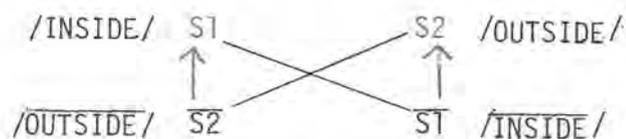
As for social relationships, obviously the /social recognition/ seme is on a strongly positive deixis ; the square can be drawn as follows :



There is no S1 selected by the text on the /social recognition/ semantic isotopy ; we could propose personal recognition, a seme which would be a possible complementary of /personal discretion/ , or, as well, long-term recognition which eventually comes to an author of fantastic short stories, if we want to meet the requirement that S1 be the negation of S1 (i.e. the 'reporters' practice of telling real news)

It is quite unusual that homologous squares (i.e. built on the same semiologic opposition) do not bear the same orientation of the deixes . It seems, in fact, that the orientation of the third square, for which we do not have a figure of S1, prevails over the <sup>other</sup> orientations, suspending or at least neutralizing the initial orientation of the second square (the burglaries becomes acceptable) ; for the first square, the actor "public" in the actantial role of Sender, seems to lend values to both well-bred cats (cf. the champion Siamese) and instant pussy. In the absence of a clear classification of values under the opposition

/euphoric/ vs /dysphoric/, there is a conflict of opinions, not between actors (which is usual), but inside a single actor (who is not coherent, playing the parts of both Sender and anti-Sender). To discuss this aspect, we have to examine in greater detail the underlying opposition of /closed/ vs /open/ we emphasized when discussing the question of secrecy, and when studying the spatial organization linked to the thematic role of householders. Let us construct a very simple square setting /inside/ and /outside/ as contraries :



When House is used as a figure, it divides space up into an enclosed personal space and an enclosing non-personal space, respectively /inside/ (S1) and /outside/ (S2).  $\overline{S1}$  and  $\overline{S2}$  are represented by a single figure : the doors (or windows) ; representing the negation of, for example, /inside/, they imply (if one passes through them) the position /outside/ . This implication is a quite trivial selection, almost unavoidable ; nevertheless, in our story, the /outside/ happens to be the /inside/ of someone else's house at least in the theme of 'burglary'. Owners agree that goods should come from outside and be put inside the house (this path can be followed on the square as moving from S2 to S1 via  $\overline{S2}$  (  $S2 \rightarrow \overline{S2} \rightarrow S1$  ) , but they do not agree at first with the reverse path which moves their goods outside (  $S1 \rightarrow \overline{S1} \rightarrow S2$  ), and so they have laws against burglary. A door -if we wish to belabor the obvious- has to be either open or closed. Here are the roots of the conflict : with their doors closed, the owners prevent the outflow of their property, and this is a condition favorable to unfolding relationships, but they will not however obtain new items ; if they want to benefit from the outside, the doors have to be opened so that new articles can enter : but this involves an exchange, and certain articles will go out at the same time. Thus the relationship will be shorter, and, as an upper limit instant and repeatable. This would not be a problem if the two kinds of relationships dealt with different objects ; but the text does not offer that solution : owners have to lose living cats to get instant pussy, and lose privacy to <sup>get</sup> social recognition ; in the world of the story, objects appear to exist in limited amounts and he who enjoys an unfolding relationship deprives other people of such a relation (even a short one), as the frustrated curiosity of the reporters

well shows. In much the same way, space is limited, and the /outside/ for someone is the /inside/ for someone else, as the practice of the burglar shows, and what is taken by someone is lost to someone else. The only escape from this circle would thus be the cognitive work of invention, but the would-be creator, whose figure in the story is the scientist, proposes as a solution only an acceleration of the turnover rate which would blur the conflict instead of settling it (a solution accepted by the public, who does not punish the burglaries according to their capacity to increase the turnover). Therefore, this short story differs from a myth, which would provide a mediation for the conflict ; here, the blurring offered as a (delusive) mediation only widens further the gap between the values linked respectively to unfolding and to instant and repeatable processes.

#### 5 Generative path : simulation of text production.

##### a) Abstract and figurative

The definition of abstract and figurative in semiotic theory is in keeping with the definition they have where painting is concerned ; "figurative" thus refers to discourses (manifested texts) or elements of discourses containing recognizable items (or images) like objects, actions or phenomena which can be met in the natural world, while "abstract" refers to discourses containing schematic representations, models, feelings or ideas that the mind can conceive. We have already used these concepts in order to distinguish a figurative Sender represented in a story as an individualized actor, invested with the capacities of manipulation and sanction toward other actors, and an abstract Sender (like Justice... or personal interest), the existence of which will be manifested in texts as feelings or "moods" of an actor, or as motives inspiring his actions. In the same way, the competence of a Subject can be expressed as a quality (abstract) or as an object or under the form of another actor, such as the Helper (figurative). In addition, the term abstract will be used to distinguish logical operations, like negation, implication, and assertion (and by extension, most of the cognitive operations) from "material" operations involving transfer of Objects, which will be called figurative. The limits are sometimes difficult to draw : an abstract judgement of suitable behaviour can just as well appear as a figurative division into two groups, the righteous on the right, the sinners on the left. Nevertheless, we shall define as the most abstract the level of semes and the models in which they are articulated by the logical relationships, and as the most figurative a story with many actors and notations of times and places, where every actantial role has its corresponding actor, every value

its investment in an Object, and where each Object is the occasion of a quest pattern (which is more figurative than the message communication pattern); where negative sanction is expressed by killing the anti-Subject and not by a blame, and positive sanction by a wedding - i.e., in short, the folktale. In between, we find a series ranging from the more abstract to the more figurative : states, narrative programs, message communication patterns as regards the narrative, and modalities, figures, thematic roles and themes as regards the semantics.

The generative path furnishes procedures of conversion from the most abstract level to the most figurative. The more abstract levels are general, and potentially rich from all the possible investments which can be made; while the more figurative level has made selections, sometimes drastic, but being more articulated, can be said richer in actual meaning (since meaning springs from the articulation of differences). The generative path is intended to simulate discourse production, but, of course, if we follow this path step by step, the produced discourse will be a folktale ! We could ask ourselves whether semiotic theoreticians think that a folktale is more convincing than an abstract discourse, because the underlying ideology passes without having been openly expressed, thus without possible argumentation. This is an open question, and perhaps the short story we are studying (the 'fantastic, science fiction, being the 'folktale' of our time and culture) will give ideas to the reader. But, of course, a discourse can manifest any level of the generative path, from the more abstract to the more figurative; this is called textualisation.

The generative path also presupposes that what is communicated in every discourse is, in narrative disguise or otherwise, an elementary unit of meaning, i.e., an oriented semiotic square, constituting a micro-universe of values. We shall take this hypothesis as a point of departure, and imagine all the possibilities for an author wanting to communicate to his readers the semiotic square opposing /unfolding/ to /instant and repeatable/ values; of course, such a process is reminiscent of the message communication pattern we studied earlier, but to distinguish it from a textualised communication pattern, we will designate the author as enunciator, the reader as enunciatee, and the 'message' will be the manifested text, the discourse.



a new selection for S2, or to create a new unit of meaning, either by making a new distinction, or by abolishing a previous distinction.

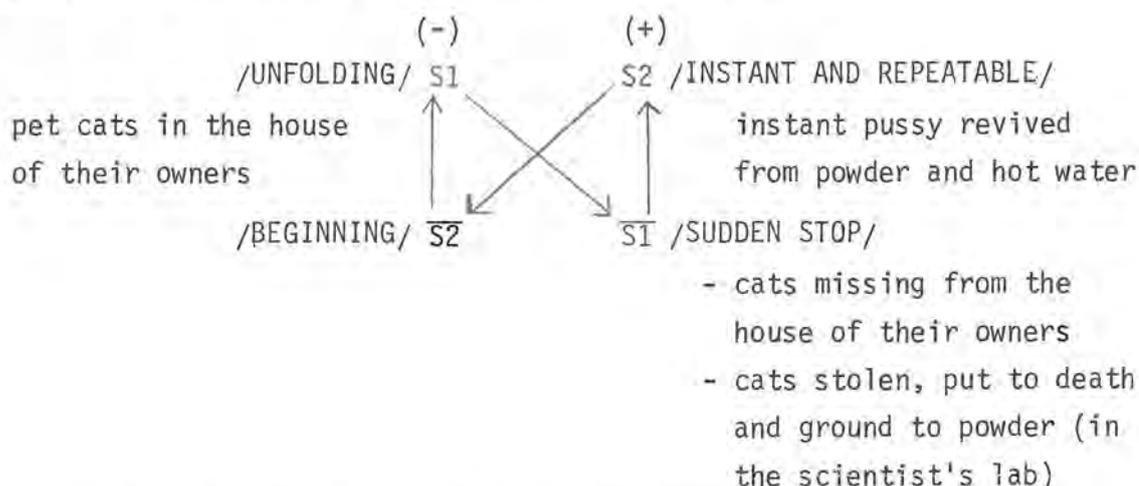
Especially in this case, where a culturally given selection of the contraries does not exist beforehand, it is useful to play on the homologation of figures pertaining to different isotopies, or thematic roles pertaining to different themes; this allows the shift onto another figure of the euphoric or dysphoric value that the cultural milieu has already built into a particular figure; for example, cats have an euphoric value, being the object of an affective relationship in a given environment (urban); therefore, instant pussy has euphoric value too, and the fact that it is associated with a way of living by means of burglary, which is dysphoric at first for the public, changes the way burglary is judged by the public in our story.

Instead of arguing, an enunciator can 'show' the micro-universe he favours, passing from the logico-semantic level to a semio-narrative level: that will be a further step into the figurative; that was, at the beginnings of that art, the usual way advertising proceeded, showing someone before and after having used some new, wonderful product. The transformations presupposed by the temporal sequence before/after can also be shown: instead of showing the differences between the states, the enunciator, in an even more figurative discourse, will set up a narrative showing how a Subject's situation improves when an Object invested with dysphoric value is removed from him, and a 'good' Object acquired.

The semiotic square can be used to represent a narrative program: instead of semes, the positions on the square will represent states; this is not very different, since a state can be characterized either by the figure of an Object with which a Subject is in conjunction, by a role (thematic or pathemic) specifying the relation between a Subject and an Object, or by the corresponding modalities. Thus, the semiotic square is used as a model of paradigmatic relations at a logico-semantic level (classification) to represent the elementary semantic unit of meaning, as well as a model for syntactic relations between states at a semio-narrative level, to represent the elementary narrative unit of meaning (narrative programs).

The conversion procedures between the logico-semantic and the semio-narrative level are described as follows: the relation of negation of S1 which

generates  $\overline{S1}$  (lack of seme S1) is expressed narratively by the loss of the Object or role that the seme S1 characterizes; the relation of complementarity between  $\overline{S1}$  and S2 is converted in an operation of selection and acquisition of the Object or the role characterized by S2; we have used in this way the square constructed on the spatial opposition between /inside/ and /outside/ (cf. 4 b); we will now give other examples on the square built on the opposition of /unfolding/ and /instant and repeatable/:



The narrative path between S1 and  $\overline{S1}$  is manifested in the text as a difference between states as regards the owners: "returning householders would find (...) their cat missing" (§ 4); from the point of view of the "Cat Burglar", the actions are described at length (we summarized them under the position  $\overline{S1}$ )

The narrative path between  $\overline{S1}$  and S2 cannot be illustrated by the final state of the owners (i.e., as owners of instant pussy) since the amateur scientist has not yet succeeded in discovering the formula; it is described as an action: "pouring hot water over them".

Instead of the figures of the cats, we could have written thematic roles; we have to imagine the path since the "formula" has not been found in the story: owners having an unfolding relationship with their pets (S1) decide that their pets are a burden especially when they go on vacation abroad; they therefore discard their pets or turn them over to the amateur scientist ( $\overline{S1}$ ) and, on returning, buy some jars of instant pussy, thus becoming 'new-look' owners (S2, valorizing /instant and repeatable/ relationship with pets) after having been temporally non-owners ( $\overline{S1}$ ).

A reverse path going from S2 to S1 via  $\overline{S2}$  can also be exploited by the enunciator in order to describe the deeds of an anti-Subject, either at the beginning of a story (where he will narrate, <sup>for example,</sup> the kidnapping of the King's daughter by a dragon, to explain why the state S1 of the King is dysphoric) or concurrently with the path of the Subject. To keep within our story, we could imagine the description of a misled actor not satisfied with instant pussy, who would discard it and turn to breeding. Of course, we could add that since his actions are not consistent with the general tendency of "the public", who like instant pussy, if he stole cats for his breeding purposes he would certainly, when caught, get a heavy sentence.

With this reference to punishment, we bring in the process of sanction (the last step of the quest pattern) which is the most figurative way to convey the orientation of a semiotic square; every narrative program can be enlarged to take <sup>either</sup> the form of a quest pattern, which describes, figuratively, by the intervention of an operating Subject, the transformation of a dysphoric state into an euphoric state, or the form of a communication pattern, where the path S1 to  $\overline{S1}$  is represented by emissive practice, and the path  $\overline{S1}$  to S2 by receptive practice. Both patterns display the transformation under the form of an unfolding path; but, in the case of a quest pattern, and importantly for what we will be discussing next, the actantial role of Sender is occupied by a unique actor. By the description of which states he changes and which actors are punished or rewarded, the orientation of the micro-universe of values is expressed concretely from a unique point of view (this expression may or may not be the same as the one stated by the enunciator for his purpose, but that is another question we will tackle later on) (cf. 5 c).

#### b) Focalisation and perspective.

Such a Sender acts in every respect as if he were a god, omniscient and omnipotent, setting the world in order according to his own tastes. In this upper limit of figurativity, no actor will be described feeling or thinking; not even the Sender will be described doing so; what will be described is only the translation into manipulations and sanctions; there will no more be an euphoric/dysphoric orientation, only a temporal one: before/after. Such a Sender can very well be a natural phenomenon or a historic

revolution which changed the face of the world; in this case, the enunciator who gives himself the task of describing exactly what happened, what was changed and what stayed the same, will install himself as an omniscient and omnipotent observer, brother of Laplace's Demon who could see from the largest stars to the smallest atoms in movement from the beginning of time to the end. Nevertheless, he will very likely get into trouble, because of the linearity of the description: since unlike other substances of the expression such as paintings or photographs, discourse unfolds in time, recounting one action after another; during the global transformation, several events can happen at the same moment, or an event can be repeated several times.

Focalisation, in such a figurative discourse, deals with the time scales the enunciator chooses for different moments of his description: the time scale can be expanded until the shortest event stands as instant against the background of a longer event presented as an unfolding, which can itself be enclosed in another unfolding event in a concentric array, several beginnings and several endings framing the isolated event; we have an example of this procedure in the "trap" episode in our story:

- "once this story (...) the police staked out the house"
- "only two hours later the burglar (...) entered it"
- 
- "they caught him cold on his way out"
- "Downtown, at the police station"

Unfortunately, the example is not complete, as the instant, isolated event, which could be 'picked up the cat and put it under his arm', is not given. The time scale, alternatively, can be contracted, and in the case of a repetitive event, only a representative occurrence can be described (as for example, the cat burglary of § 2-4).

Furthermore, events can happen simultaneously because they are linked together: for example, if an Object is taken by someone, it is lost by its previous owner; since the link is narrative, an enunciator can choose to describe only one of the transformations, leaving to the enunciatee the care of filling in the missing part, since he is supposed to have the same narrative competence; this procedure is called putting into perspective.

These very narrow definitions of focalisation and perspective, related to the textualisation of the most figurative level, can be extended, but

the concepts are not yet fully defined and operating. Focalisation may be used to describe from a generative path point of view the choices the enunciator makes in textualizing either a more abstract or a more figurative level, since it relates to the enunciator's competence to fit a discourse to a 'model' (it is unnecessary now to say that 'model' refers to items ranging from a supposed natural phenomenon to an oriented semiotic square). We have an example in our text of a difference of focalisation between the first sentence describing the state (of owner) of the Chief of Police, and the rest of the text describing at length the actions he undertakes because of his concern about the "one-man crime wave". Because focalisation deals with the degree of figurativity in which the actions are textualised, it may be also used in order to account for the process of selection of figures in the general frame of a micro-universe of values. Focalisation, thus still a rather vague notion, designates as well the semantic as the narrative choices: a difference is treated by expanding it into the description of a change of states, or condensed into a mere description of initial and final state, or into a name; this notion is related to the rhetorical process of anaphorisation: it deals with the choices which can always be made between either a denomination or a definition to point to the same phenomenon.

Perspective, since it is linked to the knowledge of semio-narrative practice the enunciator admits he shares with the enunciatee, can be used to indicate the enunciator's attitude towards the actors he put on stage: it is, for example, disposing the sequences of the story according to the time-unfolding of what happens to a particular actor (more important or more interesting). The "Cat Burglar" story is told almost completely from the perspective of the Chief of Police; if it were told from the perspective of the amateur scientist, we would have known from the beginning his great goal of creating instant pussy, and the necessity which led him to cat stealing, but the trap into which he fell would have been discovered as such only afterwards. This kind of enunciation is at variance with that of an enunciator who, like the Laplace's Demon, has no preferential place, because he is not limited by taking the disguise of a human actor who cannot be in several places at the same time or jump from future to past.

The orientation of the deixes was given by the opposition before/after in a syntactic use of the semiotic square. If we admit that the oppo-

sition of dysphoric/euphoric is a less figurative way of expressing orientation, the procedures used by the enunciator to convey the orientation of a micro-universe of values may be accounted for by the same concept of perspective: either the enunciator stands as a Laplace's Demon, not only observing but evaluating everything for the benefit of the enunciatee, or he makes his evaluations through the perspective of a particular actor playing the part of Sender. Indeed, both practices can be combined, an enunciator 'letting' one or several actors give their evaluations for themselves, but capping the descriptions by his own evaluations. The distinction we just made between the enunciator-Observer and the enunciator-Sender is closely related to the two possible ways in which an Addresser can stand in the communication pattern: we distinguished an emissive practice intended as the representation of 'reality', and a persuasive practice aimed at changing the representation of the Addressee; the first practice differed from the second in the sense that the description was seemingly left for the Addressee to interpret through the grid of his own values, but one can be sure that such an Addresser will plant in his description the necessary elements for the Addressee to make an evaluation in keeping with the will of the Addresser. Therefore, the idea of an enunciator-Observer is not in contradiction with our earlier hypothesis that what is communicated is an oriented micro-universe of values.

c) Enunciative choices: shifting, truth effect.

The discussion of <sup>the</sup> difference between an enunciator having a certain perspective, and an enunciator having no preferential perspective like a Laplace's Demon is quite academic, since an author, whether he is speaking about a natural phenomenon or telling a story he has imagined, is likely to know from the beginning where he is going to lead the discourse, but he may be suspected of not knowing the micro-universe of values the semiotician credits him with communicating in his discourse. From his interpretative practice which consists in studying the relations between the manifested text and its underlying structure, the semiotician constructs a reverse practice, called conversion, which he presents as a simulation of discourse production. Therefore, it must be clear that the textualisation we describe is a construction, and the enunciator a mere instance presupposed by the existence of the discourse under study; they should not be mistaken

for a real author and his real practice.

Whether the enunciator endorses the Laplace's Demon observer situation or that of one of the actors presented in the text, he can call on two procedures: install an actor in the text to tell the story, or, just tell it himself. For most of our short story, that second choice was made. If we consider the beginning of the story : "The Chief of Police of Midland City", this kind of enunciation is called objective utterance. But, as well, since the story is recounted from the perspective of the Chief of Police, he could have told it himself : for example, journal-style ("I am the Chief of Police of Midland City..."), or, memoir-style ("When I was the Chief of Police of Midland City..."), to respect the past tense of the actual story. This is called an uttered enunciation; the "I", an uttered enunciator, now manifested as an actor presented in the story, being an human actor, is credited with an " I, Now, Here" constellation defining him. The shift from our first alternative "I am the Chief of Police..." to our second "When I was the Chief of Police..." situates the story being told in a "not-now" time; this procedure is called a temporal shifting (it could just as well have been a spatial shifting if the "I", when telling the story, were to say that he did not live in Midland City any longer. In the unfolding of the story, the enunciator could very well hand over the telling to another actor : for example, the amateur scientist could have said "I need" or "I needed cats for research in my field..." this would have been an actorial shifting. Indeed, the shifting can have the reverse orientation, coming back to the "I", the "Now" or the "Here".

Another enunciative possibility would be to begin the story with " I'm going to tell you about the Chief of Police of Midland City, who...": here we would have an uttered enunciation framing the objective discourse; this is called an enunciative shifting. We have an example in § 5, where an uttered enunciation is embedded in an objective utterance: "- if we wish to belabor the obvious, and we do so wish -"; the question "obvious to whom?", if asked, shows clearly that there must be a "you", an enunciatee who agrees with the "we" on what is obvious and what is not. In our story, the "we" can be considered as a "royal we"; alternatively, the "we" can be used to manifest the common view of enunciator and enunciatee of a micro-universe of values; it is often encountered in scientific texts with that meaning.

In any case, when the utterance is an objective one, the communication pattern situation is always presupposed, the enunciator being the "I" and <sup>the</sup> enunciatee the "you" (the objective utterance being the Object). The presupposed enunciator is accorded the same constellation of "I, Now, Here" which characterized the uttered enunciator; thus, even if there is no "I" (or "we") for the sentence of § 1 : " But this fact has nothing at all to do with cats or cat burglars, and this story concerns...", we can well recognize it as a shifting back to the situation of communication itself, since, using the present tense, it refers to the "Now".

A theory of perspective shifting as regards evaluations is not yet elaborated; it would be necessary to account for the detail concerning the amateur scientist's putting the cats "into eternal rest"; this eternal rest is not in keeping with the expected revival of the cats under the form of instant pussy: it denies this possibility while, at the same time every actor in the text believes in it (there is no indication that the Chief of Police has any doubts). Such a detail can be considered as a statement directed by the enunciator towards the enunciatee outside the micro-universe of values common to the actors of the text; the same could be said of the information that the sentence was "exceedingly" light. Such statements should be filed together with the two sentences we quoted before: "But this fact has nothing at all to do..." and "if we wish to belabor the obvious...". Thus, when the enunciator intrudes into the text, he is misleading: it is not at all obvious that someone called "the Cat Burglar" should steal cats, and, as regards the first sentence, the enunciator's comment makes it look like the beginning of another story - we have seen clearly how much it has to do with the rest of the story, setting the /unfolding/ pole of /affective/ relations against the /instant and repeatable/ pole represented by the instant pussy. By his denial, the enunciator points toward a conflict between those two poles, that the enunciatee can well acknowledge as a measure of his uneasiness by the end of the story; thus, in another sense, he tells the "truth". Of course, the truth we are speaking about has nothing to do with the truth of a statement according to logic ; this is the reason we will not speak of truth, but of truth effect, which is the result of an agreement between enunciatee and enunciator on the reality or the pertinence of what is said; the truth effect is thus to be related to the problem of reliability we found in the communication

pattern. The enunciator of our story, however, does not make the usual effort to present himself as reliable, for example, he does not claim to have met any people foolish enough to believe instant pussy is possible; the absence of truth effect is thus to be filed under the question of irony.

The elements entering into the production of truth effect are sorted into two major tracks; the precise dating of the events narrated, and the set of names for places and actors are supposed to evoke an "already known" response from the enunciatee, the 'reality' of which will communicate to the events. This is called external referentialisation, because it calls upon a previous knowledge about 'reality', common to enunciator and enunciatee. The second track is called internal referentialisation; <sup>This</sup> is mostly obtained by uttered enunciation: if our story had been told by the Chief of Police as "I", it would be constructed as a 'living experience'. Uttered enunciation embedding an objective discourse turns the objective discourse into an internal referent. Scientific texts are representative examples of such an enunciation practice: the enunciator, usually saying "we", sets himself up as an observer or a witness of the events he recounts; the description of the events takes the form of an objective utterance, and is usually supported by illustrations for the enunciatee to examine for himself; these two elements constitute an internal referent on which further interpretation and argumentation will be based. This configuration will be studied in more detail in the second part of this chapter, devoted to the analysis of scientific texts.

1) How to proceed in a semiotic analysis ?

The first question concerns the limits of the text to be analysed. Indeed, semiotics considers the text as the manifestation of a signifying system: this means that the whole text is to be considered, and, at the same time, nothing outside the text should need to be introduced. Such a requirement can be difficult to respect if the text is either very long or very short, like a proverb, for example. For long texts, a procedure of extraction may be suitable: it would permit a detailed analysis of an extract of a 'good' length, and the results thus found would then be verified on the rest of the text. But, what is a 'good' length ? From an analyst's point of view, I would say that it corresponds to a length of text easy to memorize, because semiotic analysis requires that one can pick for comparison elements not necessarily contiguous. This is a rather subjective evaluation of a 'good' length ! From a structural point of view, the extract should be chosen in such a way that it contains at least the major elements of the signifying system. Since it is difficult to be sure of that beforehand, a large amount of intuition is required to determine the limits of the extract ! However, when a long text is mainly narrative, the limits should be chosen in order to include an action, its motives and its conclusion : the definition would be that of a 'scene' in a theatrical play, and its boundaries would appear, at the level of the manifestation, as changes of place, of time, or a change in the actors on stage. The question is thus of sequencing the whole text on these criteria, and then choosing a sequence or a series of sequences making a 'whole story' within the story. When the text is very short, on the contrary, it may be suitable to constitute a corpus made of a series of short 'equivalent' texts (for example, proverbs), and, there again, 'equivalent' may be a rather subjective notion: it may include taking into account a classification made by methods other than semiotic (as, for example, the Aarne and Thomson Index for tales), or made on a cultural basis (I took as a 'scientific' text, a text recognized as such by the scientific community, since it was published in Nature, a scientific journal). Indeed, in this presentation I avoided the exemplification of the extraction procedure by proposing texts two pages long, but this question is most familiar to semioticians studying biblical discourse (see Selected Bibliography (S.B.) 3-a).

The second question (which indeed relates to the first) concerns the scale (so to say) of the analysis: when reconstructing from the mani-

festation the underlying signifying system, where do we stop? It would be an illusion to consider that a 'good' reconstruction is an exhaustive one, leaving out of the analysis neither a single word nor a single comma. For pedagogical purposes, I went at least once into useless details, when I constructed in part 4-a a 'tree' for the isotopy of 'living', beginning with the opposition /animate/ vs /inanimate/. In fact, as shown later, the "Cat Burglar" story does not play either on the opposition /animate/ vs /inanimate/ which differentiates cats from money and jewelry, or on the opposition /animal/ vs /human/ which differentiates cats from Cat Burglars. On the contrary, by way of "instant cat", cats cross the border-line between animate and inanimate, and by way of "news" in a newspaper, cats cross the border-line between human and animal (the prize-winning cat was even pictured!). My reconstruction of the /living/ tree was therefore made on cultural grounds (the description in the dictionary of cat, burglar, or money) rather than as a representation of the signifying system of the story. The semes I isolated were not pertinent units for describing the 'meaning effect' in that particular text. But, in another way, the difference between the signifying system of the text and the 'mean' cultural acceptance of the above terms according to a dictionary also plays its part in the understanding of the text. Taking the terms into account, I slyly enlarged the corpus. Indeed, the delimitation of pertinent units depends on the analyst, and just where he intends to go with his analysis: while my avowed purpose was to illustrate with pieces of the short story as many as I could of the theoretical elements of Greimas' semiotic method, I went, in fact, through a type of analysis which, I hoped, could convince the reader that this method is an interesting tool, by especially underlining that such a story is much more than fun and tackles most of the important problems of social relationships. Even in this respect, my analysis could have been slightly differently oriented: I could have put more emphasis on the interhuman affective relationships. Instead of mainly considering the cats as models for the enjoyment of private property, which resulted in underlining the elements of a criticism of an accelerated consumer society, I could have considered the cats as models for affective human relations. Indeed, death, as the figure of the ending of such relations, is present in the text, and there is also a figure of the absence of such relations by way of ignorance (due to the voluntary self-effacement of one of the actors!). Midland people, through their reporters and scientists, want the disappearance of

figurative elements which can be identified at first sight as 'meaning units', but there may be lines or recurrent shapes distinguishable against a background, the distribution of which may differ from one part of the painting to another. Ultimately, the 'meaning effect' is described as the result of the topological organization of the regularities between kinds of contrasts and between the features of the shapes or the patterns of the lines. The equivalent, in a text, the organisation of which is linear and not spatial, is the recurrence of themes like refrains in songs, marks of contrast (like 'on the contrary', for example) or limits constituted by changes of place, elapsing of time, appearance and/or disappearance of actors, and enunciative shifts.

Therefore, it is advisable, before beginning the form-of-content analysis, to observe carefully the form of the expression while trying, as much as possible, not to take the 'meaning effect' into account. This observation provides clues to the global organization of the text, and helps to insure the analyst against missing an important articulation of the content level. This is especially useful if the text is long, although the elements isolated by the identification of such marks as shifting may not be situated at the same level in the underlying signifying system. Nevertheless, a study of the form of the expression can help when extracting a piece of the text for detailed analysis.

#### b) The circulating Object

As strange as it may seem, it is most convenient to study a text backwards, beginning at the end. Indeed, the end usually states clearly where the whole text is going: towards the righting of a wrong after an initially unhappy state of affairs, as in tales (they had many children and lived happily even after), or towards a statement established as 'certain', as in scientific texts. The exceptions would be stories with a catastrophic end, or a scientific text evidencing a failure to demonstrate the hypothesis in question: but these anomalies can also be taken as an interesting starting point. It may seem very different to have texts ending with the description of the happy state of the hero (married to the king's daughter, for example), or with a valorized statement, as is usual in scientific texts. Nevertheless, such a difference is quite superficial, as we shall see. While the first ending usually concludes a narrative, the second ending can be recognized as a truncated informative practice: the text

both figures and are shown to be willing to pay an absurd price: that of an instant relationship, quite a contradiction in terms. To be exhaustive, my analysis should have included a study of affective human relations, and maybe several more I did not think of; I must say that, impressed by the last words "instant cat", and its analogy to 'instant coffee', I put more weight on economic questions.

Through the above considerations, I wanted to give a piece of advice: there is no such thing as an 'objective analysis'; it is quite difficult to stay at a descriptive level without giving (openly or not) an interpretation, and with the interpretation, the persuasion aimed at enforcing it. In reverse, the interpretation chosen (and the persuasion necessary) influence the analyst in the choice of the pertinent units. I will say, to lighten these sombre conclusions, that such is the fate of all present-day sciences, even the 'hard' ones. As in the latter, some guide-lines may prevent the involving of too much subjectivity in the analysis. We will now list them.

a) Segmentation.

A given production (a discourse, a text) is considered as the union of a content level with an expression level. The articulations of the content level (the form of the content) usually have their correspondents within the form of the expression. Therefore the expression level will show marks of the enunciator's practice when organizing a certain content into a particular substance of expression. Since meaning springs from difference, such marks are recognized as breaks in continuity or uniformity. Those perceived breaks determine the limits of the elements of the expression level (sequences). As we said in the introduction, there is no necessary isomorphism between elements of the expression level and those of the content level: a seme, minimal element of the content level can, along with several other semes, be expressed by a single word (a minimal element of the expression level when the substance is verbal), or it can be expressed by a description consisting of a series of sentences. Indeed, it is usually not the blank separating two words in a written discourse which will be of interest at this stage of the analysis: words are seldom pertinent units of the expression level. The way in which an abstract painting by Kandinsky is tackled, for example, by J.M. Floch (see S.B.3-d), can provide an useful pattern. In such a painting, there are no

mimics emissive practice: it gives the 'message' but leaves in suspense the receptive practice, the affair of the reader, which is outside the text. But, as I said during the presentation of the "Cat Burglar" story, a narrative such as a tale is also intended as a 'message'; furthermore, a tale can be concluded by a valorized statement, like 'fables' ending with a 'moral' in a few verses. The 'fable' example can be considered as an intermediate situation between the 'objective' utterance of the tale, when the enunciator is not represented figuratively in the text (when he does not present any 'I'-narrator, or any delegated actor to tell the story inside the story), and the 'personalized' utterance of the scientific text, where a figure of the enunciator (saying usually 'we') openly takes charge of each step of the demonstration as well as the final statement and its epistemic determination. In the latter case, there are two levels: 1- the 'message'-Object, 2- its valorization; while in the tales only the first level is explicit. In the 'fable', the second level is not mixed with the first, but is limited to the end, and separated from the rest of the story by marks of perspective shift (from a particular story to a general truth: from some exemplary animals to mankind), and by a temporal shift (from the past tense of the narrative to the present tense). Therefore, the difference between the two types of texts has to be analysed at the level of the enunciative choices (whether the 'message' is supposed to speak for itself, or has to be explicitated and supported by some 'personalized' enunciative practice); but the analyst is not exempted from taking into account the valorizing procedures even if they are not explicit but embedded 'inside' the message as is the case in a 'pure' narrative utterance.

In a narrative, it is quite easy to mark the final state of affairs and define this state as the conjunction of a Subject and an Object. Therefore, it is simple to go backwards to the previous states where this conjunction was not accomplished, and to identify the successive transformations leading to the final state, usually by following the career of the Object. It is not as obvious to find a final state in a scientific text which has a weighted statement as its ending; we shall now give a larger definition of a 'state' in order to apply the narrative analysis to an argumented text as well. We defined above the final state as a conjunction (of a Subject and an Object); conjunction was preferred to disjunction for reasons I will now explain. Indeed, a story can finish with the loss of a

valuable Object; nevertheless, the disjunction of the Subject from an Object invested with positive value can always be equated with the conjunction of the Subject with a (more abstract) negative Object (i.e. an Object invested with the corresponding contrary or contradictory value). It is possible to interdefine the Subject and the Object by their relationships, which is the case in a state of conjunction, while it is impossible to define a Subject or an Object alone. Indeed disjunction presupposes conjunction and is also a kind of relation, but when we isolate the final state for analytical strategic purposes, it is more convenient to take it as a conjunction.

The kind of state where the Subject and the Object are most easy to recognize is a state where both Subject and Object are figurative (i.e. correspond to definite actors in a story). This is for example the case where the hero gets married to the king's daughter, a frequent ending in fairy tales; the hero is the Subject, and the king's daughter is the Object with which he is in conjunction (as I am sorry to say because of feminine prejudice: and I should have chosen an example ending with the gift of a more material treasure ! ). Therefore, beginning from this state, one can follow the circulation of this Object (in her father's house, in the dragon's house, and so on...). But two possible variants should also be analysed as states. Firstly, when an actor is acknowledged as being in the possession of a quality; in this case, the Subject is figured (by an actor) but the Object is not. A quality is to be considered as an Object under an abstract form, equivalent to a modal Object (for example, the ability of the hero to take the king's succession can be expressed as 'wisdom', or by the figure of a sceptre, or -again- by the hand of the king's daughter). The second variant presents itself when an Object is acknowledged as valuable. If we ask the question 'valuable to whom?', we will see that in this case the Subject stays in an abstract form while the Object is figured; the Subject appears as an abstract place, a role that any actor could fill, if he agrees with the given valorization. For example, the 'certitude' which characterizes the statement-Object by the end of a demonstration constitutes an open place for the reader to occupy, a qualification of the Object which he can assume, and therefore accomplish his conjunction with the Object, as a valuable piece of knowledge, or as a starting point for further research.

c) The narrative analysis.

Having defined the final Object (through the final state) and

recognized the segmentation, the analysis will proceed backwards towards the study of the transformations, with the help of a few narrative models. There are two main cases when applying narrative analysis. In the first, the same Object circulates through the different sequences; this supposes that the role of Object is played by a permanent figure (it can be an actor, human or not, or a statement). The narrative analysis will thus consist in the identification of the previous state of disjunction of the same Subject with the Object, and then going back over what came before. If the Object did not exist, one can look for its production, starting from another Object (or several); alternatively, the Object could have had a previous owner: did he agree or not with his own disjunction? Was the relation between the previous owner and the final one direct? Was it mediated through an operating Subject?

In the second case, there is no definite Object, or a different Object for each sequence. This would suggest a text mainly oriented towards the qualification of a Subject, possibly through a series of figurative Objects invested with the same abstract value. The most extreme case is, for example, that of the tale of "Lucky Jack": on his way to the market to sell the cow he has raised, he exchanges it along the road for an animal of apparently smaller value, then goes on exchanging his successive acquisitions in the same way until he finishes with a few nuts; but these are magic nuts. According to the exchanges which end with nuts, the reader is tempted to qualify "Jack" more and more as simple-minded, while, according to the end of the story, the Objects grow more and more equivalent to the nuts representing magic power. Thus, "Jack" is not only qualified as lucky, but as wise in his exchanges. The fact that there are several Objects does not impair the narrative analysis, once the different Objects are classified within the category of 'good' and 'bad' Objects, the conjunction with which qualifies or disqualifies the Subject.

The case may be a little more difficult when the Object (or Objects) change their values through the different sequences. This has been described as the circulation of an Object between abstract Subjects, and is usually the case in scientific texts, where the value of an Object passes from possible (*in the hypothesis*) to *certain* (after the demonstration). One might think that in this case a narrative analysis ('real' displacement of the Object) would not be applicable, and that rather an analysis of logical operations would be in order (i.e. negation of a state, assertion of a state,

or the sorting out of different Objects according to their value, or homologation of different Objects (paradigmatic operations)). Nevertheless, one should not distinguish two kind of texts, one kind where the differences leading to the 'meaning effect' are obtained by a before/after scenario (narrative), and the other where the 'meaning effect' results from the static contrast between states, and the logical operations on these (paradigmatic). Indeed, the Sender, in the most figurative tales, has as part of his role to allot values to Objects and qualifications to Subjects. Furthermore, in scientific texts dealing with experimental demonstration, such as the one I will analyse in the second part, the usual way of valorizing the Object is to describe the state of conjunction of a 'real' Subject (the figure of the experimenter) with the Object, and to tell how he managed the conjunction. This part deals with figures of the displacement of material Objects, and with operating Subjects responsible for not only cognitive but pragmatic operations. Therefore, there is room for narrative analysis even when Objects change their values.

It should be noted, in addition, that even argumentation is devised to lead somewhere: thus, there is a kind of before/after orientation in a series of arguments. Therefore, even when the operations carried out on a statement-Object in order to establish its value appear to be cognitive operations of an abstract character, they should be taken as equivalent to pragmatic operations resulting in the circulation of an Object. Negating a statement is equivalent to taking an Object from a Subject, and asserting the value of a statement is equivalent to giving an Object to a Subject which was not in conjunction with it before. Therefore, it is a better strategy not to make the distinction between pragmatic and cognitive transformations when it comes to trying to find the narrative models which will fit the text, but to take into account only the kind of change of state which occurs. For example, I used the model of 'informative practice' to describe the removal of the cats from their legitimate owners, disregarding the fact that cats were pragmatic Objects and not cognitive messages. I did that because I needed a model in which there is a certain amount of cooperation between the first owners of the Object and the second owner (the Cat Burglar); this cooperation was represented by the fact that the cat's owners left their cats at home alone; therefore, a model like that of the 'quest pattern', involving a **struggle** for the possession of the Object between the operating Subject and the first owner, defending his pro-

erty, was inadequate as far as the modalities involved are concerned. On the contrary, a situation where a piece of information is extracted from a Subject by the use of violence and with the mediation of a particular operating Subject (who perpetrates the violence) is better described with a 'quest pattern' model.

It should be noted that the different models are not imposed on the text, which would have to comply to the model's requirements. On the contrary, the models are used to explore the underlying structure of the text: the narrative models have predictive elements as regards the actantial distribution and the modalities involved in the role of each of the actants. Therefore, the selection of a model appropriate for describing a given transformation of state is important because it gives access to the competences of the Subjects involved in a particular doing; why and how they realised a transformation constitute a clue towards the qualifying of the Subjects or the valorization of the Objects, a step on the way towards describing the abstract signifying system, the oriented micro-universe of values, underlying a text (or, in other words, the semiotic square).

#### d) The semantic analysis.

The semantic analysis deals with the most abstract way of registering differences, that of opposing two terms on the basis of a minimal detail which distinguishes one of the terms from the other, against the background of shared features. Indeed, to be opposed, two terms should have a common part, which allows a comparison, and an element peculiar to each of them, which prevents their fusion. Since, in the common part, it is possible to find an element which will distinguish both terms together from a third one, an abstract hierarchical system can be constructed, called a 'tree' (see part 4-a); such an operation can be carried out several times in succession; it usually stops when two terms do not seem anymore to have a common analysable part: that is the case for example for the couples presence/absence, inside/outside, animate/inanimate. It is tempting to consider such oppositions as universal categories underlying different systems of meaning, and once found in a particular text, to consider this result as the goal which once attained, puts an end to the analysis. This seems to me a misleading approach because, firstly, I am not sure that those categories, even if they were compiled from a given corpus (which has never been done anyway) would be identical in different cultures; furthermore,

even if presence/absence is a 'final' opposition for scientific texts, and can be projected onto a semiotic square, biblical texts <sup>example</sup> for, on the contrary, are obviously constructing for the resurrected Christ a way of being at the same time absent and present. I would thus, for the present time at least, admit out of prudence that there is a system of oppositions proper to each text, and rather than look for universal categories, look for the oppositions pertinent for a particular text. These pertinent oppositions can be plainly stated and the terms given once and for all their euphoric or dysphoric charge as is the case in scientific texts (presence, for example, is euphoric in the sense that one can 'look' at the thing 'present' and thus be sure that it exists and that one can use it, while absence is dysphoric because, usually, nothing decisive can be said of this 'absent' thing). On the contrary, new oppositions can be created by the text, and/or usual oppositions challenged, and/or their euphoric/dysphoric character can be changed along the unfolding of the text. Furthermore, the oppositions may be implicit and the abstract level hidden under a display of figures. When this is the case (usually in narrative), the abstract level of the oppositions underlying the signification has to be reconstructed from all the kinds of contrasts manifested by the text, those between figures of Objects, descriptions of states, polemic situations of actors, contrary doings of operating Subjects, modalities or built-in competences (thematic roles), evaluation by the Sender, and so on. Therefore, while it is conceivable to proceed to a semantic analysis independently of the narrative analysis, I would advise against it because during the narrative analysis, homologies can be worked out, providing a sound ground for abstraction, and the articulations marked by transformations of states, which can be overlooked at the level of the figures, will be clearly established.

Narrative and semantic analyses should thus progress together, at least at the level of the practice of analysis. The stopping point is thus more a matter of the relation between the narrative and semantic dimensions of a text: one may wish, in order to explain a devious transformation, to detail more the semantic organization involved, or, on the contrary, consider a long sequence as the mere acquisition of a qualification (semantic) by an actor and not enter into a detailed narrative analysis. Of course, it is not possible, when describing the results of an analysis, to mimic this constant shifting between semantic and narrative

dimensions: to give an understandable (and convincing) account, the two dimensions have to be treated separately and exposed one after the other (the narrative first, usually). But it should be understandable, taking into account the organic link between semantic and narrative analyses, that two different analysts will produce somewhat different analyses, depending on the scale chosen and the parts they were interested in developing. One should never forget that semiotics is merely a method, a tool for describing how a meaning effect and a persuasive effect are produced; the object produced with a tool is largely dependent on the project of the person who uses the tool.

## 2) Study of a short scientific report.

I chose, for this second part, as an example of the practice of the semiotic analysis of written texts, a text as different as possible from the one which served in the first part to illustrate the tools of semiotics. As a scientific text, it is supposed to describe 'reality', while the first one was a fiction imagined by its author; it consists of a series of arguments, while the short story was a narrative, and the enunciative practice presents a figure of the enunciator, saying "we", who takes charge of the 'message', while in the short story only a few elements could be ascribed to a communication situation. I thought that I could better suggest, through such different texts, that the semiotic method can a fortiori be used on varieties of texts situated 'in between'.

The short report I selected was published in the British journal Nature, well known to scientists as a selective journal, publishing original and -according to the editor- interesting (serious) work. That was my guaranty for selecting a 'scientific' text. Among the numerous articles, I chose the one entitled "Determination of geomagnetic archaeomagnitudes from clay pipes" because the question raised (the obtaining of data on ancient values of the magnetic field) and the material used (clay pipes) can be easily understood and identified, while a biochemical study, for example, would have raised the problem of knowing beforehand a large amount of specialized vocabulary in order to identify the actors, their thematic roles and the transformations they perform. Furthermore, this vocabulary could have been difficult to keep in mind, and that could have obscured the general character of the following analysis.

### a) Segmentation of the text, delimitation of narrative units.

A visual examination of the text indicates five parts:

- 1- The title, followed by the authors' names and the address of their lab;
- 2- A section printed in bold type;
- 3- The main part of the text, printed in ordinary type, divided into 8 paragraphs (§) and enclosing a fourth part, of a different character, including:
- 4- one equation, one figure with its legend, and one table with its title;
- 5- A few notes at the end.

This external examination, dealing with the expression level segmentation (while the articulation of the signification we studied in "Cat Burglar" pertains to the content level) is usually not pertinent for

## Determination of geomagnetic archaeomagnitudes from clay pipes

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Archaeomagnitude determinations of a selection of clay pipes dateable to AD 1645±10 as well as studies of pottery samples from the same site and of the same age have been made. Values of the magnitude of the ancient magnetic field ( $B_{anc}$ ), were obtained from two pottery sherds, two pipe bowls and three pipe stems. The values from the sherds and bowls agree within 2% and compare well with the average value of the magnitude of the magnetic field for the seventeenth century as determined by other archaeomagnetic studies. However, the pipe stems give values of  $B_{anc}$  which are significantly less than those from the bowls and pottery. We have not yet been able to explain this and thus we suggest that reliable archaeomagnitude determinations can be made from the bowls of clay pipes but not from the stems. Nevertheless, this result provides a new source of material for investigating variations in the geomagnetic field strength over the past 400 yr. Clay pipes have been manufactured in England since the end of the sixteenth century. In the firing process some pipes were broken and disposed of without ever having been smoked. One such collection, discovered at Rainford, Lancashire, in 1978, consisted of a series of discrete dumps including pipes, kiln debris and a small collection of contemporary used earthenware sherds. The internal consideration of the dumps suggested a very short period of activity and archaeologists (P. Davey, personal communication) ascribe all the material to the period 1645±10 yr. With such well-dated material, we set out to check whether or not reliable archaeomagnitudes could be obtained from the pipes.

The samples were all analysed using Shaw's<sup>1</sup> ARM technique. The maximum size of the samples used was determined by the sample holder which was designed to hold 1-inch diameter cylindrical cores. Figure 1 shows the graphs obtained for one of the pipe bowls. The points labelled R are rejected because they do not lie on a straight line of gradient = 1.00 on the plot of ARM 1 against ARM 2. The value of  $B_{anc}$  is determined from the slope of the normal remanent magnetism (NRM) against thermoremanent magnetism (TRM) graph using the equation

$$\frac{NRM}{TRM} = \frac{B_{anc}}{B_{lab}}$$

where  $B_{lab}$  is the laboratory magnetic field in which the TRM was acquired, in this case 50 μT.

All the samples were given their TRMs over a period of 7 h to reproduce as closely as possible the original slow cooling rate.

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This minimizes the error introduced by different cooling rates for the NRM and TRM as described by Fox and Aitken<sup>2</sup>. All the TRMs were installed using a field in the direction of the NRM to produce a TRM in the same direction as the original NRM within about 5°. This was to avoid the possible source of error caused by anisotropy<sup>3</sup>. This was very important as some of the samples were very anisotropic (see Table 1).

The results obtained for the pottery, bowl and stem samples are given in Table 1. To ascertain how close these results were to the actual value of the magnetic field at that time we averaged all of the known archaeomagnitude determinations for the seventeenth century as published by the Academy of Sciences (USSR)<sup>4</sup>. Seventy-two results for this period have an average value for  $B_{anc}/B_0$  of 1.12±0.13 where  $B_0$  represents the present day field value at the place where the sample came from, and where the error is the r.m.s. deviation from the mean. For Rainford, therefore, we would expect the value of the ancient magnetic field strength to be 53.8±6.2 μT. Table 1 shows that

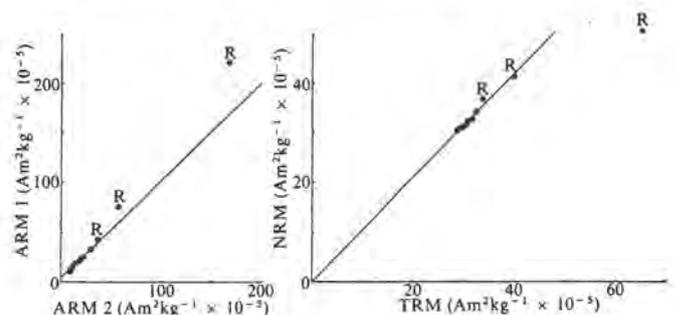


Fig. 1 Results for bowl sample R 7822. The graphs show all of the data for the NRM and TRM and ARM 1 versus ARM 2 plots. The points labelled R are rejected because they do not lie on the straight line of gradient = 1.00 drawn on the plot of ARM 1 versus ARM 2.

the values of  $B_{anc}$  from the pottery and bowl samples agree very well with each other and with the expected value. Averaging both sets of results we get 51.0±2.0 μT for the bowls and 52.0±1.0 μT for the pottery. However, the three pipe stems studied give widely ranging values which are all less than the expected value. Two of these stems, R7810 and R7813, give values which are of the order of 30% and 15% too low compared with the pottery and bowls, while the third stem, R7814, gives a value which is about 5% too low.

We have not yet succeeded in finding the reason for these low values from the stems, but we determined the degree of TRM anisotropy present in all of our samples, and these values are given in Table 1. Although two of the stems show the greatest degree of anisotropy, this in itself should not affect the value of  $B_{anc}$  as the TRM was always installed along the same direction as the NRM. Moreover, the third stem actually has quite a small degree of anisotropy.

These pipes were possibly placed in a radial pattern around a central pillar inside a cylindrical oven, with the bowls on the outside and the stems towards the centre. The lengths of the

Table 1 Magnetic field measurements of pottery bowl and stem samples

Sample	Type	NRM intensity ( $A m^2 kg^{-1} \times 10^{-5}$ )	TRM anisotropy (%)	$B_{anc}$ (μT)	Average value of $B_{anc}$ (μT)	Angle between NRM and long axis of stem
R 7811	Bowl	110	6	49±2	51±2	—
R 7822	Bowl	50	14	53±3		—
R 7820	Pottery	14	6	51±3		—
R 7823	Pottery	91	10	53±3	52±1	—
R 7810	Stem	65	34	36±5		85°
R 7813	Stem	36	7	42±1		25°
R 7814	Stem	134	26	48±3	42±5	10°

6 pipes may have been longer than the radius of the ovens, and so there would be a certain amount of stacking and overlapping of pipe stems in the central region. We calculated the effect of the distortion of the field produced by the overlapping stems, and concluded that it was too small to account for the low values of the field which we have obtained.

7 Another way in which the pipes could have been arranged was with the bowls at the outside of the oven, with the stems pointing radially inwards but also raised vertically so that the ends of the pipe stems met at some common point. As the inclination of the magnetic field is quite steep in England, this configuration would mean that the direction of the NRM in the pipe stems would in some cases be nearly parallel to the length of the stem and in other cases it would be transverse to the stem, whereas in the previously described configuration there is no obvious way that the NRM can be acquired along the length of the stem. When we analysed the NRM directions in the stems, we found that the direction of the NRM varied from angles of  $10^\circ$  to  $85^\circ$  with respect to the axis along the length of the stem (see Table 1). Furthermore, there was a correlation between this angle and the value of  $B_{anc}$ , but we cannot find any explanation for this.

8 We conclude, therefore, that the bowls of clay pipes may be used to determine archaeomagnitudes. As one of the major problems in archaeomagnetism is the availability of well-dated suitable material, any new source material such as these clay pipes is of great interest. Also, once the changes in the strength of the geomagnetic field over the past 400 yr have been satisfactorily determined, we may be able to date pipes of unknown age by this technique.

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1. Shaw, J. *Geophys. J. R. astr. Soc.* **39**, 133-141 (1974).
2. Fox, J. M. W. & Aitken, M. J. *Nature* **283**, 462-463 (1980).
3. Rogers, J., Fox, J. M. W. & Aitken, M. J. *Nature* **277**, 644-646 (1979).
4. *Archaeomagnetic Determinations of the Geomagnetic Field Elements* (Soviet Geophysical Committee of the Academy of Sciences of the USSR, 1977).

## Thermoluminescence dating of late Devensian loesses in southern England

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Scattered across southern England are many isolated deposits of loess-like material<sup>1</sup>. A few, such as that at Pegwell Bay in Kent, are highly calcareous and unweathered but most have been reworked by fluvial or colluvial processes. There is good stratigraphical evidence for a few pre-Devensian loesses, also in Kent, but dating of more recent loess has so far been based on indirect evidence. Much work has been done on the Pegwell Bay loess as it is the most extensive, truly aeolian loessic deposit in Britain. Kerney<sup>2</sup> compared the late Devensian deposits in the Isle of Thanet and at Pegwell Bay with similar deposits in Holland and Belgium where radiocarbon dates have been obtained for interstadial deposits. Correlation of the East Kent deposits with these in Northern Europe indicates that the loesses in Kent were formed between 30,000 and 14,000 yr ago. I report here dates for six of the more recent deposits in southern Britain from the Scilly Isles to Kent. The dates have been obtained on the loess itself, using a recently developed thermoluminescence (TL) dating technique<sup>3,4</sup>, and confirm the ages as being late Devensian.

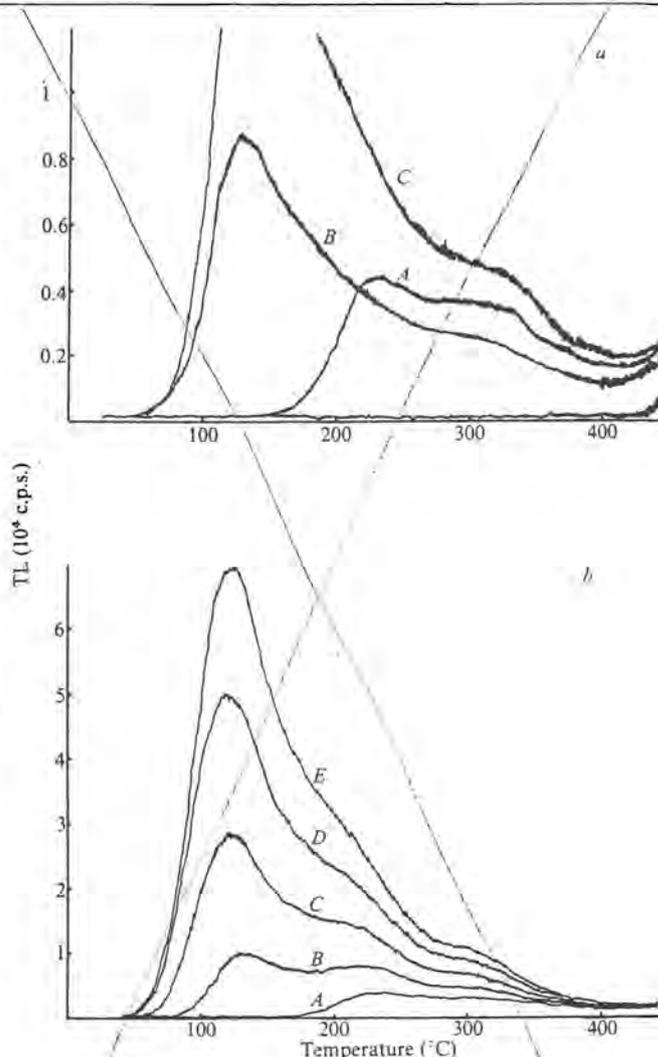


Fig. 1 TL glow curves for late Devensian loess. a: A, natural TL; B and C, TL due to 6.7 and 13.4 krad after heating. b: A, natural TL; B-E natural + 8.9, 13.4 and 17.9 krad respectively.

The TL dating of any sedimentary deposit, whether marine or terrestrial, is based on the assumption that exposure to sunlight during the weathering and transport of the detrital grains is sufficient to remove most of their previously acquired TL signal. The TL signal in a mineral is due to the untrapping of electrical charges in the crystal when it is heated, the trapped charges having been produced by ionization due to the decay of natural radioactive elements in the sediment. The most common TL-sensitive minerals are quartz and feldspar and these are the dominant minerals present in loess. In southern England the peak grain size of the deposits decreases from  $\sim 45 \mu\text{m}$  in Kent to  $25 \mu\text{m}$  in the south-west<sup>1</sup> suggesting that the loesses, if contemporary, have been derived from a source in the North Sea. In this study polymineral grains in the range 4-11  $\mu\text{m}$  were used, 0.5-mg samples being deposited onto 1-cm diameter aluminium disks for TL measurements. The disk is heated in an oxygen-free atmosphere from room temperature to  $450^\circ\text{C}$  at  $2^\circ\text{C s}^{-1}$  and the resulting TL output recorded as a function of temperature known as a glow curve. The glow curves for all six samples are very similar to each other and to those obtained for detrital grains from ocean sediments<sup>3</sup>.

Only the Pegwell Bay sample 1a could be described as pure aeolian loess. The St Agnes sample 1d looked pure but did not

the semiotic analysis of a literary text: the division into paragraphs seldom corresponds to narrative units, and, in texts from, for example, the Bible, or some newspaper publications, the divisions and subtitles are not those of the author(s) himself (themselves), and should be left out of the analysis, as well as the typographical "making up" and the size of the letters used. But there are several cases where the form given to the expression is closely related to the articulation of signification at the content level. Of course, when the expression substance is thought of in terms of words, their morphology (or their sound), which changes according to the language in question, does not bear any relationship to their sense; but once the sentence or a larger signifying unit is considered, the relation may no longer be arbitrary, as in the case of poetry, where the rhythm and the music of the verses contribute to the meaning effect: This is even more obvious when the expression form must obey certain rules as for example in a sonnet. We well know that nowadays a scientific text (even if not very poetic !) must obey a conventional order enforced on the would-be writer in a particular journal by a set of instructions to authors, i.e. **the** order: summary, introduction, materials and methods, results, discussion. Even in a short report like a "letter to Nature", where this segmentation is not underlined by the presence of the corresponding subtitles, it may nevertheless be present.

The establishment of a relationship between the content level and the expression level is called semiosis. The two processes of semiosis can be best defined by taking as a model the semiotic analysis of painting; but they can be evidenced in written texts too. I shall first give examples of these processes from the graphs present in what we have called part 4 of the report studied, and then look for similar phenomena in the written part of the report (parts 2 and 3).

The first kind of semiosis uses a symbolic system (symbolic must be taken in its mathematical meaning) where one element of the expression level corresponds to one element of the content level: in the equation, for example, NRM, at the expression level corresponds to "normal remanent magnetism", at the content level. The second kind of semiosis uses what is called, in Greimassian terminology, a semi-symbolic system but which I would prefer to call a coupled-symbolic system, because a couple of terms of the expression level (usually a category, a pair of contrasting terms) corresponds to a couple of terms at the content level. In the graph of

Fig. 1, for example, both categories of verticality, /high/ vs /low/, and laterality, /left/ vs /right/, correspond to the category of the content level 'intensity' (/large/ vs /small/) of the remanent magnetism.

A semiosis can be either arbitrarily constructed in a text or the result of a convention. As for symbolic semiosis, in Fig. 1, for example, the meaning of "R" (rejected value) is constructed, whereas the dots are a usual sign for measurement values. Semi-symbolic semiosis too may be a cultural matter: in painting with classical perspective, /high/ is /far/ from the observer while /low/ is /near/. But, more often, semi-symbolic systems particular to a given text can be observed; they link important contrasts of the content level with recognizable characteristics of the expression level; we will therefore proceed to looking for characteristics which could be elements of a semi-symbolic organization in the written part of the report.

If we read the text from beginning to end, we can notice the recurrence of several formulae reminiscent of that of the title. The first occurrence is found at the beginning of part 2, in bold type: "Archaeomagnitude determinations of a selection of clay pipes (...) have been made". The second occurs on the twelfth line: "(...) reliable archaeomagnitude determinations can be made from the bowls of clay pipes, but not from the stems.". The third is found at the end of this part 2: "(...) reliable archaeomagnitudes could be obtained from the pipes ", and the fourth is in the last paragraph of the text (if we exclude the paragraph devoted to acknowledgements): "(...) the bowls of clay pipes may be used to determine archaeomagnitudes ". This peculiar organization suggests that equivalent information, framed each time between two occurrences of the formulae, is given firstly under the form of a summary, and secondly in a more developed form. The main articulation of contrast, "however", situated in the part limited by the first and second occurrences, is found again in the developed part, 6 lines before the end of § 4. A second articulation, "nevertheless", found after the second occurrence of the 'refrain', introduces "a new source of material for investigating variations in the geomagnetic field strength over the past 400 yr ". This articulation is not to be found at the end of the developed part, but it can be noted that this same question of "new material" and "strength of the geomagnetic field over the past 400 yr" is also evoked in § 8. This confirms the character of "summary" of the beginning of the part printed in bold type. The last sentence of this

summary would be the sentence dealing with "new material" and finishing with "over the past 400 yr ". This summary will be called from now on the first sequence, the rest of the text being the second sequence.

A second remark can be made from the observation of the tenses of the verbs in the first sequence: **what** pertains to the program of "determination" is expressed in the past tense ("Determinations (...) have been made", "values (...) were obtained"), while the result of the "determination" program is expressed in the present tense: "The values (...) agree (...) and compare", "the pipe stems give values (...) which are". However, in the following sentence: "We have not yet been able to explain this and thus we suggest ...", while the past refers as before to the situation of "determination", made previously in the lab, the present tense obviously **refers** to the situation of communication (the time of writing the article). This present is different from the one which was found in the previously quoted examples and appears again in the last sentence of the summary: "Nevertheless, this result provides a new source of material...". This use of the present could be considered as a way of denoting the universally true (once the results are obtained). Such an objective utterance is produced by an enuncive shifting, leaving out the figure of the enunciator "we" ("we suggest..."). The meaning effect of this deletion can be described in this way: in the previous lab situation the "determinations" 'spoke' to the experimenters (gave them the "results"); in the communication situation, they are made to speak again, directly to the reader, this time, under the same form of present tense as they were when communicated before in the lab, since the enuncive shifting erases the mediating role of the experimenters.

The same temporal organization can be found in the second sequence, even if, at first sight, it seems quite obscured by frequent shifts from past to present. We shall take as an example the beginning of § 4:

"the results obtained for the (...) samples are given in table 1"  
 (previous time in the lab)      vs      (present time of communication)

"we averaged (...). Seventy-two results have an average value (...)"  
 (previous time in the lab)      vs      (true since the averaging operation)

Therefore, the tense shifting, a contrasting feature of the expression level, is related at the content level to the distinction between two communication situations, the past one from clay pipes to experimenters ("we"), and the present one from "we" to the would-be readers.

The temporal organization provides a good criterion for subsequencing the first sequence, but it cannot be used on the second sequence, where the description of the acquisition of the results and the process of their communication to the reader are constantly intermingled.

b) The circulating Object.

According to the end of the summary-sequence and of the second sequence, the circulating Object is a piece of information about "new material" (clay pipes) which could be used to determine the strength of the past magnetic field of the earth. This "new material" is thus an Object with modal value, a /being-able-to-do/ for "determination" purposes. Indeed, those determinations are themselves auxiliary programs which can enter two types of programs : either measurement of the ancient magnetic field magnitude at the time of manufacturing of the pipes, if the material is dated, or dating of material if the evolution of the past magnetic field strength is established. For these dating programs, there is a need of "suitable" material and therefore, the clay pipes, as "new", have to be checked for their modal value before being used in a routine fashion for dating.

The piece of information which forms the result of the experiments is a statement-Object specifying the presence of the modal value in the bowls of the pipes and its absence from the stems (i.e. the relation of the modal value to a certain shape of the material support, a 'visible' characteristic). This statement has the form of a judgement issued by a Sender in a sanction process.

The statement can be analysed in two ways: firstly as valorizing one of two Objects and devalorizing the other, secondly, as qualifying one of two Subjects and disqualifying the other. Indeed, clay pipes may be considered as operating Subjects in a program of keeping track of the magnitude of the magnetic field which was present during their firing, as well as Objects bearing a modal value. The fact that clay pipe elements can be treated either as modal Objects or as operating Subjects may seem disturbing at first, but, from a narrative point of view, an Object endowed with modal value and an auxiliary program are equivalent; furthermore, when an actor is defined by a thematic role, i.e. the ability to reproduce a program resulting in a certain final state, the value of the Object concerned in this program is strictly correlated to the competence of the Subject realizing it. In part e) we will give clay pipe elements the role of operating Subject

in order to proceed to a more detailed analysis, but for the moment we will consider clay pipe elements as having a role of Object.

The statement has a general character: it concerns not only the clay pipes investigated by the authors, but all those which could be discovered in the future. It can be considered as the communication to the reader of the competence for choosing "suitable" material for dating from an external characteristic directly linked to the presence of the modal value.

c) Narrative analysis.

The temporal organization can help to identify the previous states of the circulating Object. The 'history' of the material support, clay pipes, ending with their conjunction with the experimenters, is given in the beginning of the second sentence. Retold in chronological order, the story is that the pipes were manufactured and discarded around 1645, discovered and dated in 1978, and then, but here the time is not specified, transmitted to the experimenters. At that time, the presence of the modal value is verified in the lab: "we set out to check whether or not reliable archaeomagnitudes could be obtained from the pipes". When the information about the modal value has been obtained, its communication, under the form of the article embedding the statement about the modal value, can be made.

A quest pattern model seems the most convenient for exploring the narrative structure of the second sequence at this stage: the authors are operating Subject of this quest; the Object they are looking for is not of a pragmatic nature (the clay pipes, which we called the material support of the modal value, were given to them); and we have seen in part b) that the statement-Object produced has the form of a sanction, therefore the quest is concerned with finding evidence in order to proceed to a sanction.

We can compare the function of the clay pipes, as was intended by the manufacturers, to the function for which they are investigated by the authors in the text. The clay pipes were obviously manufactured to be smoked; thus, for the purchaser, who has the actantial role of operating Subject in the program of smoking, the pipes represent a modality of the type /being-able-to-do/. A broken clay pipe loses its modal value as an Object and is thus discarded. In much the same way, for the program of dating, the clay pipes represent for the operating Subject a /being-able-to-do/ modality. The problem of "reliability" of the determinations obtained

with the pipes arises because there is no obvious mark of the presence or the absence of the modal value as was the broken or not broken property of the pipe for the program of smoking. Therefore, the material support (clay pipes) and the modal value (reliability) need to be related by means of the experiments.

These experiments ("determination of geomagnetic archaeomagnitudes" to take the formula of the title), constitute the first step of the quest, removing the Object from the anti-Subject; the different elements of the program of "determination" are expressed in the past tense. The anti-Subject, in such a program, can be said to be error risk, with two possible components: the resistance of 'nature' (silence or misleading information on the part of clay pipes), and the awkwardness of the experimenters in their 'interrogation'. Thus, the anti-Subject is more abstract than the 'villain' of tales. The second step of the quest, the giving of the Object to the Receiver, is expressed in the present tense. Despite the fact that the giving cannot be said to be already accomplished, since the Object (under the form of the article) is still on its way between **authors and readers**, there is a figure of the Receiver in the text: this Receiver is a collective actor, the scientific community of archaeologists in need of dating sites, and of which the authors are obviously part (see, for example, in the last sentence, the formula: "we may be able to date..."). This collective actor also plays the role of the manipulating Sender triggering the particular quest on clay pipes once the "new material" is discovered. Indeed, if this "new material" is of interest, it is because such pipes can be found elsewhere than at Rainford, and date from other years than 1645, as stated in the first sentence, which situates the story of the clay pipe samples studied in a larger frame.

Therefore, the quest pattern case which can be used to describe the narrative organization of the second sequence is of the kind where the operating Subject belongs to a community being syncretically the Receiver, in an **initial dysphoric** state of need of information, and also the Sender; such an operating Subject delegates himself voluntarily, to accomplish a quest in conformity with the common interest.

What distinguishes the first sequence (summary) from the second is firstly that in the latter, the elements necessary to make a quest pattern explicit are given a figure: in that way, the analyst gets access to what is euphoric and dysphoric for the Sender. Secondly, a series of elements

which are simply named in the summary are described instead in the second sequence: the description of the "material" (in the summary, a "selection of ...") occupies the end of the part in bold type. The "determination" program (methods) is described in § 2 and 3. § 4 gives more details of how the results of the determination of the ancient magnetic field strength "agree" with the expected value (for the bowls) or are "less" than it (for the stems), while § 5-7 are an expansion of "we have not yet been able to explain", giving several tentative explanations and the reasons for rejecting them. This would correspond to what is usually called discussion, and § 8 corresponds to a conclusion. Therefore the narrative units which could be identified at the expression level in the first sequence are in the same order in the second, and follow the usual order of a scientific publication.

d) Semantic analysis.

From the different figures used to explain the program of "determination" and the question of "reliability" (which results in the distinction, within the clay pipes, of a 'usable' part (the bowls) and a 'unusable' part (the stems)), we will particularly emphasise the formula: "to ascertain how close these results were to the actual value of the magnetic field". The use value (modal value) of the samples is decided through a comparison of the data given by the samples to averaged data from other origins, and to the results given by pottery samples found in the same dump. The euphoric term is expressed as "agreement" ("agree very well") and the dysphoric term could be called "dispersion" ("widely ranging values which are all less than..."). We thus have to find a category which would allow the contrasting of the figures of agreement and dispersion. The agreement, here, is obviously more relevant to a spatial character of 'closeness' than to a cognitive likeness of view; and the dispersion is of a special kind, too, all the dispersed values being lower than the expected value. I propose to use the spatial category of /inside/ vs /outside/ where 'inside', centered around the "expected value", is the space limited by an acceptable dispersion (given by the error limits for example,  $53.8 \pm 6.2 \mu\text{T}$ ), while 'outside' is the space of unacceptable dispersion. The same category can be used for the Fig. 1 legend, if it is acceptable to consider a "straight line of gradient 1" as 'inside' and the rest of the space of the graph as 'outside'.

We shall not draw a semiotic square from the category /inside/ vs /outside/ because the text makes no use of the subcontraries which could be

generated, /non-inside/ and /non-outside/. This may be due to the fact that there is no narrative to take charge of a path going from inside to outside, or vice versa (there is an attempt to find such a path from outside to outside in the unsuccessful search for an explanation of the discrepancy in the results obtained from the stems). Indeed, the contrary terms are used for classification purposes, and there is no figure for samples which could be classified under the subcontrary terms.

During the screening operation of the samples obtained from clay pipes, the spatial category /inside/ vs /outside/ is coupled with the modal category of /reliable/ vs /unreliable/ (or, rather, /usable/ vs /misleading/) in a process reminiscent of a semi-symbolic semiosis: inside (close to the expected value) is given the euphoric meaning of /usable/ while outside is given the dysphoric meaning of /misleading/. The same could be said of the legend of Fig. 1 or of its commentary in § 2: "the points labelled R are rejected because they do not lie on a straight line of gradient 1 on the plot..."; here, the figure for /misleading/ is "rejected".

The result of the operation of screening of the samples for their modal value is that (hopefully) the previously uncertain "reliability" can now be attached to a visible characteristic, the "cylindrical cores" being sampled either from the bowls or from the stems, which can be easily distinguished by their shape. Bowl samples can be used because they provide 'reliable' determination of the geomagnetic field strength, whereas stems are not to be used (or the values obtained from them are to be rejected).

We will now develop further the way in which the statement that the bowls can be used and the stems cannot is argued, i.e. made credible (or valorized) in the communication process.

#### e) Refutation of possible objections.

Indeed, the statement-Object which is communicated in the report has to be granted a modal value /usable/ (and not /misleading/) to become a modal Object in the general program of dating by means of archaeomagnitude determinations. In the report, the sanction by the Sender (the community of archaeologists) is of course absent; but it can be said to be replaced by the evidencing of the elements necessary for a positive sanction, whereas the elements which would suggest a negative sanction (objections) are rendered ineffective. those elements are of the same nature as those which the experimenters bring into play for the sanction of the modal value of the

clay pipes. Therefore, the same models can be used. In the more detailed analysis we will now make, we will consider the clay pipe samples in their role of operating Subject, the competence of which is to be evaluated in the sanction process. The performance realized by clay pipe samples can be described as registering the value of the magnetic field present when they were fired, and giving it back to the experimenter. We shall use, as the most convenient model, the pattern of delayed communication, the ancient magnetic field performing an emissive practice, and the experimenters a receptive practice. The circulating Object (the 'message') is the value of the field. But, since Addresser and Addressee are separated by a time-gap, the message has to be carried by a messenger crossing the elapsed time. Furthermore, the Addresser cannot be considered as performing an active emissive practice as would be an actor who writes a piece of information in a letter and seals it before giving it to a messenger. Here, the 'messenger' plays an active part, much like the witness of some event (Addresser) who describes it to an Addressee who was not there. I propose the name of intermediate Addressee-Addresser for that role, because the actor playing it is first Addressee for the event and then Addresser for the final Addressee. It should be noted that such an intermediary usually changes the substance of expression of the 'message': for example, what he witnesses by sight as an Addressee is transformed into a verbal description.

This role of Addressee-Addresser is ascribed to clay pipes in the text, but it can be noticed that it is also the role played by the authors, when describing for the reader's benefit what they did in the lab with the samples, and what they obtained as results. They are thus intermediate Addressee-Addresser between clay pipes and readers. The question of the degree of reliability (or credibility) of the message received by the final Addressee is related to the different competences involved in that role: i.e. a faithful memory, the selectiveness in delimiting what is part of the event (and what is 'outside' and shall not be recounted), and the skilfulness in changing the substance of the expression. Objections could be raised at these three levels for both intermediaries (clay pipes and experimenters-authors) between the magnetic field value and the reader in a report dealing with dating. We will take advantage of the fact that in the report studied the different competences of clay pipes are sanctioned, in studying the way in which the authors prevent the raising of the same kind of objections in their own role of intermediary.

The question of "memory", in the case of clay pipes, does not seem to be raised; of course, this "memory" is a very material one: a collection of oriented ferro-magnetic molecules in the clay. From a semiotic point of view, a 'bad' memory (or a lack of memory) characterizes an actor which allows, once the information has been stored, interferences by other Addressers adding to the "message" or other Addressees subtracting from it. The extreme case, in folktales, is the substitution of the message by another. Such interferences, in the case of the clay, would be possible only if it were refired. Any objection of the kind 'bad memory' is prevented in the case of the pipes by the precision that they were never smoked (§ 1). It is nevertheless possible that the determination of archaeomagnetism with pottery sherds from the same dump provides a guarantee that an accident, as for example burning of the dump, can be ruled out, since there is no difference between the expected value and the value obtained from the pottery samples. But this result has a role in another argument, as we shall see later.

A reading of the NRM intensity shown by the various samples in table 1 reveals that the values are very different from one sample to another, ranging from 14 to 134. This variability could be ascribed either to an unequal skilfulness in changing the substance of the expression (from a magnetic field intensity into a certain number of magnet molecules frozen in a preferential orientation) or to an unequal selecting competence.

For each individual sample, the skilfulness in changing the magnetic field into remanent magnetism is assessed in much the same way as would be done by a Sender, in tales, when he has to judge the competence of an operating Subject: he allots to this Subject a "difficult task", for which the competence involved is more or less related to the competence which was needed for the first performance. In the case of the pipes, the "difficult task" consists in registering the magnetic field present in the lab. Since the experimenters know by other means the intensity of this field, the degree of skilfulness of the samples can be evaluated. Since this competence, even if not of a high degree, is assumed to be invariable with time, it is therefore possible to correct the NRM in order to return to the ancient magnetic field value.

Nevertheless, the value thus obtained would give the actual value of the magnetic field only if the sample had good selecting competence. This competence is evaluated by comparing the value obtained from the sample with a set of averaged values from other origins.

If the selecting competence is not perfect, the samples enter the class from which /misleading/ results are obtained as is the case for the stems of the pipes. Are these materials to be therefore rejected? The matter does not seem that simple, since a large section of the text (§ 5-7) is devoted to an attempt to find reasons for the unreliable determinations obtained from the stems. An examination of the error risks evoked in § 3 gives a clue as regards the above question. Of course, when determination of an unknown magnitude is at stake, the selecting competence of the samples has to be trusted; but, if it is known to the experimenter that the selecting competence is low, and that some interfering Addressers have imprinted their own message in the same substance of expression, the interference effect can be minimized, and the low selecting competence rendered equivalent to a high selecting competence. This is done for two Addressers, which are given in the text the figure of "possible sources of error": cooling rate effect and anisotropy effect. The way chosen to avoid or minimize the interferences is to reproduce as closely as possible, while registering the intensity of the magnetic field in the lab, the conditions of the registering of the intensity of the ancient magnetic field. But another way could have consisted in correcting the values obtained from the samples with a low selecting competence, as was done in the case of the competence for changing the expression substance. We therefore see where the authors are aiming when they try to find an explanation for the low results obtained from the pipe stem samples. The first explanation (overlapping of the stems, causing a distortion in the field) is ruled out because calculation shows that such a distortion would be too small to interfere; this same calculation, if the distortion was more important, would have provided a correction. The second explanation (vertical position in the oven) at last furnishes a correlation between the degree of discrepancy and the orientation of the magnetic field relative to the axis of the stem; if the correlation had been made for more samples, a correction chart could have been drawn. If an explanation of the correlation had been produced (i.e. if the interfering Addresser had been identified), the interference could have been ruled out as before. And so, the stems could have become /usable/ material.

But one can see another reason for which the authors are so eager to find an explanation for the discrepancy in the results obtained from the stems, an explanation involving some kind of dissociation between bowls and

stems during the process of firing. Indeed, it is almost unbelievable that the bowls give 'correct' values while the stems (even if the stem samples are not from the same pipes as the bowls sampled) give much lower values. There is, no doubt, more similarity in the way they were fired than with pottery of the same dump. Two simple explanations for the discrepancy could come to the mind of the reader: firstly, that the results obtained with stems are "delusively" different from those obtained with the pottery and bowls samples: correctly handled they would have given identical values; secondly, the results from the bowls could have been identical "by chance" to the controls, whereas "in fact", i.e. if correctly handled, they would have given different values; thus, in both cases, the discrepancy would be negated by ascribing it to awkwardness on the part of the experimenter.

The authors prevent such an objection in several ways. Indeed, they have the same role of intermediate Addressee-Addresser as the clay pipes: they proceed to a change of the substance of the expression, from NRM back to the ancient magnetic field intensity, and they have to be selective (avoid possible sources of error such as interfering Addressers). For the first competence involved (skilfulness in changing the substance of expression), they are counting on the skilfulness of Shaw, who apparently devised a technique providing a way to avoid erratic results. As for the second competence, they display it both by saying explicitly that they avoided two already-known possible sources of error, and in showing that the results they obtained with pottery samples are in agreement with the expected value for the magnetic field intensity of this place and date. These results for pottery samples (apparently useless, since the assertion that pottery is /usable/ material is already assumed) prove their selecting competence to readers.

In their role of Addresser to readers, the authors of **this scientific** report are more active than were the clay pipes towards the experimenters: they themselves formulate the message, the information that bowls are /usable/ for dating and that stems are /misleading/. This can be considered as still another change in the expression substance, but this one is made before the eyes of the reader who is given graphs and a table as well as discussion before receiving the final statement. He therefore can evaluate for himself the competence of the authors in this Addresser practice.

## SELECTED BIBLIOGRAPHY

1) Introduction to semiotics

- Courtés, J. (1976). "Introduction à la Sémiotique Narrative et Discursive." Hachette, Paris.
- Groupe d'Entrevernes (1979). "Analyse Sémiotique des Textes." Presses Universitaires de Lyon, Lyon.

2) General works on semiotics

- Greimas, A.J. (1966). "Sémantique Structurale." Larousse, Paris.
- Greimas, A.J. (1970). "Du Sens. Essais Sémiotiques." Seuil, Paris.
- Greimas, A.J. (1976). "Pour une théorie des modalités", Langages 43,
- Greimas, A.J. (1979). "Sémiotique. Dictionnaire Raisonné de la Théorie du Langage." Hachette, Paris.
- English translation (1982). "Semiotics and Language: an Analytical Dictionary." Indiana University Press, Bloomington.
- Nef, F. et al. (1976). "Structures Élémentaires de la Signification." Complexes, Bruxelles.

3) Semiotic analysis in specific domains

## a) Bible

- Groupe d'Entrevernes (1977). "Signes et Paraboles. Sémiotique et texte évangélique." Seuil, Paris
- E. Trī (1978). "Signs and Parables." Pickwick Press, Pittsburg.
- Patte, A. and D. (1978). "Structural Exegesis: From theory to practice" Fortress Press, Philadelphia.

## b) Ethno-literature

- Courtés, J. (1979). "La 'lettre' dans le conte populaire merveilleux français." Documents du G.R.S.L., I, 9-10.
- Courtés, J. (1980). Documents du G.R.S.L., II, 14. (Same title)

## c) Literature

- Coquet, J.-Cl. (1976). "Sémiotique Littéraire." J.P.Delarge, Paris.
- Geninasca, J. (1973). "Les 'Chimères' de Nerval." Larousse, Paris.
- Greimas, A.J. (1976). "Maupassant. La Sémiotique du Texte: Exercices pratiques." Seuil, Paris.
- Rastier, F. (1973). "Essais de Sémiotique Discursive." Mame, Paris.
- (1972). "Essais de Poétique Sémiotique." (A.J. Greimas, ed.) Larousse, Paris
- (1973). "Sémiotique Narrative et Textuelle." (C. Chabrol, ed.) Larousse, Paris.

## d) Painting

- Floch, J.-M. (1981). "Kandinsky: Sémiotique d'un Discours Plastique Non Figuratif." Communications, 34, 135-157.

## e) Psychomotor therapy

- Darrault, I. (1979). "Pour une approche sémiotique de la thérapie psychomotrice." Documents du G.R.S.L., I,8.

## f) Sciences

- Bastide, F. (1979). "Le Foie Lavé. Approche sémiotique d'un texte de sciences expérimentales." Documents du G.R.S.L., I,7.
- Bastide, F. (1981). "La Démonstration. Analyse de la structure actantielle du faire-croire." Documents du G.R.S.L., III, 28.
- Greimas, A.J. (1976). "Sémiotique et Sciences Sociales." Seuil, Paris.
- (1979). "Introduction à l'Analyse du Discours en Sciences Sociales." (A.J. Greimas and E. Landowski, eds) Hachette, Paris.

The regular publications of the Greimas' group, Groupe de Recherches Sémio-Linguistiques (G.R.S.L.): Le Bulletin, and Documents, can also be consulted.

## CAT BURGLAR

The Chief of Police of Midland City owned two dachshunds, one of which was named Little Note and the other Long Remember. But this fact has nothing at all to do with cats or cat burglars, and this story concerns the concern of the said Chief of Police over a seemingly inexplicable series of burglaries—a one-man crime wave.

The burglar had broken and entered nineteen houses or apartments within a period of a few weeks. Apparently he cased his jobs carefully, since it could not have been coincidence that in each and every house he burglarized there was a cat.

He stole only the cat.

Sometimes there had been money lying loose in sight, sometimes jewelry; he ignored them. Returning householders would find a window or door forced, and their cat missing, nothing else was ever stolen or disturbed.

It was for this reason that—if we wish to belabor the obvious, and we do so wish—the newspapers and the public came to call him the Cat Burglar.

Not until his twentieth—and first unsuccessful—burglary attempt was he caught. With the help of the newspapers, the police had set a trap by publicizing the fact that the owners of a prize-winning Siamese cat had just returned with it from a cat show in a nearby city, where it won not only the best-of-breed prize, but the much more prized prize for the best of show.

Once this story, accompanied by a beautiful picture of the animal, had appeared in the newspapers, the police staked out the house and had the owners of it leave, and in an obvious manner.

Only two hours later the burglar appeared, broke into the house and entered it. They caught him cold on his way out, with the champion Siamese under his arm.

Downtown at the police station, they questioned him. The Chief of Police was curious, and so were the listening reporters.

To their surprise, the burglar was able to give a perfectly logical and understandable explanation of the unusual and specialized nature of his thefts. They didn't release him, of course, and eventually he was tried, but he received an exceedingly light sentence since even the judge agreed that, although his method of acquiring cats had been illegal, his purpose in acquiring them had been laudable.

He was an amateur scientist. For research in his field, he needed cats. The stolen cats he had taken home and put mercifully into eternal rest. Then he had cremated the cats in a small crematory which he had built for the purpose.

He had put their ashes in jars and was experimenting with them, pulverizing them to various degrees of fineness, treating different batches in different ways, and then pouring hot water over them. He had been trying to discover the formula for instant pussy.