

# Negotiating, Accepting, and Referring

## Elements of a Contractualist Theory of Semantics

*Peter Stockinger*

### 1. Introduction

In this article an interpretation of the notion of *acceptance* as the assertion of some proposition *p* by an actor (by the speaker, for instance) who *not only knows p* but also *prefers it*, with respect to some other proposition *q*, will be given. To know *p* is not a sufficient reason for an actor to accept *p*. Accepting *p* should be *a good or an appropriate proposition* for him — or at least a preferable one with respect to other, alternative propositions  $\{q_i, \dots, q_n\}$ .

We shall begin with an approximate description of the French expression “accepter quelque chose” (“to accept something”) and we shall continue with the expression “avancer quelque chose à quelqu’un” (“to advance someone something”). But the proposed descriptive framework constitutes only a helpful “pretext” for a more general discussion of what we call the *contractual hypothesis* in semantics.

Indeed, the principal purpose of this article is *not* to provide a systematic and subtle description of lexical expressions.

The central problem we want to deal with is what is called the *conventional dimension* of a language, where “conventional” should not be understood in a restrictive or again stipulative sense but in a more general one. It concerns the fact that people share — partially — “visions” that enable them to coordinate their actions in situations for which such an effort is required, and discuss these situations by means of verbal and non-verbal (for instance, visual) signs.

We shall argue that the description and explanation of this dimension could be based on the so-called *contractual hypothesis* which in short states that people negotiate (knowledge) *standards* or *common “views”* to which they *refer* in order to deal with a situation of reference *r* or again to revise a given standard and to (partially) substitute it for another one by means of which they “view” the same situation *r* in a more or less different perspective.

Provided we accept that sense, the contractual hypothesis also allows us to elaborate a coherent, unified, and rich theoretical framework where linguistic expressions, especially those that condense configurations of "abstract" meaning, could be identified and comparatively described.

At least for the moment we prefer to consider the contractual hypothesis as a kind of *theoretical fiction*, that is as a purely theoretical construction. Nevertheless, it is important to note that it appears, in more or less sophisticated but also divergent elaborations, in rather different research domains such as in moral philosophy [Rawls, 1971], philosophy of semiotics and language [Apel, 1981 ; Lewis, 1969], narrative semiotics and discourse analysis [Greimas, 1983 ; Stockinger, 1992], and especially in distributed artificial intelligence [Bond & Gasser, eds, 1988].

Naturally, the repeated and multiple references to some form of contractual hypothesis does not constitute *per se* an argument that the contractual hypothesis should be considered other than a theoretical fiction. Nevertheless the possibility is stressed, that it could play an important *meta-theoretical* or *epistemological* role in semantics.

## 2. A hypothetical schema for the description of the verbal expression «accepter»

We shall begin with the hypothesis that the description of the meaning of the verbal expression "accepter" ("to accept") has to take into account at least :

- 1) a situation of reference *r*,
- 2) a situation of negotiation *n* concerning the "viewing" of *r*, and
- 3) ordered temporal instants or periods *T* that localize *r* and *n*.

Situation *r* can be constituted by some action, event or state that happens or exists at *t<sub>i</sub>* and for which an actor looks for a reciprocal agreement with another actor concerning a *common interpretation* of how to consider situation *r* and how to deal with it.

Situation *n* lays stress on that search for an intersubjectively shared acknowledgement of situation *r* as well as the positive or negative result of that search.

It constitutes one of the principal components for the interpretation not only of the expression "accepter" but also of an important range of others such as : "consentir à" ("to consent"), "agréer" ("to agree"), "adhérer à" ("to adhere"), "admettre" ("to admit"), "souscrire à" ("to subscribe to"), "se résigner à" ("to resign oneself"), "se soumettre à" ("to comply with", "to submit to"), "acquiescer" ("to acquiesce", "to assent"), "convenir"

("to admit", "to acknowledge"), "reconnaître" ("to acknowledge"), "refuser" ("to refuse"), "rejeter" ("to reject"), "s'opposer" ("to be in opposition to", "to strive"), "décliner" ("to refuse", "not to acknowledge"), "écarter" ("to dismiss"), and so on.

Intuitively speaking, these expressions refer to the *positive or negative result* of some kind of "*negotiation*" between two (or more) actors concerning the constitution of a common view of how to interpret or to deal with situation of reference *r*. The principal differences in the meaning of these expressions may be explained more particularly by the ("legal") *status* of the involved actors — an aspect that we shall not treat in this article.

There exists highly sophisticated theories of how to deal with the phenomenon "negotiation" — theories that cannot be discussed here (cf. for instance [Schelling, 1960]). We shall refer only to two extremely elementary configurations of negotiation, but which do have the advantage of representing the *canonical basis* of *recursively* (or *inductively*) derivable complex configurations of negotiation. The first configuration focusses *expressly* on the aspect of the *interaction* between two actors who try to establish a common view of a situation of reference :

(A)

(A1)

The actor Proposer asserts a view  $v_i$  (a set of views  $V$ ) of situation  $r$ .

(A2)

Proposer wants the actor Agreeer to assert view  $v_i$  (a set of views  $V$ ) of situation  $r$ .

(A3)

Proposer asks Agreeer to assert view  $v_i$  (a set of views  $V$ ) of situation  $r$ .

(B)

(B1)

Agreeer evaluates view  $v_i$  (a set of views  $V$ ) of situation  $r$  with respect to a (given) Standard of Reference.

(B2a)

Agreeer asserts view  $v_i$  (a set of views  $V$ ) of situation  $r$ .

(B2b)

Agreeer rejects view  $v_i$  (a set of views  $V$ ) of situation  $r$ .

(C)

(C1)

Proposer and Agreeer assert jointly view  $v_i$  (a set of views  $V$ ) of situation  $r$ .

In the second elementary configuration the possible interaction between two actors is absent. Indeed, it describes the fact that there may exist a view (for instance, a convention or a custom) which is held to be an appropriate one by an actor *A* and to which actor *B* has or wants to subscribe. Such a kind of situation is rather common : think, for instance, of "rules" of language which are examples of collective conventions to

which an individual has to adhere if he wants to communicate with the collectivity (with actor A) for which these "rules" constitute an appropriate view. Basically, the second configuration possesses the following form :

(I)

(I.1)

There is a view  $v_i$  (a set of views  $V$ ) of situation  $r$  which is asserted by actor A.

(II)

(II.1)

Actor B evaluates view  $v_i$  (a set of views  $V$ ) of situation  $r$  with respect to a (given) Standard of Reference.

(II.2a)

Actor B asserts view  $v_i$  (a set of views  $V$ ) of situation  $r$ .

(II.2b)

Actor B rejects view  $v_i$  (a set of views  $V$ ) of situation  $r$ .

(III)

(III.1)

Actor A and Actor B assert jointly view  $v_i$  (a set of views  $V$ ) of situation  $r$ .

As we can see, the second configuration constitutes only a *variant* of the first one. It obliterates mainly the "dialogue" aspect of the negotiation represented in the first negotiation. Otherwise, both are identical. In that sense we can easily imagine and elaborate a variety of configurations describing situation  $n$  where each one of these configurations possesses particular effects of meaning on the constitution of a common intersubjective space between two or  $n$ -actors. Nevertheless, for each of these configurations we are able to define an *inductive or again recursive procedure of configurational formation*.

It is very important to note that both configurations are provided by a *third phase* (phase (C) in the first configuration and phase (III) in the second one) that describes the action of the joint assertion of a view by the concerned actors : it is this *third phase which constitutes, indeed, the necessary condition for the constitution of a common view*, a common "intersubjective space" between two or  $n$ -actors. The first phase as well as the second one constitute the *semantic presupposition* of the third one.

Situation of negotiation  $n$  and situation of reference  $r$  are able to be localized by means of an ordered set of temporal instants or periods. Arbitrarily, we choose instant  $t_j$  as the temporal localization point of situation  $n$ . In assuming a set  $T$  with  $i$ -instants and a linear ordering (called "succession") over the  $i$ -instants, we get the following really simple "time-line" :  $t_1 < t_j < t_k$  (" $<$ " symbolizing the linear succession, that is  $t_j$  follows  $t_1$ , and  $t_k$  follows  $t_j$ ).

Naturally, we can draw a more complex time-line by introducing more appropriate ordering relations, but the strictly linear ordering of temporal instants or periods is sufficient for our purpose.

Given on the one hand the linearly ordered time-line, and on the other hand the decision to relate situation  $n$  to the temporal instant  $t_j$ , there are, formally, three possible temporal relationships between the situation of reference  $r$  and situation  $n$  :

- a) a temporal precedence (i. e. situation of reference  $r$  precedes situation  $n$ ),
- b) a temporal concomitance (i. e. situation  $r$  and situation  $n$  overlap),
- c) a temporal succession (i. e. situation  $r$  follows situation  $n$ ).

Given this conceptual framework of the negotiation of a common view of how to interpret and to deal with a situation of reference  $r$ , let us try, now, to interpret the following example :

Jean accepte le livre de Paul  
(Jean accepts Paul's book).

In the absence of some more explicit context, this sentence can be understood in several ways :

- (a)  
Paul has written a book in which he develops some ideas about a subject. And Jean accepts Paul's ideas developed in the book.
- (b)  
Paul has written a book which he (or somebody else) wants to give to Jean. And Jean accepts the book as a present.
- (c)  
Paul possesses a certain book (let us say Eco's *Lector in Fabula*) which he wants to give to Jean. And Jean accepts this book.
- (d)  
and so on.

Let us consider more particularly example (a). What could be a more explicit interpretation of its meaning ? Following our point of view, it could be the following one.

There is some situation of reference — let us say the eight months of Ciampi's government. Paul, who is a political scientist, is writing a book about these eight months and claims that Ciampi's government has essentially achieved what has been initiated by Amato's government. This is a particular view interpreting the situation  $r$  which is asserted by Paul.

Now, following the first possible configuration representing the "logical" structure of situation  $n$ , Paul wants that Jean, his colleague, shares this view. So he invites (asks, compels, ...) his colleague to take his view into consideration. Then Jean would evaluate Paul's view with respect to a

standard to which he refers. Finally, Jean would assert or reject the view proposed by Paul.

(Note : If we interpret our example with the help of the configuration describing the adhesion of actor B to a view which is asserted by actor A, its meaning changes slightly in the sense that no "exchange" takes place between actor A — the Proposer — and actor B — the Agreeer).

There remains two obscure points to elucidate. The first one concerns the *standard* to which Jean refers, and the second one the problem of the *acceptance itself* of a standard by Jean or any other agent.

The standard to which Jean refers could be for instance Jean's own view concerning the eight months of Ciampi's government or his view of a reliable "expert". If Paul's view and Jean's view are equivalent, then Jean would assert Paul's proposed view, otherwise he would reject it — completely or partially.

But it is also possible that Jean does not have any particular idea on Ciampi's government in comparison with Amato's one. What, then, is the standard to which he could refer in order to evaluate Paul's view ? In this case, the standard to which Jean refers is a *partially complete* one : it enables him to evaluate partially the situation of reference, in the sense that it identifies for instance the governments in question as well as the fact that Ciampi's government follows Amato's one, but it does not inform him about the particular relationship between them, besides the fact that it supports some general definition or description of what it means for one government to follow another one, and for the second one to achieve the objectives of the first one during its period of legislature.

Such a (rather specialized) description or definition should not exist "in Jean's head" as such or "*en bloc*" — it can be derived from several more general, "canonical" ones.

In any case, the respectful evaluation of Paul's view by Jean with the help of his partially complete standard of reference will take the form of a *learning of partially new informations* — provided that Jean disposes of the above mentioned definition or description. Otherwise, there would be necessarily a "negotiation" — exactly similar to the hermeneutical strategy of the reconstruction of meaning [Apel, 1981] — between Jean and Paul with the purpose to constitute a common standard or a view of how to interpret or deal with the quoted definition or description.

The second point concerns, as we have already noted, the problem of the *acceptance itself* of a (proposed) standard as well as that of the mutual agreement with respect to one standard that enables a collectivity of actors to interpret a situation of reference *r* and to deal with it in a coordinated way. Indeed, as Lewis [1969] or Stalnaker [1987] have already noted, these problems lead us to the notion of "*goodness*" [von Wright, 1963] or of "*value*" of a standard, to its *more or less preferential status* in comparison with other possible standards.



In order to be able to deal at least partially with these really central notions, we have to postulate that the situation of reference — as its possible model — possesses a more complex structure than is generally admitted.

We shall postulate that a hypothetical and descriptively more adequate structure of the situation of reference is constituted by three components (that we shall call contractual components) which are the *problematic object itself*, the *objective or the goal*, and the *context*.

In that sense, a view or an interpretation of a situation of reference that should be accepted by an actor or a community of actors as an *appropriate view or an interpretation* of that situation, is evaluated with respect to :

— some *problematic object, event or state of affairs* (in our example : the decisions and the actions of Ciampi's government with respect to Amato's ones) ;

— the *objectives or the goals that the evaluating actors aim at* and for which the problematic object possesses a certain relevancy (in our example, such an objective may be Jean's wish to convince Paul that there exists a continuity in Italian politics contrary to all appearances) ; and

— an already given situation or *context* that characterizes the relationship between the evaluating actors as well as their attitudes towards the intended objective or goal and the problematic object (in our example, such a context may be defined by Paul's reticences about the actual political situation in Italy, Jean's more positive appreciation of the same situation, the relative importance of Paul's opinion on the situation in Italy, and so on).

We have the impression that this approach can be more or less directly compared with the rhetorical tradition in discourse studies (see for instance [Lausberg, 1990] ).

### 3. The Procedures of Condensation and Expansion

A serious question is whether from a conceptual point of view we really need such a complex descriptive framework for the analysis of linguistic expressions such as "accepter", how we can justify it and, if so, what the consequences will be.

It is known that, in linguistics, semantic descriptions proceed in general by a kind of feature analysis that usually completes previous morphological and syntactic descriptions.

For instance, "accepter" shares with many other verbal expressions the same syntactic patterns. In order to be able to distinguish the expression

“accepter” and other semantically related expressions, from those which are different from a semantic point of view, a habitual procedure is to range them under a common generic label such as /agreement/.

As such, this approach is not necessarily contradictory with the approach that we want to develop here. In fact, both aim at quite different objectives which become obvious in the context of natural language processing.

The first type of research concerns the problem of linguistic pattern recognition and generation, whereas the second one deals much more with knowledge and reasoning that are either accessible *via* linguistic patterns or expressed (produced) by them. In that sense, they are not opposed but rather complementary.

We make ours a hypothesis that Greimas has developed in his *Structural Semantics* [Greimas, 1986 (1966)] which has been productive not only in lexical but also in so-called textual semantics and which is, in our opinion, highly relevant for central problems in the domain of knowledge acquisition.

As Greimas has argued, the *procedure of condensation* of a definition or a description to a single term or lexeme as well as the converse *procedure of expansion* of a single term or lexeme to a whole definitional or descriptive “text” may be one of the most fundamental operations in the human discourse activities, no matter if these activities have a specialized technical or scientific character or if they take place in the everyday life communication :

“Exprimé de façon naïve, ce principe [i. e. le principe d'équivalence entre unités linguistiques inégales, P. S.] veut simplement dire qu'une chose peut être présentée tout aussi bien de façon simple que de façon compliquée, qu'un mot simple peut être expliqué par une séquence plus large, et qu'inversement un seul mot peut souvent être trouvé pour désigner ce que l'on a d'abord conçu sous forme d'un développement. L'expansion n'est donc pas cette propriété syntaxique du discours qui permet l'adjonction de déterminations successives grâce aux termes manifestés les uns après les autres : c'est le propre du fonctionnement du discours. Elle ne prend toute sa signification que si une séquence en expansion est reconnue comme équivalente d'une unité de communication syntaxiquement plus simple qu'elle. C'est cette équivalence, théoriquement toujours possible — bien qu'elle ne soit pas toujours manifestée lexicalement — , qui constitue l'écart structurel définissant le fonctionnement métalinguistique du discours” [Greimas, 1986 (1966), p. 73].

In a remarkable analysis of the French expression “colère” (“anger”), Greimas claims again that it is “notoire que les lexèmes se présentent souvent comme des condensations recouvrant, pour peu qu'on les explicite, des structures narratives et discursives fort complexes. (...) les descriptions lexématiques peuvent constituer, de façon économique, des modèles de prévisibilité pour des analyses discursives ultérieures” [Greimas, 1983, p. 225].



As we have already affirmed above, the procedures of condensation and expansion are of central interest for researches in the domain of knowledge acquisition. Understood in a rather broad sense, knowledge acquisition includes different types of activities such as :

— the type of reading some document, exploring the “thematic worlds” in a base of (multimedia) documents or more focussed researches of relevant information,

— the type of eliciting, describing and storing knowledge in order to reuse them for some given purpose, as well as

— the type of manipulating, simulating or simply updating knowledge with respect to a given standard or theory (see [Stockinger, 1993b] ).

What is common to all these activities is the fact that they are — at least to some extent — “bottom-up” driven activities, that is, that they access knowledge *via* one or several expression modalities such as “words”, “pictures”, “graphics”, and so on.

In that sense, a “word” such as “accepter” gives access to the “thematic world” of “agreement” — “agreement” in a generic sense or again “agreement” in a more or less specialized (juridical, commercial, political, ...) sense. In other words, “accepter” condenses a (potentially) highly complex thematic configuration which will be unfolded or expanded not only by discursive definitions and descriptions but also by other “rethorical” methods such as narration, argumentation, explication, and so on.

So, the problem is, how we can “simulate” this procedure of unfolding or expanding. One (but not the only) condition is the elaboration of a descriptive framework such as the above introduced one that constitutes a kind of *canonical script* by means of which the expansion or the unfolding of a condensed configuration can be simulated.

By means of a postulated canonical script and the procedures of condensation and expansion, it is possible to “guide” a user in his different activities of knowledge acquisition, to direct him in the exploration of “thematic worlds”, in the search of some relevant information or appropriate knowledge, or again in his attempts to manipulate a “thematic world” in order to see, for instance, what happens if he changes or modifies some aspects of this world, and so on.

Nevertheless, it should be clear, that the quoted domain of knowledge acquisition is only one example of those tasks that are expected to be satisfied by a semantic description or a semantic theory of some given linguistic (or non-linguistic) object. More principally, the proper task of a semantic description is to provide knowledge and reasoning models of some domain of experience that are (more or less partially) expressed by linguistic or other means.

This is the reason why we advocate a descriptive framework like the quoted one above. It constitutes a first outline of a theory — which is, certainly, fallible — that stipulates that the meaning (or aspects of the meaning) “enclosed” or condensed in the expression “accepter” refers to two situations (situation *r* and situation *n*), whereas the proper of situation *n* is constituted by the elaboration of an “intersubjective” space between two actors who assert together a common “view” or a common interpretation of situation *r*. Only in defining such a descriptive framework, it is possible to learn, to communicate, to reason or again to revise some assumed ideas *via* and with the help of “words” ; otherwise “words” (like pictures) are meaningless.

#### 4. The Canonical Script

As a first putative definition of the expression “accepter”, we have proposed that it represents a *particular phase* in the negotiation concerning the (successful) achievement of a reciprocal agreement (of the constitution of an intersubjective space) between two actors to share a common “view”, a common definition or description of some situation *r* — no matter if situation *r* is anterior to the process leading to the reciprocal agreement, if situation *r* overlaps with this process, or if situation *r* follows it.

In postulating that the expression “accepter” represents a particular phase in the negotiation of a reciprocal agreement, we make the hypothesis that the same expression condenses, virtually, other thematical configurations that are joined or “linked” to the configuration describing the reciprocal agreement — such as configurations describing the story leading to the reciprocal agreement, configurations describing the reciprocal status of the (negotiating) actors or again configurations describing the internal organization of an actor, given that there are also collective ones such as institutions, firms, groups, and so on..

It is this hypothesis that motivates the introduction of a set of typical actions in our descriptive framework concerning situation *n*.

This set of typical actions should describe the different stades or phases leading to the successful achievement of a reciprocal agreement between two or more actors. In other words, it constitutes a *canonical script* by means of which we hope to be able to simulate the unfolding or again the expansion of the single expression “accepter”. Simultaneously, the canonical script should give us also a means to grasp so-called implicit aspects of meaning that are conveyed by the expression “accepter”, the approximative equivalencies between these expressions and a set of other expressions such as the ones we have quoted in the second chapter.

In order to motivate the canonical script that we propose for the description of the expression "accepter", let us take the syntactic pattern "accepter + que" :

(a)

Jean accepte que Paul lui donne un livre.  
(Jean accepts that Paul gives him a book)

In using the procedure of topicalisation, we can develop particular perspectives concerning situation *r*, which is linguistically expressed by the subordinate clause "Paul donne un livre à Jean".

(a1)

Jean accepte que ce soit Paul qui lui donne un livre. Mais il n'accepterait pas que ce soit Jacques ou Marie.  
(Jean accepts that it is Paul who gives him a book. But he would not accept if it would be Jacques or Marie).

(a2)

Jean accepte que ce soit un livre que lui donne Paul. Mais il n'accepterait pas que ce soit un manuscrit ou un article.  
(Jean accepts that it is a book that Paul gives him. But he would not accept if it would be a manuscript or an article).

(a3)

Jean accepte que le livre donné par Paul soit un cadeau. Mais il ne l'accepterait pas s'il s'agissait d'un prêt ou d'une vente.  
(Jean accepts if it is a present that Paul makes him. But he would not accept if it would be a sale or a loan).

With respect to these different examples, it should be rather clear that the negotiation of a common view of situation *r* concerns more particularly a *certain view* or again a *certain perspective of situation r* that should be shared by a community of actors. There can be a common view as far as the giver of the book is concerned, or the object of the action of transferring, or again the action of transferring itself.

In this sense, a syntactic pattern such as "accepter + NP" does not exclude a particular perspective of situation *r* that is hold to be true by both actors but, rather, it *underdetermines the choice of a particular perspective*.

In this case, it is the task of the co-text to develop the perspective which is favoured. The co-text unfolds or expands what is virtually contained in the syntactic pattern "accepter + NP". Nevertheless, as Greimas has already pointed out, the unfolding is *oriented* in the sense that it favours one or the other but maybe not all of the perspectives of situation *r* which could be potentially taken into consideration.

Given the possibility that there are more than one perspective that shapes a situation *r*, we have to provide the canonical script with the actions performed by actor B (the Agreeer), viz. the action of *evaluation* with respect to some Standard of Reference and the action of *decision* (in favour of or against) some (proposed or established) view or perspective.

In the most simple cases, there exists one and only one view or perspective in which actor B (the Agreeer) has to evaluate and to decide to accept or not. But there may exist, too, more complicated cases such as the choice between two different perspectives and therefore only partial reciprocal agreements between actor B (the Agreeer) and actor A (the Proposer). Furthermore, there may exist a choice "inside" a given perspective, between several options, and so on.

Concerning the non-acceptance of some (proposed or already established) view, it is not necessarily limited to a mere rejection by actor B (the Agreeer). For instance, actor A may propose view  $v_i$  of situation  $r$  as a candidate to become the common view for himself and actor B in order to interpret situation  $r$  and to deal with it. But, "receiving" the proposition to consider view  $v_i$ , actor B can proceed to a counter-proposition in putting forward view  $v_j$  which is a more or less important modification of view  $v_i$ . In other words, the non-acceptance of a (proposed or established) view  $v_i$  can also take on the form of a *revision* of  $v_i$  — a procedure which is well-known and particularly important in juridical contexts of negotiation because of the compulsory identification of what has been asserted by an actor in order to sanction (to approve or to disapprove) his actions in a contractually defined situation of reference.

Intuitively, we can distinguish between two basic "dialogue games" that lead to the establishment of a common view of situation  $r$  — the *adhesion game* and the *inquiry game*.

The views or the interpretations of situation  $r$  are "*offers*" or "*propositions*" that actor A (the Proposer) makes to actor B (the Agreeer) and among which actor B (the Agreeer) can "choose". In other words, these offers or propositions are "*invitations*" or "*requests*" from actor A (the Proposer) to actor B (the Agreeer) *to assert* one of the views or interpretations.

From the point of view of actor A (the Proposer), there are at least two possible attitudes with respect to these views or interpretations for which he requests a response from actor B (the Agreeer) : either he asserts them already or he searches himself, *via* actor B (the Agreeer), to assert one or the other view or interpretation.

If actor A (the Proposer) asserts already one or more views or interpretations of situation  $r$ , his request is typically a *request of adhesion* that he addresses to actor B (the Agreeer) : actor A (the Proposer) asks actor B (the Agreeer) to assert (to adhere to) a view or an interpretation of situation  $r$  that he, actor A (the Proposer), asserts already.

If actor A (the Proposer) searches, *via* actor B (the Agreeer), the assertion of a view or an interpretation of situation  $r$ , his request is typically an *inquiry* : given a set of possible but not yet (positively or negatively) asserted views or interpretations of situation  $r$ , actor A (the

Proposer) asks actor B (the Agreeer) to evaluate them and to decide in favour of them or against them.

Let us exemplify these two "dialogue games" in taking into consideration example (1) and its expanded version (2) :

(1)

Jean accepte que Paul lui donne un livre

(Jean accepts that Paul gives him a book)

(2)

Jean accepte que Paul lui donne un livre à condition qu'il s'agisse d'un cadeau mais pas d'un prêt ni d'une vente

(Jean accepts that Paul gives him a book if his giving the book is a present but not a loan or again a sale).

There are three views or descriptions of situation P :

— first view : situation r is a gift ( $v_1$ )

— second view : situation r is a loan ( $v_2$ )

— third view : situation r is a sale ( $v_3$ ).

Following the adhesion game, actor A (= Paul) could assert either the first or the second or the third view, whereas actor B (= Jean) asserts only and exclusively the first view. If actor A (=Paul) asserts the first view, actor B (=Jean) adheres (= accepts) and the result is that both assert jointly a particular view of situation r.

If actor A (= Paul) asserts either the second or the third view, actor B (= Jean) rejects the proposition of actor A to adhere and the result is that there does not exist a common asserted view of situation r.

Following the inquiry game, there are three possible views of situation r which are known or are not known to actor A (= Paul). In any case, actor A asks actor B (= Jean) to assert a view of situation r to which he, actor A, could, afterwards, adhere or could not adhere.

What we see here is that both games are strictly equivalent — the sole exception consists in the fact that in the first version of the game it is actor A who asserts a view of situation r and in the second version it is actor B.

Indeed, with respect to the both previously introduced configurations describing situation n, both games differ substantially only as far as the first sequence is concerned :

#### *Adhesion Game*

(I)

(I.1)

Actor A asserts a view  $v_i$  (a set of views V) of situation r.

(I.2)

Actor A wants actor B to assert view  $v_i$  (a set of views V) of situation r.

(I.3)

Actor A asks actor B to assert view  $v_i$  (a set of views  $V$ ) of situation  $r$ .*Inquiry Game*

(I)

(I.1)

Actor A leaves undetermined a view  $v_i$  (a set of views  $V$ ) of situation  $r$ .

(I.2)

Actor A wants actor B to assert view  $v_i$  (a set of views  $V$ ) of situation  $r$ .

(I.3)

Actor A asks actor B to assert view  $v_i$  (a set of views  $V$ ) of situation  $r$ .

Compare again the following three extremely simple dialogues :

(1)

a. Paul : I would like to give you this book

b. Jean : Oh, thank you, I accept.

(1')

a. Paul : I would like to sell you this book.

b. Jean : No, thank you, I am not interested.

(2)

a. Paul : Would you like to have this book ?

b. Jean : Yes, but only if you give it to me.

(2')

a. Paul : Would you like to have this book ?

b. Jean : Yes, if you give it to me, but not if I have to buy it.

(3)

a. Paul : Would you like to have this book ?

b. Jean : Why not. But what do you mean exactly by "to have" ?

c. Paul : I will give it to you.

d. Jean : Thank you — I accept.

The third dialogue corresponds to the first version of the game : it is actor A (=Paul) who asserts a view of situation  $r$  and proposes to actor B to adhere to it. It is quite easy to elaborate more complex versions on the basis of these two canonical versions such as the negotiation between both actors in order to select a common view of situation  $r$ .

The above quoted *revision* can, for instance, be considered as one slightly more complex version in the sense that the view  $v_i$  of A (the Proposer) is rejected by actor B (the Agreeer) who simultaneously asserts view  $v_j$  as the appropriate one in order to interpret or to deal with situation  $r$ . Naturally, if the "favourite" view  $v_j$  of actor B should become a common view of interpreting situation  $r$  and dealing with it, it must be asserted again by actor A.

It is, indeed, mainly the procedure of revision that leads to the complexification of the basic negotiation games.



### 5. The Epistemic Component of «Accepting a View»

Before dealing with the aspect of the *appropriateness* or the *goodness* of some view for an actor, let us try to give a more explicit descriptive account of the epistemic component that characterizes the acceptance of a given or proposed view of situation *r* by some actor. For this we shall refer to our example of the three possible expanded versions of “Jean accepte que Paul lui donne un livre” (Jean accepts that Paul gives him a book), stipulating that there are three views :

- $v_1$  : situation *r* is a gift,
- $v_2$  : situation *r* is a loan,
- $v_3$  : situation *r* is a sale.

In a canonical version of the adhesion game, Paul asserts  $v_1$ , “sends” this message to Jean, and Jean, for his part, asserts  $v_1$  thus concluding that the transferring of the book by Paul to him is to be interpreted as a gift.

Now, in assuming that this version of the adhesion game explains correctly the condensed version

Jean accepte que Paul lui donne un livre

the question arises already how to describe the fact that Paul (= actor A = the Proposer) asserts  $v_1$  (and not  $v_2$ ,  $v_3$ , ...).

In assuming that  $v_1$  (like  $v_2$ ,  $v_3$ , ...) is a kind of definition or description of situation *r*, a purely “epistemical” account of the assertion  $v_i$  by some actors can be developed by means of the operation of *projection* (or *mapping*) of  $v_1$ , on the one hand, in a *generalization-specialization hierarchy* of descriptions or definitions, and, on the other hand, into the *structure of situation r* itself.

Informally speaking, actor A possesses a “family” of views (definitions or descriptions) among which there are one or more — according to the point of view of actor A — that exhibits correctly some perspective — some actual or “given” or again some possible structure of situation *r* ; there may be also one or more descriptions or views which — again following the point of view of actor A again — are false with respect to a “given” or possible structure of situation *r* ; finally it is also possible that concerning one or more descriptions or views, actor A cannot decide if they exhibit correctly or not a “given” or possible structure of situation *r* — they are, for him at least, indeterminate or indeterminable.

Let us suppose that actor A possesses some description or definition  $v_1$  of the notion of “present” and that there is a situation *r* that exhibits — at

least following the point of view of actor A — a characteristic structure that could be identified by his description of the notion of “present”. In this case, the view of situation  $r$  as “situation  $r$  represents a situation of a present” is true — the view corresponds epistemically (from the point of view of actor A) to the “given” structure of situation  $r$  (view  $v_2$  of situation  $r$  (“situation  $r$  represents a situation of a loan”) or again  $v_3$  of situation  $r$  (“situation  $r$  represents a situation of a sale”) would be false —  $v_2$  and  $v_3$  do not correspond, epistemically, to the “given” structure of situation  $r$ ).

Now, let us suppose that actor A “has in mind”  $v_1$ ,  $v_2$ , and  $v_3$  but that he has only a quite general idea of the “given” structure of situation  $r$  (let us say, that for actor A, situation  $r$  exhibits a characteristic structure of an object transfer), then  $v_1$ ,  $v_2$ , and  $v_3$  would remain indeterminate or indeterminable with respect to their ability to rule out correctly or not the “given” structure of situation  $r$ . The question of the correct evaluation of situation  $r$  remains open as far as actor A is concerned, at least with respect to a given state of his “epistemical competence”.

He could revise his attitude or change his mind if he gets some more information about situation  $r$  either by his own investigations or again with the help of actor B. The revision of the attitude of actor A (i. e. an indeterminate view becomes either a correct or a non-correct one) with the help of actor B constitutes, indeed, the characteristic moment of what we have called the inquiry game : actor A “asks” actor B to decide if the view or the description of situation  $r$  is correct, and then adheres or does not adhere to the decision of actor B.

Let us see, now, how to approach more technically a purely epistemical description of the assertion of some view  $v$  by actor A.

We assume that  $v_1$ ,  $v_2$ ,  $v_3$ , ... are views ; we assume that  $d_1$ ,  $d_2$ ,  $d_3$ , ... are also views. View  $d$  exhibits a more general description than view  $v$ . View  $d_1$ , for instance, characterizes the structure of some possible situation  $r$  in terms of a transfer situation, that is a situation in which an actor transfers something to another actor.

In that sense, view  $v$  is either a subtype of view  $d$  (i. e.  $v \leq d$ ) or a proper subtype of view  $d$  (i. e.  $v < d$ ) ; the views  $v_1$ ,  $v_2$ , and  $v_3$  have at least one common generalization (in our case :  $d$ ) but not necessarily a common specialization (indeed, what could be a common specialization of a “loan”, a “sale”, and a “gift” if not the absurd type  $\perp$  ?).

In Sowa [1984, p. 99] the following theorem is given : for any conceptual graph  $g$  and  $u$  where  $g \leq u$  (or  $g < u$ ), there must exist a projection or a mapping  $u \rightarrow g$  where  $u$  is a subgraph of  $g$  (a projection of  $u$  in  $g$ ). Given that a conceptual graph represents a view or a description, it is clear, with respect to this theorem, that view  $v$  is derivable from view  $d$  (a proof of this theorem is given in [Sowa, 1984, p. 99] ).

Given a hierarchy of views  $V$  that “belongs” to an actor, we have also to evaluate it with respect to a “given” or possible structure (or model) that

characterizes situation  $r$ . Given the possibility that actor  $B$  can assert true or correct views of  $r$ , false views of  $r$  or again simply indeterminate ones, we assume an "open world model", that is a model that supports the possibility of partial knowledge of a (set of) situation(s).

The structure  $s$  of a situation is bound to temporal and spatial coordinates  $c$ , viz. with respect to a certain period and/or place  $c_1$ , a situation exhibits a structure  $s_1$  but with respect to  $c_2$ , it may exhibit  $s_2$ , where  $s_1$  is not necessarily equivalent to  $s_2$ .

More generally speaking, a situation for which a view or a description of actor  $A$  should be evaluated, must not necessarily be some concrete or perceptible entity ; it can be also a notional one which is hold to be true by some other actors than actor  $A$ . Such a notional situation could be for instance an expertise to which an actor refers, to which he adheres or which he rejects or again which is worth for him to be inquired.

In any case, it is obvious that the structure of a situation can temporally, spatially, and notionally evolve or change.

Canonically speaking, the structure of a situation in an open (temporal, spatial or notional) world model can be defined by a triplet  $\langle T, F, I \rangle$  where  $T$  is the set of true views,  $F$  the set of false views and  $I$  the set of individuals.

In order to be able to evaluate a given (set of) view(s)  $v$  of actor  $A$  with respect to some given situation  $r$ , view  $v$  is projected into  $T$  and  $F$  ; the set of possible projections of  $v$  in  $T$  and  $F$  allows us finally to evaluate  $v$  with respect to the model representing the structure of  $r$  at  $c$ .

As Sowa has pointed out, there are four possibilities we have to take into consideration :

" $(v, T)$  and  $(F, v)$  are both empty : there is insufficient information, and  $\delta$  is unknown [the symbol  $\delta$  expresses the denotation operator of some description with respect to "datas" or "individuals" belonging to the structure of a situation, P. S.].

$(v, T)$  is nonempty, and  $(F, v)$  is empty : a true graph [representing a true description or view, P. S.] implies  $v$ , and  $v$  must therefore be true.

$(v, T)$  is empty, and  $(F, v)$  is nonempty :  $v$  implies a false graph [representing a false description or view, P. S.], and  $v$  must therefore be false.

$(v, T)$  and  $(F, v)$  are both nonempty : a true graph implies  $v$  and  $v$  implies a false graph. The model itself is inconsistent, and  $v$  is unknown [this last case can be ruled out by taking into account coordinates according to which a model or a structure of a situation is indexed, or again by using more specific techniques such as the technique of circumscription, and so on, P. S.] [Sowa, 1984, p. 181].

Let us summarize that the assertion of  $v_1$  by actor  $r$  is the result of the derivation of  $v_1$  from  $d$  in an hierarchy of descriptions or views as well as the evaluation of  $v_1$  with respect to a "given" or possible structure of situation  $r$ .

Furthermore, the hierarchy of descriptions or views as well as its evaluation with respect to a "given" or possible structure of situation  $r$  is

context-dependent in the sense that they are embedded in the epistemical state of actor A (in his "univers de croyance" following [Martin, 1987]). The context dependency of a generalization-specialization hierarchy of views and their evaluation with respect to a ("given" or possible) model of situation  $r$  is canonically represented by nested graphs where the outer context represents the "environment" of the epistemical state of an actor and the inner context the asserted or rejected views of situation  $r$ .

By interpreting the assertion of some description or view of situation  $r$  by an actor A, we are able to problematize the procedure of asserting a view, that is not only to "calculate" the procedure of asserting a view but also to simulate procedures of asserting other possible views.

In our example, view  $v_1$  is only one possible description of situation  $r$  by Paul (= actor A); in his context (in his epistemical competence) there are also view  $v_2$  or view  $v_3$  as well as  $d_1$ . So, if Jean (= actor B) rejects  $v_1$ , Paul could again assert  $v_2$  or  $v_3$  which he could not do if  $v_1 = d_1$  (that is, if  $v_1 < d_1$  and  $d_1 < v_1$ ). Intuitively speaking, the negotiation of the adhesion of actor B to a view  $v_i$  of actor A, among other parameters, depends on the set of descriptions or views  $V$  of situation  $r$  that actor B possesses and that enables him to propose alternatives and/or compromises with respect to  $v_i$  that has been rejected by him.

Basically, actor A derives from a hierarchy of descriptions a set of descriptions  $V$  and evaluates them with respect to a "given" or possible structure of situation  $r$ . Then he sends  $v_i$  to actor B and "waits" for his response: if actor B confirms  $v_i$ , actor A and B have good chances to share a common view of situation  $r$ ; if actor B rejects  $v_i$ , actor A sends  $v_j$  to actor B and "waits" for his response, and so on. If actor A does not dispose of another view  $v$ , actor B and actor A fail in their attempt to share a common view of situation  $r$ .

The characterization of the negotiation between actor A and actor B with the objective that actor B adheres to a  $v_i$  proposed by actor A is again a very unrealistic one in its actual form, in the sense that the acceptance by actor B of some proposed view normally depends on a series of other parameters. We have already quoted the parameter of the appropriateness or goodness of some view  $v_i$  with respect to "interests" or "goals" of some actor; another parameter is the status of the negotiating actors referring, for instance, to the possibility that one of them is in a position that enables him to compel the other actor to accept some proposed view; a third parameter is naturally the correct understanding of a proposed view, and so on.

It is clear that a more realistic model of the simulation of the negotiation of a common intersubjective space between two actors has to integrate these parameters (and probably other ones).

But what we want to focus on is that the structural framework of the canonical script is, from a conceptual and a formal point of view, complex

enough not only to simulate at least simple forms of negotiation between two or  $n$ -actors involved in the constitution of a common intersubjective space but also to take into account, that is to describe (partially, at least) a variety of NL datas by the means of the same metalanguage — an objective that is often claimed in (linguistic) semantics but, unfortunately, rather scarcely developed.

If we come back to the negotiation game preceding the constitution of a common intersubjective space, we see that our main effort has been to clarify the purely epistemical component of some view  $v$  by actor A. What is missing is a more systematic analysis of this component as far as actor B, who is concerned, accepts or rejects a view proposed by actor A.

Actor B receives a view  $v_i$  asserted by actor A, and, after his evaluation, accepts, rejects it or let it merely indeterminate. The rejection can close the negotiation between actor B and actor A or open a new sequence in a more complex negotiation procedure. The failure of the negotiation of a common intersubjective space, in purely epistemical terms, can be explained either by the incompatibility of the views proposed by actor B and/or actor A or by the absence of alternative or compromise, that is by the absence of view or description of given or possible structures of situation  $r$  that could epistemically satisfy both actors.

Like actor A, actor B must be supposed to possess a set of views  $W$  of situation  $r$ , that is of situation  $r$  in an actual or “given” states as well as in some possible states. In that sense, the purely epistemical component of the assertion of some view  $w_i$  by actor B can be described in exactly the same way as the assertion of a view  $v_i$  by actor A.

The set of views  $W$  is again, on the one hand, derivable from a contextualized generalization-specialization hierarchy of descriptions or definitions, and, on the other hand, evaluable with respect to a set of (“given” or possible) structures of situation  $r$ . The result of this evaluation is that actor B — like actor A — asserts, with respect to each model of situation  $r$ , a set of views  $T$  which he considers to be true, another set of views  $F$  which he considers to be false, and, finally, a third set of views  $U$  which are, for him, indeterminate, that is, a set of views for which he does not have sufficient informations (“values”) in order to be able to evaluate them.

The set of views  $T$ ,  $F$ , and  $U$  constitute an *epistemical state* or again, in semiotic terms, a *state of the epistemical competence* of an actor. It is clear that the epistemical state or competence is submitted to revisions in the sense of Gärdenfors [1988], Harman [1986] or Forrest [1986]. A view  $v_i$  which is asserted by actor B (or actor A) to be true, can change its status and become a false view for actor B or again an indeterminate view ; inversely, a false view  $v_j$  can become a true view for actor B or again an indeterminate one, and so on. The description and the explanation of such changes of an epistemical state, for which Gärdenfors [1988] has



accounted in his theory of epistemical revision really constitute an important part of a general theory of semantics.

Now, given that actor A proposes to actor B a set of views V which he asserts to be true (T'), false (F'), or again (from his point of view) indeterminate (U') and given that actor B possesses also a set of views W which can be divided into subsets T'', F'', and U'' : in purely epistemical terms, what is the evaluation given by actor B of a view proposed by actor A ? Basically, it is nothing more than a matching operation between V and W which exhibits nine more specific epistemical configurations of the acceptance of a given view by actor B :

(1)

If v is in T' and if v is a (proper) subtype of w and if w is in T'', then actor B asserts v which is already asserted by actor A (i. e. both of them assert a same view v to be the correct view of situation r).

*Example*

Paul asserts that the view "situation r is defined as a situation of a present" is the correct one to deal with situation r (which either precedes situation n or is concomitant with situation n, or follows/should follow situation n), and Jean asserts that view too.

(2)

If v is in F' and if v is a (proper) subtype of w and if w is in T'', then actor B asserts v which has been rejected by actor A.

*Example*

Paul rejects that the view "situation r is defined as a situation of a present" is the correct one to deal with situation r (that either precedes situation n or is concomitant with situation n, or follows/should follow situation n), but Jean asserts this view to be the correct one.

(3)

If v is in U' and if v is a (proper) subtype of w and if w is in T'', then actor B asserts v which actor A has left indeterminate.

*Example*

Paul cannot/does not decide if the view "situation r is defined as a situation of a present" is a correct or a false one to deal with situation r (that precedes, ...), but Jean asserts this view to be the correct one.

(4)

If v is in T' and if v is a (proper) subtype of w and if w is in F'', then actor B rejects v which is, on the contrary, asserted by actor A.

*Example*

Paul asserts that the view "situation r is defined as a situation of a present" is the correct one to deal with situation r (that precedes ...), but Jean rejects this view.

(5) If v is in F' and if v is a (proper) subtype of w and if w is in F'', then actor B rejects v which is also rejected by actor A.

*Example*

Paul rejects that the view "situation r is defined as a situation of a present" is the correct one to deal with situation r (which precedes ...), and Jean rejects this view too.

(6) If v is in U' and if v is a (proper) subtype of w and if w is in F'', then actor B rejects v which actor A has left indeterminate.



*Example*

Paul cannot (does not) decide if the view "situation *r* is defined as a situation of a present" is a correct or a false one to deal with situation *r* (which precedes ...), but Jean rejects this view in any case.

(7) If *v* is in *T'* and if *v* is a (proper) subtype of *w* and if *w* is in *U*", then actor B leaves indeterminate *v* which is asserted by actor A.

*Example*

Paul asserts that the view "situation *r* is defined as a situation of a present" is the correct one to deal with situation *r* (which precedes ...), but Jean cannot (does not) evaluate this view.

(8) If *v* is in *F'* and if *v* is a (proper) subtype of *w* and if *w* is in *U*", then actor B leaves indeterminate *v* which is rejected by actor A.

*Example*

Paul rejects that the view "situation *r* is defined as a situation of a present" is the correct one to deal with situation *r* (which precedes ...), but Jean cannot/does not evaluate this view.

(9) If *v* is in *U'* and if *v* is a (proper) subtype of *w* and *w* is in *U*", then actor B leaves indeterminate *v* which actor A has left also indeterminate.

*Example*

Paul cannot/does not decide if the view "situation *r* is defined as a situation of a present" is a correct or a false one to deal with situation *r* (that precedes ...), and Jean cannot/does not evaluate this view too.

The nine configurations reveal us the logical structure of the purely "epistemical" component that constitutes the situation *n*. They give a more explicit and precise definition of what we have called the inquiry and adhesion game. But they also stick to other forms of the negotiation game such as the *revision* of a view (cf. configuration (2) : actor B rejects a view that has been asserted by actor A) or again the *suspension* of a view (cf. configuration (7) : actor B leaves indeterminate a view that has been asserted by actor A), and so on. Nevertheless, it would be more prudent to avoid hasty lexicalisations of the different configurations as well as of these different negotiation games.

Among the nine configurations, only the first one (actor A asserts a view *v<sub>i</sub>* and so does actor B) with a high probability leads to the common assertion by both actors of an positively defined intersubjective space, viz. of a common view of how to deal with the situation. Configuration (5) probably leads to a common agreement concerning the views that should be excluded from the intersubjective space and configuration (9) to a common agreement concerning views which (given the epistemical states of actor A and B) remains indeterminable.

From these more elaborate canonical forms, "specialized" forms of (iterated) negotiations that evolve during *n*-sequences can be derived.

Let us take, for instance, one simple inquiry game where actor A does not have enough information to evaluate some view *v* by means of which he could interpret and deal with situation *r* in a certain way. But if actor B asserts the correctness of *v*, he would also assert it.

The script of such an inquiry is defined by a first sequence where, given the epistemic state of actor A, some inevaluable or unvalued view  $v$  of situation  $r$  is asserted by actor B to be a correct one (cf. configuration (3)). This means that actor B is in an epistemic state that enables him to "judge"  $v$  with respect to a given or possible structure of situation  $r$ .

For instance, situation  $r$  may exhibit, for actor A and with respect to his epistemic state, characteristic features of a transfer situation where actor A is the transferer, actor B the transferee, and Eco's *Sugli specchi e altri saggi* the object of the transfer.

So, the problem is to decide which is the definition of the transfer that should be applied to situation  $r$ : should the action of transferring be considered as an action of making a present, an action of selling, or again an action of loaning? where:

— "gift" ( $v_i$ ) means not only the physical transfer of an object from the transferer to the transferee but also the definitive transfer of the ownership of the object which is transferred;

— "sale" ( $v_j$ ) means the definitive transfer of the ownership but is coupled with the obligation of the transferee to pay a fixed amount in order to obtain this right; and

— "loan" ( $v_k$ ) means a temporally limited transfer of the ownership of the object and the obligation for the transferee to restore this right after some (fixed) period by giving back the object to its initial owner.

Strictly speaking, if an actor *cannot evaluate*  $v_i$ ,  $v_j$ , and  $v_k$ , therefore he does not possess definitions or descriptions of "gift", "sale", and "loan" by means of which he could more precisely face up to situation  $P$  in the sense of a (physical) transfer situation. If he *does not evaluate*  $v_i$ ,  $v_j$ , and  $v_k$ , he possesses these definitions but prefers to ask another actor — for reasons or motives that should be clarified by the analysis of the already quoted practical component of acceptance.

In the first case (actor A cannot evaluate some more specific views of a transfer situation with respect to situation  $r$ ), actor B plays the role of an "expert" who is in an epistemic state  $e_i$  which is more specialized than the epistemic state  $e_j$  of actor A.

Following the above quoted objective of the inquiry game, the epistemic state  $e_j$  must change with respect to the epistemic state  $e_i$ . Indeed, Actor B is in a state that enables him to evaluate  $v_i$ ,  $v_j$ , and  $v_k$  and to propose three possible ways of dealing with situation  $r$ . Moreover, actor B can choose one of the three views — let us say  $v_i$  — as the view according to which one situation  $r$  should be treated whereas  $v_j$  and  $v_k$  form two choices (that are preferentially subordinated to  $v_i$ ). So, actor B asserts that the given structure of (a past, present or future) situation  $r$  is

"situation  $r$  is defined as a situation of a present" and he rejects  $v_i$  and  $v_k$ . But he can open onto some possible compromises such as the compromise of a possible structure of (a past, present or future) situation  $r$  as a "situation  $r$  defined as a situation of a loan" where  $v_i$  and  $v_j$  are rejected. In other words, actor B proposes an actual world where he accepts to deal with situation  $r$  as a situation of making a present (and not as a situation of a loan or a sale) and a possible world where he accepts to deal with situation  $r$  as a situation of a loan (and not as a situation of making a present or a sale).

Naturally, the distribution of views in correct, false or unvalued ones vary from one world to another one.

In any case, if actor A *cannot* strictly evaluate  $v_i$ ,  $v_j$ , and  $v_k$  in the first sequence of the inquiry game, it is because he does not possess the *appropriate competence* of actor B who is able to evaluate  $v_i$ ,  $v_j$ , and  $v_k$ .

Now, in the second sequence of the inquiry game, actor B proposes to actor A his vision of the actual structure of situation  $r$ , for instance he proposes the definition of a "present" as a special type of transfer and asserts it to be the correct one with respect to situation  $r$ .

Actor A integrates this definition in his generalization-specialization hierarchy of descriptions or definitions concerning different types of transfer actions ; in an extremely simple and mechanistic way, he *learns* the notion of "gift" from actor B which enables him now to evaluate situation  $r$  not only in terms of a simple and rather primitive transfer situation but in more subtle terms such as that of a gift with all the (moral or other) consequences that are "linked" to that notion.

Finally, according to the goal of our inquiry game, he adheres to the view asserted already by actor B (cf. configuration (1) with inversed roles).

Concerning the second above mentioned case, viz. actor A does not evaluate  $v_i$ ,  $v_j$  or  $v_k$ , his adhesion to view  $v_i$ , asserted by actor B, is not so much the effect of a learning than (again, in an extremely simple way) that of the *persuasion* of actor A by actor B.

The description of the different canonical configurations that seem to be at the basis of the negotiation of a common view concerning a situation  $r$  is, as we have already claimed several times, only a partial one.

It enables us more particularly to examine the constitution and the revision of the states of belief and knowledge of one, two or  $n$  actors. But, taken in itself, this description is not complex enough to explain neither the *more specific universe of acceptance* by one actor of some view  $v_i$  rather than some other view  $v_j$  nor that of the *mutual acceptance* or agreement by two or more actors to refer to a common view in order to deal with situation  $r$ . One possible account of the aspects that are more particularly attached to that universe can be given in examining the

goodness or the appropriateness of a view for one or more actors which leads to the description of the “practical” component of a (common) assertion.

## 6. From the Single Assertion to the Common Assertion of a View

Before dealing more precisely with the “practical” aspect of the appropriateness or the goodness of some view  $v_i$  in comparison with another view  $v_j$ , let us discuss again briefly the distinction between the assertion of an agreeer (or actor B) of a view  $v_i$  and the *joint assertion of  $v_i$*  by the Proposer and the Agreeer :

(B.2a)

Agreeer asserts view  $v_i$  (a set of views  $V$ ) of situation  $r$ .

(B.2b)

Agreeer rejects view  $v_i$  (a set of views  $V$ ) of situation  $r$ .

(C)

(C.1)

Proposer and Agreeer assert jointly view  $v_i$  (a set of views  $V$ ) of situation  $r$ .

In that sense, “accepter” seems to mean that actor B asserts the same view  $v$  of situation  $r$  which is asserted by actor A. In other words, it expresses, more particularly, the “move” or the “result” of the decision of actor B to adhere to the view of actor A of situation  $r$ . Contrary to expressions such as “s’accorder” or “se mettre d’accord” (“to come to terms”) :

Jean et Paul s’accordent sur le fait que Paul lui donne un livre.

Jean et Paul se mettent d’accord sur le fait que Paul donne à Jean un livre.

“Accepter” does not imply necessarily that actor A and actor B assert jointly situation  $r$ . In our putative descriptive framework, there is a *probability* that the sequence C should be true for “x accepts y” but, logically, “x accepts y” takes into account only *the point of view of actor B* in the process that should lead to the assertion of a common view, of a common intersubjective space concerning a situation of reference  $r$ .

Naturally, the assertion or the rejection of a proposed or already established view presupposes that this view has already been proposed or established by actor A. But a particularity of an “accepter” is precisely that this logical presupposition works in the *epistemic world of actor B*.

Actor B can be for instance mistaken as far as the identity or the meaning of a proposed view  $v$  is concerned. So, actor B may accept

something that does not correspond to a proposed or established view ; actor B may accept something without realizing that there does not exist any proposition, any offer at all, and so on.

Let us note that in the law of a contract, the identification and the description of such mistakes really play an important role in its execution and its sanction. Besides the "error" (the quoted "mistake"), under the label "vice" there are again the "fraud" and the "violence" that cancel the legal reality of a common assertion, of a common agreement (cf. [Rodière, 1977] ; [Sacco, 1975, notably p. 233-371, "Vizi del consenso"] ).

The very important aspect of a common assertion is not to be the result of the concatenation or again the juxtaposition of two, three or  $n$  single assertions of a proposed view in order to interpret a situation  $r$ , and for a collectivity of actors to deal with it in a common way. The central aspect that distinguishes a common assertion from a set of single ones concerns, as Lewis [1969] has shown, the process of the *epistemic replication* which basically "functions" as follows :

(1) the "mental" space of actor A

- (a) actor A asserts view  $v$  in order to interpret situation  $r$  and deal with it ;
- (b) actor A believes that actor B asserts view  $v$  in order to interpret situation  $r$  and deal with it ;
- (c) actor A believes that actor B believes that actor A asserts view  $v$  in order to interpret situation  $r$  and deal with it.

(2) the "mental" space of actor B

- (a) actor B asserts view  $v$  in order to interpret situation  $r$  and deal with it ;
- (b) actor B believes that actor A asserts view  $v$  in order to interpret situation  $r$  and deal with it ;
- (c) actor B believes that actor A believes that actor B asserts view  $v$  in order to interpret situation  $r$  and deal with it.

Let us note that the process of epistemic replication constitutes a central component in game theory [Schelling, 1960] for the explanation not only of a cooperative but also of a conflictual or polemic behaviour between two or more actors. It shows that even in highly conflictual situations there remains a kind of (minimal) agreement between the concerned actors of how to view a situation  $r$  in which they really aim at contradictory objectives or goals. In other terms, if actor A knows that he aims at a contradictory goal or objective — with respect to another actor B —, it must be presupposed that both actors have to agree or assert jointly that the situation of reference expresses already the same meaning for them as well as a comparable importance.

A *joint assertion* can be characterized, furthermore, by something what we call the *epistemic strength* of a joint assertion.



If actor A and actor B jointly assert that the view  $v$  is the correct one to deal with a "given" structure of situation  $r$  but if they disagree with the evaluation of other views which are not satisfied by the "given" structure as well as they disagree with possible alternatives of the "given" structure of situation  $r$ , the strength of their reciprocal agreement is a rather limited one ; in other words, their reciprocal agreement is an agreement with a very restricted equilibrium compared to a reciprocal agreement between two or  $n$  actors that encompasses not only a "given" structure of situation  $r$  but at least a subset of possible structures of that situation. We think that the relative epistemic strength of a common assertion could constitute a kind of measure of the epistemic equilibrium that exists between a collectivity of actors and, therefore, of the relative precariousness and the ability to negotiate of alliances between them.

There still remains an important point we want to treat briefly. Our discussion concerning the epistemic replication may suggest that this procedure is restricted to and dependent upon the existence of some kind of dialogue between a Proposer and an Agreeer.

The question may arise if this process can also be supposed to "work" in a situation of mere adhesion of an actor B to some view  $v$  that is asserted by an actor A, even if there does not exist a "contact", a "negotiation" between actor A and actor B.

A first point to clarify is the following one : is the third phase in a configuration describing the process of a mere adhesion to a given view (Actor A and Actor B assert jointly view  $v_i$  (a set of views  $V$ ) of situation  $r$ ) really appropriate for such a configuration, and if so, what does it mean ? In fact, not only is the third phase appropriate, but what is more, it is a *necessary condition* for the achievement of the adhesion of an actor B to some (proposed) view of actor A.

If an actor B wants to have or should be considered to have the rights and the duties that make him adhere to some view  $v$  concerning a given (or possible) situation  $r$ , his acceptance of view  $v$  that is asserted by some actor A, must be known or believed by actor A, and, furthermore, it must also be known and believed by actor B that actor A asserts the view  $v$ , and so on.

Imagine that actor B wants to spend his holidays in Austria and that there is a tourist agency — actor A — that offers (proposes) a variety of tours in the country. All these tours must be described for instance in a catalogue which details in several ways the situation  $r$  of how, when, where, ... to spend the holidays in Austria. So, actor B will read and evaluate these offers : a tour to the most beautiful Austrian villages, a tour to the most famous Austrian lakes, a tour to Mozart's Salzburg, and so on. Now, actor B decides in favour of one of these tours : he asserts to deal with situation  $r$  (i. e. spending his holidays in Austria) following the chosen view  $v_i$ . But it is clear that this assertion alone is not enough to be considered in terms of a common view that is shared by actor A and



actor B — although each one of them asserts  $v_i$ . It would be, indeed, a rather curious idea of actor B to claim from actor A his travel tickets, hotel reservations in Austria, and so on if there does not exist a reciprocal agreement between actor A and actor B to interact in situation  $r$  following view  $v_i$ .

We can speak of an adhesion only if there exists the phase of the joint assertion, otherwise there does not exist any “common view” at all. In that sense, the *joint assertion is a necessary condition* not only for the achievement of an adhesion to some view but principally for the achievement of all forms of negotiation whose goal is to constitute a “common intersubjective space” between two, three or  $n$ -actors. It is also a necessary condition for the existence of highly conflictual or polemic situations as we have already mentioned : without a common agreement of how to view a certain situation  $r$ , it could not be at stake in a conflict between two or more actors. Even an epistemic disagreement or conflict of how to view a situation  $r$  (as it constitutes the topic of a debate) presupposes one or more *common meta-standards* between the disagreeing actors that “regulate” at least their acknowledgment that they do disagree.

As we have already noted, the proper of a common assertion is not that one, two, three, ... actors assert, each one separately, a view  $v$ . The proper of a common or joint assertion is that an actor A believes or knows that an actor B asserts the same view as him and, furthermore, that he believes or knows that actor B knows or believes that he — actor A — asserts the same view as him — actor B.

In other words, the *core of the joint or common assertion is the epistemic replication* ; without it, no joint or common assertion is even imaginable.

So, given that the phase of the joint assertion is a necessary condition on the achievement of a “common intersubjective space” between  $n$ -actors and given that the epistemic replication constitutes the core of a joint assertion, it is also trivially clear that the process of the epistemic replication “works” in all types and variants of the negotiation game — no matter if it takes the form of an adhesion game, an inquiry game, a revision game, a suspension game, etc.

*The epistemic replication constitutes an essential feature in the constitution of a common, intersubjectively shared view of how to interpret and to deal with a situation  $r$ .*

## 7. The notions of «standard» and «contract»

The notions of “contract” and “(knowledge) standard” will help us to understand more precisely the main function of the common or joint

assertion of some view by two or more actors (i. e. by a “community” of actors).

Broadly speaking, the joint or common assertion constitutes a particular phase in a *canonical contract schema* that encompasses the constitution (negotiation), execution, and recognition (sanction) of a common view.

The hypothetical structure of the canonical contract schema is similar to the *narrative schema* in semiotics [Greimas & Courtés, 1979] which constitutes, for the authors, a central piece in the elaboration of a narrative theory.

In any way, the general purpose of a *contract* is to frame and to maintain configurations of coordinated actions by a reciprocal (explicit or tacit) agreement between two (or a “community” of) actors to interpret a situation *r* and to deal with it following a *commonly shared view* which we call a (*knowledge*) *standard* [Stockinger, 1993a ; Plotený & Stockinger, 1992].

We shall introduce now the distinction between *three major contractual components* that, together, identify and define the *characteristic structure* of the situation for which two or a community of actors negotiate a common standard or refer to an already commonly accepted standard :

- 1) the contractual component that specifies the situational position of the *goals or objectives*,
- 2) the contractual component that specifies the situational position of the *problematic object* or again of the *problematic domain* by means of which an objective could be reached,
- 3) the contractual component that specifies the situational position of the *context*, that is of the relevant informations concerning the two situational positions “objective” and “problematic object” ;

With the help of these three contractual components, we get a more precise picture of situation *r* — a picture we have treated, in our previous discussion of the negotiation game, as a simple, undifferentiated whole.

Let us note, too, that this interpretation of the characteristic structure of situation *r* seems to possess rather close parallels with Polya’s definition of a (mathematical or “practical”) problem and of the activity of problem solving [1989]. A problem solving activity is, following Polya, basically defined by what is “given” (viz. by the “context”), by the “condition” (viz. the “objective”), and by the “unknown” (viz. the “problematic object”). In that sense, it seems that situation *r* represents nothing else than a *Polyan problem space* for which a (*knowledge*) standard has to account.

The standard itself can be compared to a “convention” in Lewis’ sense [1969] that not only *defines* a type of coordination of actions but that also

*prescribes* that it has to be followed if a behaviour or some action is to be acknowledged as conform to the type of coordination of actions defined by the standard. It can be :

— either the *result of a common assertion* of two or a community of actors — common assertion which is preceded by a phase of negotiation that aims at the objective *to conciliate different views of these actors into one, common view* that is more or less preferentially adopted by them in order to deal with some given or possible model of a situation *r*,

— or an *already contractually established one* to which a “community” of actors refers as an adequate, correct or again true view of a situation *r* with which they have to come up.

More precisely speaking, a standard “contains” what is jointly asserted by two or more actors (by a “community” of actors) ; it can be defined :

1) as an (asserted, rejected or indeterminate) view of a situation *r* that is *shared by* (the community of) *actors* ;

2) as a *view* that possesses a *constitutive as well as a normative status* for the same (community of) actors.

In the first sense, a (knowledge) standard fixes the collectively shared meaning of the three contractual components quoted above ; in other words : it *frames* situation *r* following the different points of view of the involved actors.

A (knowledge) standard, in that sense, can be more or less collectively shared, be of a more or less general or specialized nature, or more or less resist to temporal and historical changes, possess a variable preferential status, and so on. It is important to note these parameters that influence the “negociability” as well as the “relevancy” of a knowledge standard because it expresses the degrees of conventionalization of a coordinated viewing and dealing with situations by a community of actors. In that sense, it seems to us that a (knowledge) standard is closely related to what Greimas has called a “contract of veridiction” [Greimas, 1983].

Moreover, understood in that sense, the notion of “(knowledge) standard” has a rather general meaning and can be related to notions such as “habitude”, “customs”, “etiquette”, “manners” but also to notions such as “grammar”, “rule” or again “pattern” in the sense that all of them are principally defined by the two aspects quoted above. Their major function is to solve what Lewis [1969] has called a problem of “coordination” between actors, to establish and to maintain an “equilibrium” between them.

With respect to the notion of “*language*”, we can define it in conformity with a contractualist perspective as the expression of a

standard where a standard is nothing else than a ("scientific" or "non-scientific") theory or a vision of a situation to which it refers.

As we have already claimed above, a standard may possess a more or less important collective scope, a more or less important temporal stability, a more or less high degree of generality, and so on.

What linguists call "*natural language*" can be approximatively defined as a (indeed highly complex) standard, jointly asserted by a community of actors, of how and by which means to communicate appropriately about whatever that could be of interest for them. In that sense, the very limited class of morphological or syntactic configurations of a natural language expresses typically highly stabilized standards — standards to which an important majority of a community of actors agree during relatively long periods. Following structural and cognitive studies, such standards concern, for instance, highly common and stabilized conceptions of space and time, of action and interaction (agentivity), of perception, of qualitative physics, and so on.

On the contrary, lexical or terminological configurations express more typically standards with a lesser degree of actorial and temporal stabilization as well as with a lesser degree of generality.

There may exist, therefore, a multiplicity of languages we do not necessarily think of when we use the word "language" — private or personal languages, more or less ephemeral languages, secret ones, specialized ones, and so on. In any case, all these kinds of language are *potentially recognizable only because their existence presupposes a standard for at least two actors* — "il faut être deux pour signifier", as Culioli puts it in one of his recent communications [Culioli, 1994].

It is really important to bear in mind that a (knowledge) standard *founds the epistemic reality* of a situation for a community of actors by fixing the meaning of the situational positions "objective", "problematic object", and "context". The negation of the same (knowledge) standard or again the assertion of its revised form would found the *epistemic reality of alternative, possible* goals, contexts, and problematic objects by means of which a situation could be viewed by a community of actors.

In that way, a (knowledge) standard also possesses a *normative* function, that is, that in founding the reality of a certain situation, every involved actors is constrained to behave according to the descriptive specifications given in the three contractual components, but simultaneously each of them has also the right to expect that the other actors will behave in this way.

We have already claimed that the process of contracting a common view concerning a situation  $r$  can be understood by means of a *canonical schema* which informally speaking stipulates for :

a) a *given standard situation*  $r_i$  (*objective* : the elaboration of a common view in order to be able to interpret a "new" situation  $r_j$  and to

deal with it ; *problematic object* : the negotiation of a common view (cf. situation  $n_i$  of negotiation) ; *context* : actors who are implied in the negotiation, their mutual relationships, their relationships with respect to the objective... ) ;

b) *situation  $n_i$*  and phases (cf. the establishment of a common view = a phase of a joint assertion) of *negotiation* that results in

c) the *establishment of a common view — a standard —  $v_j$*  that defines how to interpret and to deal with the situation  $r_j$  ;

d) the “*new*” *situation  $r_j$*  : actions and interactions that are coordinated by means of the *common standard to which the engaged actors refer*,

e) *situation  $s_i$*  of *evaluation* and *sanction* of the performed actions and interactions with the help of the common standard  $v_j$  that *justifies* these actions and interactions.

We cannot develop here more extensively neither the structure of this canonical schema nor its importance for lexical or discourse analysis (see [Stockinger, 1996] ).

Nevertheless, let us emphasize once again the already mentioned resemblance of this canonical schema to Greimas’ *narrative schema* [Greimas & Courtés, 1979]<sup>1</sup> to which we have dedicated a separate study [Stockinger, 1996].

Another interesting connection exists between this canonical schema and the central research themes in Distributed Artificial Intelligence (D. A. I.) dealing extensively with problems such as “negotiation”, “contract networks”, “multi-agents coordination” or again “distributed problem solving” in order to develop conceptual and computational theories, methods, and tools for highly context-sensitive knowledge representation and transfer systems [Bond & Gasser, 1988].

## 8. The Practical Component of «Accepting a View»

Let us come back now to the expression “accepter” and see how we can deal with the aspect of the appropriateness or the goodness of a view which is proposed or established by an actor A (the Proposer) in order to interpret a situation  $r$  and to deal with it, and which should be asserted by an actor B (the Agreeer).

Let us take the example  $v_i$  (= situation  $r$  is defined as a situation of giving a present) and  $v_j$  (= situation  $r$  is defined as a situation of loaning) and let us assume that Paul (= actor A) asserts, from his point of view, that situation  $r$  should be viewed following  $v_i$ , whereas, on the contrary, Jean

<sup>1</sup>According to A.-J. Greimas and J. Courtés, the narrative schema is a kind of a “syntagme narratif récurrent, formellement reconnaissable (...). [Il] constitue comme un cadre formel où vient s’inscrire le «sens de la vie» avec ses trois instances essentielles : la qualification du sujet, qui l’introduit dans la vie ; sa «réalisation» par quelque chose qu’il «fait» ; enfin, la sanction — à la fois rétribution et reconnaissance — qui seule garantit le sens de ses actes (...). Ce schéma est suffisamment général pour autoriser toutes les variations sur ce thème : considéré à un niveau plus abstrait et décomposé en parcours, il aide à articuler et à interpréter différents types d’activités, aussi bien cognitives que pragmatiques” [Greimas & Courtés, 1979, p. 244-245].



(= actor B) asserts that, from his point of view, situation  $r$  should be viewed following  $v_j$ . If we presuppose that both actors share the same type of description or definition, a question arises : why do they disagree in viewing situation  $r$  and how can we explain it ?

A possible answer could be the following one : Jean is interested in receiving the book (let us say, Eco's *Sugli specchi e altri saggi*) but, given that Paul is the one who owns this book, he prefers  $v_j$ . In other words, the reception of Eco's *Sugli specchi e altri saggi* can be satisfied by means of  $v_i$  as well as by means of  $v_j$ , and the *preferential choice* between these two possible means will be made *on the basis of considerations concerning the owner of that book*.

The *objective* or the *goal* consists in the reception, the *problematic object* or domain consists in the set of means that could satisfy this objective, viz. the present and the loan, and the *context* is constituted by Jean's "attitudes" towards Paul.

In that sense, Jean's choice in favour of the view  $v_j$ , from his own point of view, is a kind of (*optimal*) *compromise to conciliate objective, problematic object and context* in order to deal with situation  $r$  and to interpret it.

The assertion of view  $v_j$  by Jean (as well as of view  $v_i$  by Paul) can be seen, approximatively, as a *joint procedure* of comparison and evaluation between three particular views that, together, compose view  $v_j$  :

- a first one that (from Jean's point of view) evaluates the context ;
- a second that (from Jean's point of view) evaluates the objective, and
- a third one that (from Jean's point of view) evaluates the problematic object.

Besides the already stipulated definitions of a "present" and a "loan", we have to assume a description or a definition of the objective "reception" as a process of concluding a transfer of an object from the point of view of the destinee.

By comparing the two sets of definitions, we can see that the first one ( { "present", "loan" } ) is a subtype of the second one ( { "reception" } ).

The definition of a "present" stipulates not only for a definitive change in the ownership of the transferred object but also for a kind of "moral reverence" to which the destinee is bound with respect to the giver ; on the contrary, the definition of a "loan" stipulates for a temporally change in the ownership of the transferred object as well as the obligation of the destinee to restore the object (and the corresponding rights) to its owner (but nothing is said as far as a "moral reverence" to the owner is concerned).

A third set of definitions concerns the context, and more particularly, the perception of the owner Paul by the destinee Jean as an insufferable person and the assertion that insufferable persons cannot be honoured.



Now, given that the asserted definition of situation  $r$  as a situation of a "present" is, concerning the theme of "reverence", in contradiction with the asserted perception of Paul (in this situation) and that this is not the case concerning the asserted definition of situation  $r$ , Jean decides in favour of the solution "loan" in order to obtain from Paul Eco's book *Sugli specchi e altri saggi* without being morally bounded to Paul.

If Jean would revise his preferences and accept view  $v_j$ , that is the view asserted by Paul to consider and to deal with situation  $r$  as a situation of a "present", what would have happened?

Well, the most plausible explanation would be that Jean's acceptance to consider that possibility as an actuality is the consequence of a negotiation between Jean and Paul concerning (an aspect of) the epistemic state which is relevant for the problematic object, given that the objective has not changed. In other words, either Paul could convince Jean that he is not an insufferable person or Jean had learned from another source (i. e. another actor  $C$ ) that Paul is not that insufferable after all.

Finally, if Paul would continue to insist on his view  $v_i$  and if Jean rejects the reception of Eco's *Sugli specchi e altri saggi*, given that the contextual state between Paul and Jean has not changed, we have rather plausible reasons to infer that Jean has not changed his preferential choice of  $v_j$ , but that he has also revised the objective, viz. the reception of Eco's book that is in Paul's possession.

Given this new possible "constellation", there are again rather plausible alternatives that we could furthermore explore : either Jean continues to look for the reception of Eco's book but by searching another owner or he simply suspends the goal itself (i. e. the reception of Eco's book).

We agree that this example is a quite simple and artificial one, but, in our view, it shows rather clearly how a *preferential choice* of some view  $v_i$  with respect to another view  $v_j$  could work out.

The important fact that we want to stress by this example, is that we *have not really changed our descriptive strategy* in the analysis of the "practical" component of the assertion of some view  $v_i$  by an actor or again of the joint assertion by a community of actors.

However, we have modified the "ontology" of the model of situation of reference  $r$  in assuming a more complex structure that is theoretically justified by the hypothesis of the three above quoted contractual components : objective, problematic object, and context.

Assuming that situation  $r$  (or the comprehension of situation  $r$ ) is intrinsically defined by these three parts, the procedure of evaluation of a definition from the point of view of the actor, with respect to an actual or possible model of situation  $r$ , should necessarily take into account the compatibility of that definition with what is (or could be) the problematic object, the objective, and the context of situation  $r$ .

We do not have here neither the necessary space nor the time to justify or to develop more explicitly the proposed structure of situation *r*. Indeed, this is as difficult as important a task which is indispensable if we consider that one of the central purposes of a semantic theory should be the *simulation* of viewing and dealing with a (actual or possible) situation.

A major problem is certainly how to deal with *incompatibilities* that may arise between these three parts and what are the “strategies” of an actor to solve them.

Let us assume, for instance, that Jean considers Paul an insufferable man, that he wants to receive Eco’s *Sugli specchi e altri saggi* but that he is restricted to the acceptance (or rejection) of the present as the unique existing modality of transfer. What would he do ? Would he accept the present of Eco’s book from Paul, who is so insufferable in his opinion, or would he reject it ?

In any case, he would be *obliged to revise his epistemic state* — either with respect to his appreciation of Paul or with respect to his objective.

But why should Jean revise his appreciation of Paul rather than his objective to obtain Eco’s *Sugli specchi e altri saggi* ? Why should Jean change his belief in Paul and start considering him a rather smart person from whom it is not too annoying to receive Eco’s book as a present ? Or, why should Jean change his objective and renounce his wish to study Eco’s book ?

Hypothetically, there are at least two explanatory “strategies” in order to motivate or to simulate such changes in a motivated way.

The first type is based on possible changes of situation *r* itself or, better, changes affecting situation *r* because of the existence of *new informations concerning (parts of) situation r* Jean has ignored before : for instance he could learn of Paul’s hidden qualities or he could realize that several chapters of Eco’s book are reprints of articles that he knows already, and so on.

The second type is based on “rules”, “maximes”, “patterns” — in short, on *already existing standards* that play a “*meta-theoretical*”, a “*meta-cognitive*” function in the sense that they control the elaboration and the revision of an (actual or possible) standard of a situation like the quoted one above. For instance, Jean may behave in accordance with the maxim that intellectual needs have an absolute priority over personal or other considerations : the studying of Eco’s *Sugli specchi e altri saggi* is an intellectual need ; so Jean accepts Eco’s book as a present from Paul, even if Paul is and continues to be, for Jean, an insufferable person. What appears here, in a rather interesting way, is a kind of reasoning by means of *topoi* and *enthymeme* as we know them from classical rhetoric (see, for instance, [Ryan, 1984] ) — a perspective that we cannot explore here further.

Our rather short and superficial analysis of the “practical” component of the assertion of a view, that is of its goodness or its appropriateness with

respect to the point of view of an actor or a community of actors, has shown, nevertheless, the interest to put forward a more complex characteristic structure for the description of a situation of reference *r* — a characteristic structure which is, canonically, composed by the three “contractual components” *objective* (or *goal*), *problematic object*, and *context*.

To assume such a characteristic structure for the description of a situation of reference, the “goodness” — i. e. the (*preferential*) *value* — of a standard for an actor or for a community of actors is the (*optimal*) *compromise* that satisfies the three mentioned “contractual components”.

### 9. The Referring to a Common (Knowledge) Standard

The meaning of the French verbal expression “accepter” has principally to do with the *phase of the constitution of an “intersubjective space”* according to which a situation of reference *r* should be viewed and treated by two or more actors given that this situation is basically defined by an objective, a problematic object, and a context.

We shall discuss now an example where an “intersubjective space” is already presupposed, that is where there *exists already a collectively shared standard* (a jointly asserted description or definition) and to which two or *n* actors *refer* in order to interpret a situation *r* and to deal with it.

In [Stockinger, 1989], we tried to account systematically for variations in the meaning structure of the French verbal expression “avancer” in using a somewhat simplified version of a theory of (knowledge) standards which is inspired by the above quoted work of Lewis about conventions [Lewis, 1969] as well as by game-theoretical considerations developed for instance by Schelling [1960].

In order to exemplify a *possible use of the reference to an “intersubjective space”* for the description of (linguistically expressed) meaning structures, let us take the following sentence :

Jean avance 200 francs à Paul.  
(Jean advances Paul 200 francs).

Roughly speaking (that is in the absence of some more explicit context), this sentence expresses the fact that Jean gives Paul 200 francs with the obligation for Paul to restore Jean the same sum. In other words, the sentence is not about a present but about a loan.

The linguistic expression “X avance Y à Z” is based on the following definitions :

— s : “A loan is a temporary transfer of the ownership of an object by the owner of that object to some concerned actor”.

— t : “The actor receiving a loan has the duty to restore, after a given delay, the object itself or something else which is for the owner, of the same value”.

In assuming that Jean and Paul share roughly the same linguistic standard, it is clear that the use of this expression presupposes that both definitions are assumed by Jean and Paul to be the correct ones with respect to a given model of situation *r*. In that sense, *both definitions specify the constituted “intersubjective space”* between Jean and Paul to which they *refer* if they deal with situation *r*.

We can compare these definitions with other definitions of a transfer of an object condensed in linguistic expressions such as “to give”, “to sell”, “to cede”, “to surrender (a possession)”, “to relinquish”, ... and, given some specialization-generalization hierarchy of definitions, calculate their relative proximity in such a hierarchy. Moreover, in evaluating them with respect to a model of a situation of transfer, we are also able to decide which one(s) is (are) the correct one(s).

But if our goal is not only to compare them, to calculate their relative proximity, and to evaluate them with respect to a given model of a transfer situation, but also to *explain why* one of them is chosen rather than another one, then we can follow again the *contractual hypothesis* introduced above and by means of which we have at least a rudimentary tool to *simulate* the decisions of two or more actors in favour of one modality of transfer within a given set of possible modalities of transfer.

Let us insist once again : there does not necessarily exist a contradiction between the different strategies of defining linguistic expressions — the purely lexical approach of defining linguistic expressions, the approach of the semantic evaluation of a set of definitions, the approach of the semantic explanation of a set of definitions. *It is much more a question of the goal or the objective that determines if a given descriptive strategy is the appropriate one.*

Let us come back to our example. An attempt to give a *semantic explanation* of the definitions that are condensed in the expression “X avance Y à Z” leads us to take into account the already quoted “*appropriateness*” or “*goodness*” of a view or a description that is jointly asserted by two or a “community” of actors with respect to some objectives or goals as well as with respect to the context.

The problem here is not only to determine the appropriateness or the goodness of a view for *one* actor but for two or again a “community” of actors. In order to grasp in a more systematic way such a *preferential*

*equilibrium* between two or a “community” of actors, let us take the point of view of Jean who lends Paul the 200 francs.

When we follow our distinction of three major contractual components, the loan constitutes the *objective* or the *goal*. Given the definitions *s* and *t* of a loan, there is a set of possible *problematic objects* that from Jean’s point of view — fulfil this objective such as :

— the explicit confirmation by Paul that the transfer action is a temporary change of the ownership of the given amount of money (*k*),

— Jean’s requirement of Paul’s acceptance (implicitly, orally or by a written document) to his view of the transfer action (*l*),

— the transfer itself of the money (*m*), and so on.

The choice of this set of problematic objects is again constraint by a *context* such as Jean’s considerations of Paul in the role of a debtor or of his own financial constraints, and so on.

If we want to determine which objective or goal is to be preferred (in our example : a loan), we have to localize the given situation *r* in a *more global situation* where situation *r* constitutes either the component of the problematic object or a (part of the) context of the more global situation.

For instance, Jean may know that Paul wants to obtain a book (let us say again *Eco’s Sugli specchi e altri saggi*) in order to study it more extensively but that he does not possess the required sum to buy it.

The *objective* or the *goal* of this situation may be that Jean wants to encourage Paul to study *Eco’s Sugli specchi e altri saggi*.

The *problematic object* to achieve this objective may consist in a set of disjunctive actions : {Jean can buy the book and give it to Paul, Jean can give Paul the required sum ; Jean can lend Paul the required sum, Jean can lend Paul his own copy, ...}.

The *context* is constituted by the relationships between Jean and Paul, Jean and *Eco’s* book, Jean and his own financial situation, and so on.

Given the definition of the principal objective, the specification of the set of problematic objects by means of which the objective may be achieved, and the context, Jean asserts and proposes a view which has his *preferences* and which describes to envisage the situation *r* (= “to encourage Paul to study *Eco’s* book”) by means of a loan of money. To assert jointly this view, both *refer* to it as *the determining standard* of their reciprocal actions in situation *r*.

Informally speaking, this is a more complete description of Jean’s assertion of view *v<sub>i</sub>* of situation *r* which is a transfer situation. It is a more complete description in the sense that it takes into account, on the one hand, the fact that Jean considers this view as a correct one and, on the other hand, the fact that he prefers it to other possible views.

Moreover, accepting the hypothesis that a situation *r* can be interpreted principally :

— in terms of *objectives, problematic objects, and contexts* as well as

— by means of the *contextual embedding of "local" situations in more "global" ones*, we achieve a really *high homogeneity* in the description of a situation, no matter the levels of local depths of the situation taken into consideration.

Finally, let us note that the contractual hypothesis works *as well* in the description of the process of the constitution of a common view *as* in the description of the process of referring to an already constituted common view.

To elicit the appropriateness or the goodness of a view *v* is traditionally considered to be the task of a *theory of action* [von Wright, 1963] or, more generally, of a *theory of formal teleology* [Weinberger & Weinberger, 1979] dealing with the relationships between *means and goals*, with the *forms and types of goals* as well as with the question of (*rational*) *choices*.

It is well-known that there exists an important and sometimes a very specialized literature concerning conceptual theories of actions and preferential choices. The problem here is how to select a kind of canonical model that could be hypothetically considered to constitute an appropriate basis for more developed theories of action and preferential choices.

One candidate of such a canonical model can be seen in the *practical syllogism* of Aristotle which has been extensively discussed by von Wright in his theory of understanding and explanation [von Wright, 1971] :

- 1) A intends to bring about *g*.
- 2) A considers that he cannot bring about *g* unless he does *p*.
- 3) Therefore A sets himself to do *p*.

Applied to our example and taking into consideration only Jean's point of view, we get the following interpretation :

- 1) Jean intends to lend Paul 200 francs.
- 2) Jean considers that he cannot lend Paul 200 francs unless he

{ — notifies Paul that the transfer action is a temporary change of the ownership of the given amount of money (*k*),

— requires Paul to confirm (implicitly, orally or by a written document) his engagement to restore after a certain period the aforesaid amount (*l*),



- transfers the 200 francs to Paul (m),
- ...}

3) Therefore Jean sets himself to do k, l, and finally m.

In comparing the components of the practical syllogism with the three contractual components, by means of which we propose to describe a situation r, “g” corresponds to the description or the definition of the objective or the goal, and “p” to that of the problematic object. It is only the component of the context for which there does not exist an explicit correspondance in the practical syllogism.

But this absence does not mean a real discrepancy between these two approaches and we can easily “complete” the practical syllogism by stipulating that :

- 1) In a context c, A intends to bring about g.
- 2) A considers that he cannot bring about g unless he does p.
- 3) Therefore A sets himself to do p.

A more serious problem is how to delimit more explicitly the context c in general and with respect to our example in particular.

We think that it is at least possible to delimit the *immediate context* in the same way as we can delimit the possible means or the problematic objects *with respect to the definition or the description of an objective or a goal*.

For instance, given the above introduced definitions s and t for “x avance y à z”, it is clear that the immediate context is constituted by the relevant informations concerning the actor who is the lender, the actor who is borrower, the loan itself, the lendend object, the obligation to restore the lendend object, and the temporary limits of the loan.

Concerning our concrete example, the context includes the relevant informations concerning especially Jean, Paul, the loan itself, the 200 francs, the temporary limitation of the loan, and the obligation to restore the 200 francs.

Furthermore, the possible means (problematic objects) that enable to fulfil a given objective can be compared with respect to the objective. It is evident that at least a part of their immediate context is relevant for the immediate context determined by the objective.

In considering in this way the component “context”, we are able to take more systematically into account not only the immediate context but also derivable contexts which are not directly “linked” to the description-definition of a given objective and a set of possible means, but which could influence the preferential decisions of an actor *via* the canonical basis that constitutes the immediate context.

The notion of “context”, interpreted in this way, refers to a *dynamic structure* which changes with the objectives and the problematic objects but which also obliges an actor to select, to change, or to modify some objective and the problematic objects (see, for instance, [Eikmeyer, 1983]).

Let us note, too, that the immediate or derivable context in general functions as a *restriction* on the possibilities of the achievement of an objective and of the choice between the problematic objects. Conte et Castelfranchi [1992] propose an interesting perspective of how to investigate more systematically contextual restrictions both in terms of *dependence* and *concurrence* relations between two or n-actors and in terms of *interest* relations.

Coming back to the expression “X avance Y à Z” and taking into account only the point of view of actor X we resume that this expression can be potentially unfolded or expanded to a rather complex meaning configuration which constitutes the standard to which *actor x refers* in doing or in executing a temporary limited transfer of the ownership. The meaning configuration is essentially composed of :

- an evaluated and preferentially chosen description or definition of the situational position “objective” (viz. the views s and t that define a “loan” and which are asserted by Jean with respect to a given situational position “objective”),

- a set of evaluated and preferentially chosen descriptions-definitions of the situational position “problematic object” (viz. the set of views {k, l, m} that defines the different acts by means of which Jean contributes to the accomplishment of a temporarily limited transfer of the ownership of 200 francs, and which are asserted by Jean with respect to a given situational position “problematic object”),

- a set of evaluated and preferentially chosen descriptions or definitions of the situational position “context” (viz. the set of views V that defines the immediate relevant informations for the objective and the problematic objects, and which are asserted by Jean with respect to a given situational position “context”),

- by a *maximal join* [Sowa, 1984] of these three parts.

We shall not here analyze the position of the destinee of the loan. That analysis can be done in exactly the same way as that proposed for the position of the source of the loan.

### 10. Conclusion

In this article, we have outlined a provisional sketch of a contractualist approach of semantics — of semantic description and explanation.

In discussing certain aspects of the meaning of the French verbal expression “accepter” (“to accept”), we have introduced the problems of *negotiation*, *assertion*, and *joint assertion*, that is the problem of the *constitution of a common standard* or again of a common intersubjective space.

The example of the verbal expression “X avance Y à Z (X advances Y to Z)” has given us the occasion to discuss briefly the problem of the *reference to an already constituted standard*.

Both aspects — the constitution (negotiation and acceptance) of a common standard as well as the reference to an already constituted standard — can be treated with respect to a *common conceptual framework* that we have introduced in section 7. (cf. the notions of “standard” and “contract”).

The interest of such a common conceptual framework is that it provides a *high homogeneity* in the semantic description of even superficially rather different linguistic datas.

Moreover, it enables us to envisage the simulation and the explanation of the “semantic behaviour” of such data by means of the *procedures of condensation and expansion* that are performed in a set of *canonical scripts* from which it is possible to derive more or less complex and differentiated configurations.

More principally speaking, the outlined conceptual framework illustrates the *contractual hypothesis* considering language as a form of expression of a standard that is shared by two actors or a community of actors.

(MSH-INaLCO)

## References

APEL (K. O.)

1981, *Transformation der Philosophie. Band 2 : Das Apriori der Kommunikationsgemeinschaft*, Frankfurt/Main, Suhrkamp.

BOND (A. H.) & GASSER (L.), eds.

1988, *Readings in Distributed Artificial Intelligence*, San Mateo, Morgan Kauman.

CONTE (R.) & CASTELFRANCHI (C.)

1992, "Mind is not Enough : Precognitive Bases of Social Interaction", in *Simulating societies : A Symposium on Approaches to Simulating Social Phenomena and Social Processes. (Proceedings)*, N. Gilbert, ed., Guildford (U. K.), University of Surrey.

CULIOLI (A.)

1994, *Il faut être deux pour signifier*, conference given during the Symposium *A Propos du Sens*, organized by F. Lo Jacomo and J. Stewart, Paris, ENST, (18/03/1994).

EIKMEYER (H.-J.)

1983, "Wortsemantik und Stereotype", in *Texte und Sachverhalte : Aspekte der Wort- und Textbedeutung*, S. Petöfi, ed., Hamburg, Helmut Buske Verlag.

FORREST (P.)

1986, *The Dynamics of Belief*, Oxford, Basil Blackwell.

GÄRDENFORS (P.)

1988, *Knowledge in Flux : Modeling the Dynamics of Epistemic States*, Cambridge (Mass.), A Bradford Book / The MIT Press.

GREIMAS (A.-J.)

1983, *Du Sens II*, Paris, Seuil.

1986 (1966), *Sémantique structurale*, Paris, PUF.

GREIMAS (A.-J.) & COURTÉS (J.)

1979, *Sémiotique : dictionnaire raisonné de la théorie du langage*, Paris, Hachette.

HARMAN (G.)

1986, *Change in View : Principles of Reasoning*, Cambridge (Mass.), A. Bradford Book / The MIT Press.

LAUSBERG (H.)

1990, *Elemente de Literarischen Rhetorik*, München, Max Hueber.

LEWIS (D.)

1969, *Konventionen : Eine Sprachphilosophische Abhandlung*, Berlin, de Gruyter.

MARTIN (R.)

1987, *Langage et croyance : les "univers de croyance" dans la théorie sémantique*, Bruxelles, Mardaga.

PLOTENY (A.) & STOCKINGER (P.)

1993, "Standard et représentation des connaissances", in *Sprache, Zeichen und Bewußtsein*, J. Bernard and K. Neumer, eds., Wien, OGS-ISSS.

POLYA (J.)

1989, *Comment résoudre un problème*, Paris, Jacques Gabbay.

RAWLS (J.)

1971, *A Theory of Justice*, Cambridge (Mass.), The Belknap Press / Harvard University Press.

RODIERE (R.), ed.

1976, *La Formation du contrat*, Paris, Editions A. Pedone.

RYAN (E. E.)

1984, *Aristotle's Theory of Rhetorical Argumentation*, Montréal, Bellermin.

SACCO (R.)

1975, *Il Contratto*, Torino, Unione Tipografico-Editrice Torinese.

SHELLING (T.)

1960, *The Strategy of Conflict*, Cambridge (Mass.), Harvard University Press.

SOWA (J.)

1984, *Conceptual Structures : Information Processing in Mind and Machine*, Reading (Mass.), Addison-Wesley.

STALNAKER (R. C.)

1987, *Inquiry*, Cambridge (Mass.), A Bradford Book / The MIT Press.

STOCKINGER (P.)

1983, *Semiotik : Beitrag zu einer Theorie der Bedeutung*, Stuttgart, Heinz.

1988, "The Conceptual Representation of Action and its Normative Background", *International Journal for the Semiotics of Law*, 1/2, p. 143-161.

1989, "Schème canonique et standards conventionnels : essai d'une description conceptuelle du lexème verbal «avancer»", *RS/SI*, IX, 1-3, p. 119-135.

1992, "On Conventions and Contracts", p.385-398, in *Current Advances in Semantic Theory*, M. Stamenov, ed., Amsterdam/Philadelphia, John Benjamins.

1993a, "Conceptual Analysis, Knowledge Management, and Conceptual Graph Theory", *Linguas Modernas*, 20, p. 5-53.

1993b, "Multimedia and Knowledge Based Systems", *European Journal for Semiotic Studies*, 5, 3, p. 5-61.

1996, *La Description du plan thématique de documents*, Paris, Masson (sous presse).

WEINBERGER (C.) & WEINBERGER (O.)

1979, *Logik, Semantik, Hermeneutik*, München, C. H. Beck.

von WRIGHT (G.H.)

1963, *The Varieties of Goodness*, London, Routledge & Keagan.

1971, *Explanation and Understanding*, New York, Cornell University Press.

