

A FORMAL ASPECT OF THE PROCESS OF PRODUCTION AND COMPREHENSION OF A DISCOURSE

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During the moment of production of a discourse 'D', there are creation of classes of notions and evaluations of certain relations between those classes. Neither those classes nor those relations which bind them are permanent. They result from the conditions of the production of a discourse 'D'. Most of the contemporary language researchers share one common factor: "the conditions of production have an influence upon the selection of the combination of terms and the form of 'D' itself; but the formal criteria to lay down a general Condition which could be applicable in all situations are not formally discussed in most of the systems, particularly, in those that we have evoked below.

In this paper we have tried to analyse and extract some formal properties to represent those conditions which constitute the process of production and comprehension of a discourse 'D', on the lights of enunciative-predicative approach. We have focused mainly on how the two poles "I" (ϕ_b) and "you" (ϕ_i) are coprojected to constitute the enunciative process.

The selection and combination of terms are carried, not by ϕ_b alone like in most of the formal systems (cf. Fillmore, Rouault, Descles but by the couple (ϕ_b , ϕ_i). To encounter the virtual participation of "you" (ϕ_i) in the process of production charged initially by "I" (ϕ_b) we have introduced a notion: "coprocess". The participants of the act are not keeping the same identity and referential coordinates in the course of the process.

It is subject to change. This theoretical precaution will allow us to configure better the problems of pragmatic level and to control at every instant state whether $t_i \in V(\tau_0)$ and its adjacents $t_{i-1} \in V(\tau_0)$ and $t_{i+1} \in V(\tau_0)$ have the same coordinates or not; and afterwards the same referential values.

1. Generalities

The description of the form, content, and realization of an utterance has been generally carried out through syntactic, semantic, and pragmatic studies. These three aspects of a statement cover most of the contemporary linguistic works. It has to be noted that some linguists studying the form of an utterance claim that the task of linguistics is to describe its structure. Another group, analyzing the meaning of a statement, claim that semantic studies are more important than syntactic studies. Yet another group analyze the realization of an utterance in a particular situation. In spite of all these eminent contributions to modern theoretical linguistics, the result concerning the formal aspect of the process of production are less than satisfactory. For us, the task of linguistics is the research into invariants obtained by generalizing the constitutional analysis of the data of direct observation. The unit of direct observation

is the abstract entity "énoncé".¹ Our interest in this article is to characterize the formal aspect of the process of production and comprehension of a discourse which generally covers the realization of an utterance in a particular situation. We will develop this point of view in an enunciative-predicative approach.²

2. The Conditions of the Process of Production

In the field of enunciative linguistics, the parameters (I and YOU) which we regard as two-poles of the enunciative space are included in the theoretical models. The question then is to analyze not only the encoding and decoding of a message like most of the theoretical models do, but also the process of production and recognition of a statement, or a text produced by a speaker in front of an addressee. To make it clearer, let us first consider the usage of the term "processus". According to PECHEUX³: "Le processus de production d'un discours Dx à l'état n résulte de la composition des conditions du processus de production de Dx à l'état n avec un système linguistique L donné". This remark sheds no new light on the formal aspect of the process of production nor on the composition of the conditions of the process of production, or even on the linguistic system that one has to choose to analyze formally the process of production. From a formal point of view, following J. ROUAULT⁴ we assume the following hypothesis: "during the moment of production of a discourse D, there are creations of classes of notions and evaluations of certain relations between those classes. Neither those classes nor those relations which bind them are permanent. They result from the condition of production of the discourse D." We will then consider the conditions of the discourse D, the formal criteria which determine those conditions, the form of the discourse itself, the realization of this entity in a particular situation, the relations which form the realization of D, with different "instant states" (états instantanés) in the enunciative space, and finally, how a realization has been carried out. According to J. ROUAULT, the conditions of production have an influence upon the selection of the combination of terms, and the form of the discourse itself. Most contemporary theoretical linguists share this point of view. A question immediately poses itself: what is the nature of the selection and of

¹ Fixing our linguistical task in this way, we join A. CULIOLI, University Paris 7. The elementary notions of linguistics are executed by generalizing the data of any direct observation from which the invariants are derived.

² Similar to the works of formal semantics.

³ 'Notes sur la formalisation en linguistique,' II *Documents de linguistique quantitative* n° 7 (1970) University Paris 6.

⁴ 'Approche formelle des problèmes liés à la sémantique des langues naturelles,' Thèse de mathématiques appliquées, Grenoble, 1971.

the interval $\sum_{i=0}^p (\tau_i) \in [\tau_0' \tau_0[$ with regards to B who plays the role of ϕ_1 . The other parts "vingt francs", "1968", "married?", "māman", "pyəntəksiləp-ci" are produced by B who, from the role ϕ_1 has become ϕ_0 , forcing ϕ_0 to exchange his role, and assuming the same identity everywhere on the interval $\sum_{i=p+1}^n (\tau_i) \in [\tau_0' \tau_0[$ so that $\sum_{i=0}^n (\tau_i) = \sum_{i=0}^p (\tau_i) \cup \sum_{i=p+1}^n (\tau_i)$.^(6 bis)

3. Concatenation of Operations of the Process of Production

In most of theoretical descriptions, the usage of the term "process of production and comprehension" is not clear; for instance, in the works of JP. DESCLES⁷, the usage of the term "process" is ambiguous and not clear. We do not know whether it concerns a process (a type of process) of production or comprehension having certain discursive and conversational properties and a formal stable status or whether it concerns many types of processes of production or comprehension, having different formal status which are unstable. We are referring of course here to the manner in which a process is carried out. The formal status of the process of production of the above examples (1~5) is different while those utterances are executed by ϕ_0 alone.

The relation between those different types of processes with regards to the producer ϕ_0 (speaker) and to the receiver ϕ_1 (addressee) of a statement requires further explanation. The system proposed by A. CULIOLI and JP. DESCLES is not adequate enough to account for this. On the one hand, we find a series of chaining of operations (process of production), and on the other hand, we find a process opposed to "status". Are there any relations between these two? What do we mean by "process"? In this context, let us recall the remark made by A. CULIOLI: "If there is a processus, there is necessarily somewhere a starting". JP. DESCLES provides a more formalized notion of process and says that: "C'est une classe d'équivalence d'états instantanés connexes avec un début et cette équivalence est ordonnée"⁸. In general, the term "process" refers to a notion of elapse of time.

To quote authors of "Dictionary of linguistics"⁹: "Processus est un synonyme fréquent de mécanisme (grammatical et linguistique) impliquant un

^(6 bis) The readers are requested to refer also to page 509 where we will develop this formal representation.

⁷ "Aspects and topology" Conference ATALA, October 28, 1978, France.

⁸ 'Construction formelle de la catégorie grammaticale de l'aspect' in David Jean et Robert Martin: *La notion d'aspect*. Colloque organized by the University of Metz, 18/20 May, 1978.

⁹ Dubois, *Dictionnaire de linguistique*, Larousse, France, 1973.

ensemble d'opérations successives". In glossematics, the notion of process is related to that of system, the process is executed by the application of the function "AND" (logical conjunction), on the well defined units. Hence, in a given text, the process is the result of juxtaposition of those units. The process according to the glossematician is nearer to the usage of the terms: "combination" and "syntagmatic axis". This remark of the glossematicians shows that the units of an utterance are in isomorphic relation to the axis of time. This would allow for the appearance of the hypothesis of F. de SAUSSURE: the notion of linearity.

The above definitions do not characterize formally the notion of process itself. If we admit that the process has been realized by the application of the logical function "AND" (logical conjunction) on the definite entities, we would then ask what the nature of application would be? Does each application have the same discourse value in the enunciative process framing a single coordinate system, or different discourse values framing many coordinate systems? A detailed study of all the criteria would allow us to analyze formally the process of production. All the same, if we want to continue our research constrained by the principles of enunciative models (where one is supposed to work at least not with predetermined units but with constructive units which would characterize the nature of the process. The mere fact of analyzing the process of production is not satisfactory.) We have to be precise as to how those processes of production have been executed. What are the underlying operations? How have those processes been carried out? Is the process of production or comprehension divided or not? (re: our thesis). All these factors are vital. They render the theoretical model more operative and formal. The mere fact of taking into account these facts makes the system more operative than the system proposed by JP. DESCLES (refer to our thesis for an extended model). To undertake such operations, we have introduced a parameter (loc A) (Localisation absolue) in the system of enunciation and predication.¹⁰

4. The Notion of "Coproces"

Before explaining this notion, we would like to comment on the remark made by F. FRANÇOIS¹¹ about the economical aspect of the language: "On voit même mal comment éviter de tels procédés dans la mesure où il est difficile de se référer toujours à un quadrillage de l'espace et du temps, où l'origine des axes de coordonnées serait fixée une fois pour toutes de façon

¹⁰ 'Quelques réflexions sur les problèmes de localisation: un essai de formalisation' N. Ganesan, Thesis, June 1981, University of Paris VII, France.

See also the article: "A formal approach of intersubjective relations: shared enunciation."

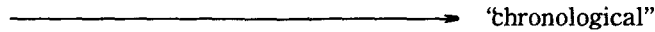
¹¹ 'Contexte et situation' in *La Linguistique*. Denoël, Paris, 1973.

simple et unique." (We do not know how to avoid such procedures in cases where we are obliged to refer always to a coordinate system of space and time, when the origins of the axes of the coordinates are fixed once and for all, in a simple and unique way). "It is better, in most cases, to carry the time and space with us". With regard to this, we think that there is a certain similarity between FRANÇOIS's remark and those of C. FILLMORE¹² concerning the identity of the participants in his article "Types of lexical information". According to FILLMORE, the act of producing a linguistic utterance in a particular situation involves a speaker, an addressee and a message. It is further an act which occurs within a specific time span and it is one in which the participants are situated in particular places. Now the time during which a speech act is produced is a span, the participants in the speech act may be moving during the speech act, but for most purposes, the participants identity and time space coordinates of the speech act can be thought of as fixed points. According to these remarks, it is clear that the identification of the participants (ϕ_s, ϕ_h) of the act of enunciation may change during the enunciation. We also think that there is no empirical evidence for considering the identity of the participants and the time space coordinates as fixed points neglecting completely this change in the metalinguistical representation of an utterance. Why do we do have to consider the participant identity and time space coordinates as fixed points? FILLMORE has never tried to explain this point. In the formal system proposed by JP. DESCLES, it is also considered that the participants identity and time-space coordinates are constants. How do we know whether a participant in the act of enunciation preserves the same identity all through that act, if we approve at the same time of an eventual change? If we take into account the principle: "the change of participation" in the production of an utterance, what would be the result of the production? How do we give a formal description? To take into account all these facts, we have introduced the notion of "co-process" in which the participant carries his space and time coordinates all the time, and in which one does not refer once and for all to fixed coordinates. This precaution will allow us to better configure the problems of pragmatic level, and to control at every instant state whether $t_1 \in V(\tau_0)$ and its adjacents $t_{1-1} \in V(\tau_0)$ and $t_{1+1} \in V(\tau_0)$ have the same coordinates or not, and afterwards the same referential values.

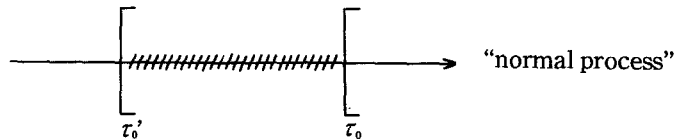
By means of the following diagram, we will explain the notion of "co-process": The diagram (1) represents the axis of time (chronological), the second one is the normal case of the process (JP. DESCLES), where $V(\tau_0)$ represents the neighbourhood of the interval $[\tau'_0 \tau_0[$. The axis of the enunciative process establishes an isomorphic relation with the axis of time. The third diagram represents the coenunciative axe where A (ϕ_s) and B (ϕ_h) inter-

¹² 'Types of Lexical Information', in *Semantics*, ed. by Steinberg and Jakobovitz, Cambridge University, 1976.

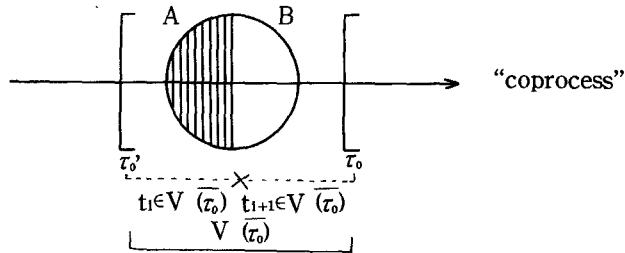
(1)



(2)



(3)



change their identity on the interval $[\tau'_0 \tau_0[$.

In the article "Mathématisation et concepts linguistiques",¹³ the author has been led to conclude that the enunciative process is a process. But we think that this point of view is very narrow and inadequate, and cannot be generalized. There is a class of "états instantanés" in the enunciative process, which are not equivalent to each other. For JP. DESCLES, the interval $[\tau'_0 \tau_0[$ is half open, left-bound, connexe, oriented and associated to any enunciative act, and therefore to any utterance. The theoretical line we follow is similar. However, we do not associate the interval $[\tau'_0 \tau_0[$ with any enunciative act - therefore to any utterance - but we associate it with a type of process which we call "normal enunciative process". We have remarked before that it was possible to have within the interval (see the examples), the following situations :

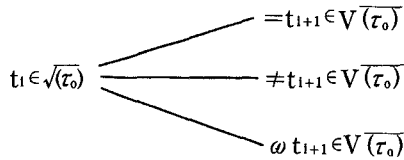
- (1) $t_i \in \overline{V(\tau_0)} = t_{i+1} \in \overline{V(\tau_0)}$
- (2) $t_i \in \overline{V(\tau_0)} \neq t_{i+1} \in \overline{V(\tau_0)}$
- (3) $t_i \in \overline{V(\tau_0)} \omega t_{i+1} \in \overline{V(\tau_0)}$

In the first situation (1), the instant state $t_i \in \overline{V(\tau_0)}$ belonging to the

¹³ "Mathématisation et concepts linguistiques"-*Modèles linguistiques*, Tome 2 fasc. I, 1981, PUC.

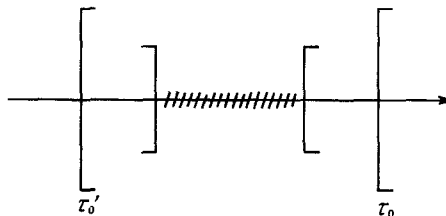
neighbourhood of the interval $[\tau'_0 \tau_0[$ is identified by the adjacent instant state $t_{i+1} \in V(\overline{\tau_0})$ of the same interval.

In the second situation, the same instant state sets up a relation of differentiation (\neq) with the adjacent state $t_{i+1} \in V(\overline{\tau_0})$, and in the third situation, it sets up a relation of "rupture" (ω) with the adjacent state of the same interval $[\tau'_0 \tau_0[$. The three above cases can be represented as follows :

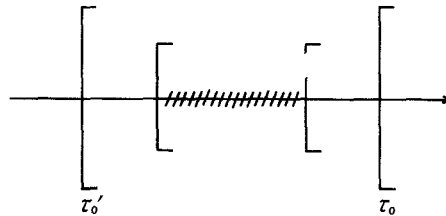


According to JP. DESCLES's formalization, all these instant states belonging to $[\tau'_0 \tau_0[$ are equivalent. However, the instant states belonging to the enunciative axes of the utterances quoted by us are not. Therefore, there may be an open interval within this half-open interval $[\tau'_0 \tau_0[$. Here are the cases that can occur within this interval :

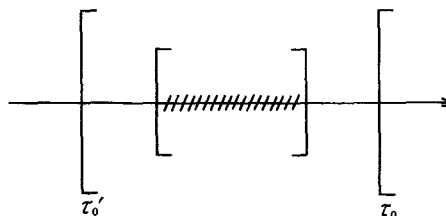
- (1) an open interval within the half-open interval, left-bound



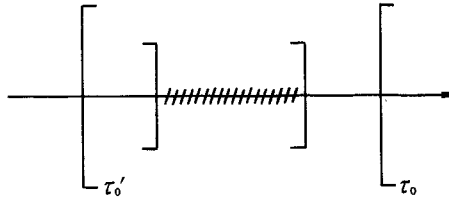
- (2) a half-open interval, left-bound



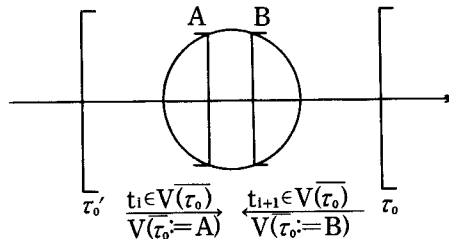
- (3) a bound interval within this interval



(4) a half-open interval, right-bound, within this interval



We will call all the above processes “co-processes”. We will represent the enunciation axis of the first sentence as follows :



The part $V^-(\tau_0 := A)$ means: the value assigned to a part of the class of instant states of $V^-(\tau_0)$. Let $\mathcal{P}_1(V^-(\tau_0)) = V^-(\tau_0 := A)$ $V^-(\tau_0 := B)$ means: the value assigned to another part of the class of instant states of $V^-(\tau_0)$. Let $\mathcal{P}_2(V^-(\tau_0)) = V^-(\tau_0 := B)$. The neighbourhood $V^-(\tau_0)$ is the union of $V^-(\tau_0 := A)$ and $V^-(\tau_0 := B)$

$$V^-(\tau_0) = V^-(\tau_0 := A) \cup V^-(\tau_0 := B)$$

If we want to analyze and represent formally the following utterance :

“*avan Ramanutaya. . . māman*”
 he Raman (part.) Uncle
 (He is Raman’s Uncle)

DESCLES’s general figure is not appropriate. This is what we suggest :

$$\langle arb \rangle \in \text{sit } 2 \in \text{sit } 1 \in \text{sit } 0 \in \text{Loc } A^{14}$$

In this utterance, “*avan Ramanutaya*” is assigned by A (ϕ_b) to part of the class of instant states near $V^-(\tau_0)$ of the interval $[\tau_0' \tau_0]$ “*māman*” is assigned by B (ϕ_a) to part of the class of instant staes of $V^-(\tau_0)$ of the same interval $[\tau_0' \tau_0]$. Both assignments are constitutive of the enunciative process.

5. Referential Value (RV) and Referent (R)¹⁵

Framing the enunciative space, by way of two poles ($\phi_b \phi_a$) in a significant

¹⁴ See my thesis and article ‘A formal approach of intersubjective relations: shared enunciation,’ where this utterance has been analyzed.

¹⁵ See my thesis and article ‘Valeur référentielle et référent.’

situation - at an instant state, there is a transition from the framed referential value to referent. The referent must not be left out in the apparatus of theoretical description.

According to JP. DESCLES, the linguist does not mind whether the referential value (associated with the utterance) is real or not, true or false. We do not quite agree on that point and, on the contrary, we think that it is necessary to set up a system of "repèrage" from referential value to referent so as to determine the framed referential value of any utterance. The association of referential value to the utterance is generally realized by way of a process of production or comprehension. The linguist may not mind whether the content of production is true or false but he must take into account whether production itself is true or false. He should also take into account the nature of the production. These accounts will allow him to describe precisely the analysis of pragmatic and conversational problems. If we are now interested in the formal linguistic analysis, especially in the analysis of the realization of an utterance (that is, in the process of production and comprehension) in the nature of the process of production and in the relations that exist between the utterance and the underlying event envisaged by the speaker through his speech, a referential value level analysis like that of JP. DESCLES, is not sufficient. We have to go further and seek what relations that bind the referential value and referent together constitute the framed referential value at an instant state.

Summing up, we will say that an utterance may be analyzed in the enunciative space with or without the intervention of ψ_1 in the process of production and comprehension. The theoretical system proposed by A. CULIOLI and by JP. DESCLES does not attempt to represent an utterance with the intervention of the addressee (ψ_1) in the process of production, framed initially by the speaker ψ_0 . The set of operations executed either by ψ_0 or by ψ_1 which assume the link between the referential value and the referent, to constitute the framed referential value of an utterance at an instant state, have yet to be explored.

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