# The cognitive approach to the process
# of interpersonal understanding:
## the role of the concepts of "consciousness" and "behavior" *

Alberto Greco
University of Genova (Italy)

## 1. "Systemic" and "cognitive" approaches

Interpersonal understanding and, in particular, the inter-subjective communication of subjective experiences are problems that can be addressed, from a psychological point of view, in two different ways. A first way consists in being interested in the relationships that are established between the communicating individuals, for example by considering the position that the first subject takes with respect to the second or the type of context in which the interaction takes place, etc. This is the characteristic position of the so-called "pragmatic" approach to communication, typical of the Palo Alto school. The second type of psychological approach to interpersonal understanding, on the other hand, is concerned with the functioning of the cognitive processes underlying the relationship between individuals, considering the subjects who communicate as individuals. This position is what we call the "cognitive" approach to communication.

Although the second approach traditionally considers individuals as separate entities, it does not seem to us it should be despised and set aside for this reason. It is useful to consider this object of study in "systemic" terms. What makes the systemic point of view positive, in our opinion, is the introduction of a relational dynamic between particular and overall aspects, the overcoming of mechanistic instances typical of S-R and psychoanalytic theoretical models (both based on a "utilitarian-homeostatic" scheme (cf. Bertalanffy, 1968, pp, 288 ff., and 316 ff.), the reevaluation of the role of finality with respect to causality, the reevaluation of concepts such as "organization", "spontaneity", "construction", "differentiation".

It seems simplistic, therefore, to believe that the "systemic" point of view is limited to considering everything in its "context" and to take it as a cue to prohibit, always and in any case, any investigation into the psychological processes of the individual. What makes a model adherent to the point of view of systems theory is not the object of study (e.g. individuals in themselves or in their relationships with others) but rather the mode of approach to a certain range of phenomena. Talking about individual cognitive processes underlying interpersonal understanding seems to us, therefore, valid, as long as we do not

forget that we are analyzing only one aspect of the phenomenon with a magnifying glass and that, therefore, this investigation should be placed in a more comprehensive view.

The two types of investigation mentioned above respond to two different needs. In the case of the "pragmatic" approach, attention is paid above all to the formal relationships between the behaviors of individuals, no longer seen as mechanical actions and reactions, but as different aspects of the same phenomenon, linked by a circular causal link. In the case of the approach that we have called "cognitive", interpersonal interaction is seen in relation to the way in which individuals know their environment. Here, too, we are not talking in mechanical terms, but we are evaluating the organization of cognitive processes in relation to the organization of the environment and the connections between behaviors. In a certain sense, we can say that the pragmatic investigation is presupposed by this approach and, at the same time, that it presupposes it. On the one hand, in fact, we work on the hypothesis that there are inter-behavioral relationships of different kinds in order to find out how these relationships are known. On the other hand, once we have investigated the cognitive processes through which an individual experiences himself and the relationship with others, we can describe on which logical and epistemological models this relationship is based.

## 2. The "criterion for interpersonal understanding".

The purpose of this paper, however, is not to investigate the relationship between these two approaches. We have made this premise only to show that current psychological research does not follow such divergent tracks and that, after all, the contrasts are often due to the fact that the same phenomena are observed through different lenses. Instead, we would like here to take stock of the models that psychology currently has available to study the phenomenon of interpersonal understanding, if it wants to use this "cognitive" approach, and to propose some working hypotheses that in our opinion could guide further research.

The basic problem of our investigation, posed in general terms, might be the following: how is it that an individual "understands" or "comprehends" what another communicates and, sometimes, even what he does not communicate but of which he has experience. Obviously this formulation will have to be made more specific.

Even at the intuitive level of common language, one can speak of "understanding" in two senses: in the first, broader sense, the term denotes any *correct* decoding of a message transmitted by another individual. In a second, narrower sense, it can refer to feeling, experiencing deep feelings - of an affective nature - equal or similar to those felt by another individual (what is sometimes called "empathy"). In both cases it is clear that it is not simply the identification of "something" (meaning, sense, idea or equivalent term) but just *that particular* something. That is, the concept of "understanding", both in its cognitive

and affective use[1], always has the characteristic of specificity (just that) subordinated to that of *correctness* (the right one). It is clear, therefore, that speaking of "understanding" inevitably leads to referring to a *criterion* of judgment, which allows one to say when one has identified precisely the correct meaning.

*3. Cognitive psychology and inner experiences*

The main obstacle that makes it very difficult to arrive at such a criterion is the fact that one can never be sure that the inner experiences of others correspond exactly to one's own. There is certainly no need to recall the role that this very problem has played throughout the history of philosophy. However, this problem, both gnoseological and epistemological, has also conditioned the development of psychology as a science: everyone knows that behaviorism was born precisely because of this lack of confidence in the possibility of expressing or communicating one's own inner experiences in such a way that their conformity to those of others could certainly be controlled.

After a period, dominated by the influence of behaviorism, in which investigations of this type were considered of absolute irrelevance for psychological science, we have moved to a conception of subjective experiences as processes of information processing and control. The use of this model is typical of cognitivist psychology and has effectively marked the opening of psychological research towards the "internal states" of the individual.

The use of analogies drawn from information theory or cybernetics certainly does not guarantee the solution of every problem, but at least in this way the famous content of the "black box" can be explored without reference to ineffable experience on the one hand, and not even to the concrete physical-chemical processes of the brain on the other. The psyche, it is said, works "like" a computer and therefore can be considered basically as a very complicated mechanism that allows us to deal with a certain amount of information. And so it is possible to advance a number of hypotheses, concerning both the way in which certain information is processed and the conceptualization of the "mechanisms" of processing.

If we consider how cognitivist researches have conceptualized the cognitive mechanisms that are at the basis of the individual-environment relationship, we can observe that they have been particularly interested in how information enters the organism and how it is processed. The object of study is therefore not different from that typical of traditional research on cognitive processes: the problem of perception is always at stake (of which the selective aspect, i.e. attention, is mainly emphasized), the problem of memory and

---

[1] The distinction between the two senses is, as we can see, somewhat blurred. It is undoubtedly true that "empathic" knowledge is radically different, in its subjective setting, from properly "informational" knowledge, in that it involves experiences, intuition, sensitivity, etc. that go beyond simple knowledge. On the other hand, however, we cannot fail to recognize that empathic understanding is also a form of knowledge. In fact, it is not arbitrary, but is based on a kind of intersubjective code, when criteria can be identified to establish when it is correct and when it is not.

forgetting, the problem of the relationship between thought and language. The current investigations, especially by virtue of the use of analogies drawn from information theory - to which we referred above - and especially after the introduction of systems and Chomskyan optics, have achieved excellent results in the development of models that account for particular phenomena, while we still feel the lack of a broad theoretical framework in which to place the individual constructions, the result of an explicit renunciation of the theorization inherited from behaviorism.

Our aim is, as we have said, to evaluate what role cognitive processes can play not so much in the function of understanding and organizing the environment (which should be the aim of any cognitive investigation) as in the particular function of understanding and organizing that privileged part of the environment constituted by the behavior of other human beings. In our opinion, this is a crucial test for cognitivist theories, because in this case it comes to the fore whether certain theoretical problems have not been sufficiently investigated or perhaps hastily dismissed.

But before examining these difficulties, let us see in what respects it can be considered that cognitivist approaches are able to offer a valid contribution to the problem we have posed. It seems to us that the main merit of this approach is the fact that it emphasizes, to a greater extent than in the past, the aspect of *process*, that is, the sequence of activities for the creation of knowledge and expression. Talking about process means highlighting two relevant characteristics of knowledge: (1) the fact that different psychic states succeed each other in time[2]; (2) the fact that these psychic states are not the effect of passive exposure to the environment but are the result of an active elaboration of information.

In the definition of this framework, the conceptions of Chomsky and of the scholars who refer to the "systemic point of view" have had a decisive influence. It was, in fact, this scholar who strongly emphasized the role of individual psychological activity in the elaboration and organization of language and behavior (Chomsky, 1968), as well as the systemic point of view, reaffirmed that psychic activity is construction and active articulation (Bertalanffy 1968).

This approach is now found in almost all modern cognitive theories. First, it stands out in the conception of "plans" of Miller, Galanter, and Pribram (1960), which is directly inspired by Chomsky's ideas, transferring to all "complicated behavior" the model of structure that Chomsky elaborated about language (Chomsky and Miller, 1963). Even Berlyne's (1960) models of *epistemic behavior*, of *attention* by Broadbent (1971), of *memory* by Norman (1968,1969), and of *categorization* by Collins and Quillian (1969), to mention only the most famous ones, clearly consider the selection and storage of information as a sequence of psychological activities in which the individual explores the environment, confronts it, recognizes the relevance of certain information and finds the most economical way to store and reuse it.

---

[2] A psychological approach to cognitive problems cannot disregard the consideration of temporal variables (cf. Jones, 1976), unlike other approaches, such as philosophical or linguistic ones.

These models work well as long as we are talking about cognitive processes "in toto", that is, those that affect the overall relationship between man and the environment. When we try, however, to apply them to the phenomenon of knowledge and understanding of the behavior of others, we realize that something does not work. In fact, no cognitivist hypothesis alone explains what makes possible (or impossible) the phenomenon of understanding, in the sense of *correct identification* of what another individual communicates.

We are not dealing here with a psycholinguistic problem: psycholinguistic hypotheses indicate that from the structure of language it is possible to identify a meaning that refers to something else. But, apart from the fact that it would be good if these hypotheses did not concern only verbal language but were extended to all behavior, in fact our problem is different. We are not interested in how to identify the meaning of language (or, if you want, of the whole symbolic behavior) but rather in how to *know* that the identified meaning is the *correct* one, that it really corresponds to what has been communicated. A problem that concerns "knowing" is a cognitive problem, but cognitive theories do not help us in this.


## 4. The concept of "consciousness"

The reason why such a problem is not willingly posed, and is even often accused of being "philosophical" and as such not relevant to psychology, is simple and has been highlighted above: you can not be sure of the correspondence between the inner psychic events of different subjects. That it is a difficult problem is undoubtedly true, but it does not seem to us at all true that it is a purely philosophical problem. On the contrary, we are convinced that many of the difficulties of current psychology, not only theoretical, derive from the fundamental refusal to investigate in this field (think of the problems of clinical psychology concerning the understanding of the schizophrenic "world" and the relative evaluation of "normality").

Thus, we return to the starting point: cognitivist hypotheses, which have led to talk of a new "mentalism", have not gone beyond certain limits inherited, as we have said, from the behaviorist tradition from which they were historically born.

Recently, there has been a recovery of a concept that, in our opinion, could be very important to get out of this "impasse": the concept of *consciousness* (Natsoulas, 1970; Shallice, 1972; Ornstein, 1972; Posner and Klein, 1973). However, as Mandler (1975) observes, such recovery has often occurred in "strangely circumspect" terms. For example, Neisser, in his work which is considered one of the first significant manifestations of the cognitive perspective (1967), speaks of "pre-attentive processes" and of "focal attention", of "a channel with limited capacity", but avoids speaking of "consciousness". After all, all the models of attention, starting from the old hypothesis of the selective "filter" placed in front of the entry of the field of consciousness (Broadbent, 1958), implicitly use this concept, even if the preferred terms are others. Of its original connotation, however,

recover only a part, and perhaps this is one of the reasons that make them reluctant to recover even the term.

Obviously, this is not just a matter of terminology. The current concept of "consciousness" in the field of cognitive psychology has undoubtedly developed in connection with that of "attention" and has almost become a synonym. This is the part that has been accepted of the old meaning of the term. It is, in essence, the consciousness as a central unit of data processing, conceived mostly as a system "of limited capacity", within which enter in turn the information taken from some other system (short or long term memory, perceptual system, and so on).

As mentioned above, this recovery is correct but incomplete. In the strict meaning of the term "consciousness" in fact were included two other connotations, contradictory but essential: the participation or experience of the subject (Natsoulas, 1974) and the inevitability, the feeling of the automatic "presenting" of something. To speak of a "limited capacity channel" in which filtered or selected information can enter does not render these connotations and thus impoverishes the concept[3].

"Consciousness" as it is understood here, consists of a central "place" of thought, a central state of the system in which the actual information (idea, sensation, perception, feeling, concept, etc.) is "presented" or, vice versa, this information is actively "experienced", almost created, by the subject.

The philosophical point of view has always been faced with the problem of determining which "nature" has such a presence or such an experience; the medical point of view has been concerned with establishing what correlations there are between these experiences and certain neurophysiological activities. Our psychological point of view, on the other hand, simply takes it for granted, without asking anything else, that such a significant presence exists and draws the necessary consequences.

At each moment of the process of knowledge and understanding, therefore, the "current state" is indicated by the presence of a significant content in the consciousness. This presence can be compared to the "display" that indicates, moment by moment, the current state of a computer. If we want to consider cognitive activity as a process of information processing, it is therefore necessary to assume a central processing unit that always indicates which structure of the information is present. We have indicated this central unit as "consciousness".

As mentioned above, this central unity has two contradictory aspects: on the one hand, the selected structure appears to be the product of an active creation, which brings into play

---

[3] On the other hand, the term "consciousness" is entirely provisional and we have proposed it because we could not find a better one that was not a long periphrasis. We agree, however, that it should be replaced because it is also impregnated with connotations different from the one we have referred to, which make it spurious: on the one hand, the philosophical ones, on the other hand, the neuropsychological ones (arousal activity of the cortex). Between the two senses lies the more properly psychological one of which we speak.

the participation of the subject; on the other hand, it appears "inevitable" that a structure is selected, i.e., the processes of consciousness appear unavoidable. At least if certain conditions are met (for example, if a human being is alive, awake, and not in a particular pathological state), it is impossible not to be conscious of something, or - in banal but exact terms - it is impossible not to think something.

If we develop this last aspect of consciousness, we can then say that it is a continuous phenomenon, which assumes a particular appearance by structuring itself (or, if you prefer, encoding itself) selectively in a particular way. If we are allowed another comparison taken from electronics, it is like a source of "non-modulated" signal, which continuously requires a structuring through a systematic modification, more or less automatic, of the previous state. We will speak of "modulation" to refer to this particular kind of selective and significant modification of a state in itself continuous or monotonic.

The problem of the apparent contradiction between the description of consciousness as a continuous flow (well expressed by William James in terms of "river of thoughts") and the description of consciousness as a discrete, selective process of delimitation of certain groups of information, could be solved in a simple way using this concept of "modulation". This metaphor seems to us better than others that have been used, such as the comparison with the physics of light (describable in terms of particles or waves) or with the cinema projection (the illusion of movement given by the succession of single pictures: Mandler, 1975).

The continuous flow can be considered the basis on which selective modifications are inserted, that is, events that - by introducing diversity with respect to what precedes - automatically insert a delimitation in a structurally defined "quantum". It is interesting how difficult it is to "stop the flow" through a selective concentration on a series of limited thoughts, as it happens in oriental meditation practices, in autogenous training or in self-hypnosis (Ornstein, 1972).

The active intervention of the subject in the passive flow or "showing up" is even a necessity, in the sense that the continuous variation or modulation of the flow responds to a need. The vital necessity of stimulation, and especially of structured and meaningful stimulation, for the human being, is well known (cf. research on sensory deprivation: Bexton, Heron and Scott, 1954; Berlyne, 1960), but continuous and systematic variation in the flow of activity of consciousness is equally indispensable. The psychoanalyst Berne (1964) has described these two aspects as a "hunger for stimulation" and a "hunger for structure".


5. *Communication and behavior*

At this point we can resume our problem of interpersonal understanding of private experiences. The considerations we have made above about "consciousness" are not a digression but are essential for a satisfactory setting of the particular problem that we have

posed in the previous pages. In fact, our hypothesis is that the need for understanding and structuring the environment (and especially, as we have said, that privileged part of the environment constituted by the behavior of other human beings) is a reflection of the need for continuous structuring of thought.

The difficulties we identified above for a cognitive approach to the problem of understanding concerned the "private", inner aspect of communication. Now, this aspect is present in two moments of the communication process: before the transmission of a message and after its reception; in these two moments it will be necessary to refer to the concept of consciousness. Before seeing in what terms this might be possible, however, it seems to us indispensable to make some considerations concerning the intermediate moment, that is, the "message", which acts as a "public" intermediary between the two moments of "private" experience.

We have taken the term "message" from the theory of communication, which is, as we know, the one to which we owe the most effective schematization of the phases of the process of transmission of information: between the generation of information by the transmitter and its transmission through the channel to the receiver, we can postulate some "coding", that is a selective modification of some physical medium.

If we adopt this term ("message") to indicate the sequence of coded signs that go from the transmitter to the receiver, the most common (and most studied) example of message is verbal language. However, it is commonly recognized that other forms of expression, that can be grouped under the name of non-verbal language, have a communicative value equal, if not superior, to that of verbal language. Even the latter also includes such a wide variety of actions that it can be practically identified with the concept of "behavior". This is precisely one important trend, and it is increasingly accepted that any behavior can be communicative.[4] In other words, *any behavior* can be a vehicle for a meaning to be understood. We are essentially in agreement with this conception, formulated, as we know, by the Palo Alto school in the most explicit way, but it seems necessary to warn that in this case the meaning of the term "behavior" does not coincide with the most common one.

By "behavior" in psychology so many different things have been meant and this term has been as widely used as it has been poorly defined. The behaviorist Hebb (1966) advocated that it be defined narrowly, as "the publicly observable activity of muscles and externally secreting glands", but its current usage is much broader, indicating virtually every human and, sometimes, animal activity. We do not intend to get into terminological issues regarding the appropriateness of such a broad use of the term, but we would like to emphasize that - whatever the word used to describe it - the observable central unit of processing and, therefore, of communication of information should have characteristics

---

[4] The first axiom of communication says: "You can't not communicate. ... Behavior has no opposite. In other words, there is no such thing as a nonbehavior, ... it is not possible not to have a behavior" (Watzlawick, Beavin, Jackson, 1967, 41-42).

broader than those required by Hebb for the "behavior" but narrower than those that characterize the same term. Thus calibrated, the term can be used with the connotation typical of the Palo Alto school.

Many misunderstandings arise from the fact that sometimes the existence of a substantial difference between what we call behavior and simple action escapes us. Not every activity is a behavior. Behavior is itself an action, but it also requires other requirements or conditions. An individual may repeatedly wave an arm in a manner analogous to the act of greeting, but this does not necessarily mean that he is greeting. It could be, for example, a motor compulsion of a pathological nature. The act of greeting could be correctly defined as "behaving" if there is another person to whom it can be directed and, moreover, if the individual actually perceives or defines his act as a "greeting".

It is enough to reflect for a moment to realize that, in the latter case, the actual presence or comprehension of the other is not essential. Our individual may believe he is interacting with someone else when in fact such an interaction is impossible (finding himself, for example, with a child too small to understand or in a TV studio, alone, ignoring that the camera is broken). Nevertheless, we will say that he "behaves" in a certain way, since the act is subjectively perceived as intended for social interaction. Common sense, in short, suggests as essential, in order to connote a behavior, a situation of social interaction or at least, subordinately, the subjective perception of interaction.[5]

In general terms, we can say that an individual "behaves" when he modifies some characteristic of his own body or some of its organs (minimal condition for action) and, in addition, he is in interaction with some other individual, both in the sense that he is actually perceived by him, and in the sense that he believes to be perceived by him. But there is more. These conditions can be broadened not only by including "social" interaction, but by considering any perception (which, in a Gestalt sense, is automatically the attribution of meaning) of an act as a requisite for the definition of a behavior. This formulation makes it possible to broaden the relativity of the concept of "behavior" to include the definition of an act given by the same subject who performs it. [6]

Therefore, we can say that *a behavior is such* (and therefore we can specify which behavior it is, and, for the semantic aspect that invariably brings with it, which is its meaning or when we can say we have "understood" it), only in relation to a point of view, that is, in relation to the activity of consciousness of a subject. The same act could also be defined as two different behaviors depending on whether the point of view used to define it is that of one subject or the other (including the acting subject himself).[7]

---

[5] As we shall see, this condition of social interaction is sufficient but not necessary.

[6] Watzlawick et al. (1967, p.42, n.1) recall that it is also possible to speak of a communicative relationship "with oneself". This hypothesis of a continuous conversation with oneself in psychic activities has been frequently posed in other terms as well (e.g., as the hypothesis of "inner language") and is accepted by us. The parallelism between "consciousness" and "behavior", considered structures of quasi-linguistic elaboration of information, attempts to account for such phenomena.

[7] Let it be clear that with these considerations we are not excluding at all the role of unconscious components in determining the qualitative connotation of behavior. Every human act can be defined as a bundle of behaviors,

From these considerations we can conclude that *every time an individual perceives or defines an act (his own or others') we are in the presence of a behavior, and perceiving and defining are activities referable to the flow of information of consciousness.*
The nature and meaning of communication, at this point, do not depend on the specific nature of behavior, as, for example, was believed when we limited the communicative function to linguistic behavior (which is certainly the most suitable for this function) but, rather, by the particular type of structuring that the activity of consciousness acquires.

This conclusion is supported by some important analogies between the characteristics of the processes of consciousness and those of behavior. In behavior we find the same three characteristics that we have identified above as typical of consciousness:
1) it is the central "public" unit of information processing (it has the same role that consciousness plays in "private");
2) it is "inevitable", in the sense that it is not possible not to behave when the minimum required conditions are met;
 3) in opposition to this "inevitability" or passive "presentation", behavior can also be described as the result of an active, voluntary construction.

It is interesting to dwell for a moment on the second aspect. Insofar as "one cannot not behave" (as pointed out, in interaction with others or with oneself), it can be said that there is a continuous, inevitable succession of behaviors, each of which can be defined as a state different from the previous one. Information will be conveyed through *selective modifications* in certain characteristics of these states.

To make the concept clearer, we can resume the comparison drawn from electronics already proposed about consciousness. Also the behavior is similar to the continuous flow of electromagnetic waves coming out from a radio transmitter, which convey information through a selective coding, structuring or modification of certain characteristics (e.g. amplitude or frequency) that takes the name of "modulation".


*6. The consciousness-behavior continuum*

At this point, we can better understand how to conceive the relationship between consciousness and behavior, once we accept the hypothesis that considers them both as

---

depending on the activity of consciousness that identifies it, but in saying this we are not making any claim about which definition can be "privileged". For example, it is possible that the same act is defined as two different behaviors from the point of view of the patient and from that of the analyst. Both definitions have the right to citizenship from the scientific point of view, even if then you can come to identify that the perspective on the basis of which the subject directs the processing of information is influenced by factors of which the subject himself is not aware. Thus, the duplicity of the communicative plan (manifest and latent) can be revealed, and one of the two plans can be privileged in the interpretation for therapeutic purposes, or when one wants to emphasize the "real" underlying communication. In this case, however, - even if such a way of saying achieves an undoubted effect - it seems incorrect to say that the real meaning of a behavior is always the latent one: "real" are all possible meanings, while only one can be the "relevant" one for certain purposes.

continuous and inevitable sequences of active and constructive processing of information. We have seen that both phenomena are an inevitable flow of information (you cannot be unaware of something as well as you cannot not behave) and that both convey this information through a selective modification of the original state (modification that we have called "modulation"). These features make them both definable as something that is structured by coding, a kind of "language", one inner, the other outer.

These considerations reflect, in fact, a series of hypotheses that have appeared here and there in the history of psychology, and which - in part - have also been experimentally verified.

One of these hypotheses is that of the so-called "inner language" (see, e.g., Vygotsky, 1962; Werner and Kaplan, 1963). This is, essentially, the assumption that thought is structured (or at least its structuring is greatly facilitated) through the "internal", mental use of words, as if there were a direct communication with oneself. This hypothesis would seem to be experimentally proven through the observation of slight movements of the muscles of the larynx during demanding thinking activities (Sokolov, 1968; Hardyck - Petrinovic, 1970; a different proof would be provided by Landauer, 1962).

A similar hypothesis is given in the "rehearsal" theory (Sperling, 1967), widely accepted in cognitive psychology, according to which a sort of inner language facilitates memorization, since verbal repetition would avoid the decay of the mnestic trace.

These hypotheses can be expanded by arguing that we develop the course of our thoughts by using, in order to encode information, the inner antecedents of all our outer behavior. In other words, we can speak of an inner "pre-behavior" of which inner language is only one aspect. This "pre-behavior" could be described, for example, through the concept of "schema", proposed by Head in 1920, in his *Studies in Neurology*, with the sense of an antecedent or inner model of the organization of action, and gradually taken up by Bartlett (1932), Piaget (1937) and Bruner (1956). For the latter two authors, in particular, the development of an act, from an ontogenetic point of view, takes place through the gradual refinement of sub-sequences and their combination into sequences of a higher order. Piaget emphasized that speech activity derives from the internalization of action, and Bruner also believes that the development of language has its antecedents in the development of the coordination of actions (Bruner, 1972).

On the basis of the above considerations, we can unify the two phenomena of consciousness and behavior as the two opposite ends of a single phenomenon: what serves to express to others also serves to understand and even to think, which is almost like expressing to oneself. Behavior, in the final analysis, is an idea transformed into action; it has its own structure and logic. To communicate is first of all to think, and thought is inner communication: it is important to realize that only in terms of meaningful ideas, more or less differentiated or elaborated, can behavior be recognized as communication and understood.

These conclusions lead us to reconsider the problem of interpersonal comprehension (particularly of subjective experiences) from a new perspective. In fact, if the structures that allow an experience to be meaningful are the same ones that allow it to be expressed, it no longer makes sense to distinguish between processes of encoding and decoding in the transmission and reception of the message respectively.

The cognitive process of elaboration of information "for oneself" can thus be seen as analogous to that of processing "for others", and the difference between the two types of structuring could imply only a change in perspective and not in the type of activity.

A similar hypothesis has been proposed by Halle and Stevens (1962): when we perceive a verbal message we put into operation a series of internal comparison schemes, the same ones that we would put into action if we were to produce the message ourselves. It is not a question of the actual articulation of the message, but of the activation of the series of rules that are used to generate it.

At this point, we can assume that during the two complementary phases of transmission and reception, a process actually takes place that leads to the knowledge of "something" that is identical in both cases and that we can refer to as "meaning".

In other words, the so-called "encoding" can be described as the passage to the awareness in consciousness of certain meanings and as the expression of these meanings in a certain code. The "decoding" will be an analogous cognitive reconstruction, that is, the passage to an awareness concerning what is perceived of the behavior (linguistic or not) of others.

It may seem strange that we talk about a process of becoming aware of meaning even in regard to codification, as if we do not already "know" the ideas we are going to express. However, in reality, we "know" in a very particular sense what we are about to express: it is something more akin to a progressive process of construction than to a simple pouring over of something ready-made. In a certain sense it is accurate to say that inner reality is a "construction", as some authors have done (Berger and Luckmann, 1966; Olivetti Belardinelli, 1974), although it is not necessary to emphasize only the role that the social environment plays in this construction.[8]

---

[8] It has been recently pointed out (Nisbett and Wilson, 1977) that in some cases we "know" more than we can say, but it is also true that we often say more than we know. In other words, we can implement cognitive processes or we can act in a certain way without being able to explain (or differentiate) it verbally. Vice versa, we can make statements or give explanations about our private events that are not really adequate. This gap between psychic activity and consciousness arises if one accepts the hypothesis that we cannot observe our cognitive processes but only the result of these processes that appears spontaneously to consciousness (Mandler, 1975; Neisser, 1967). This is not entirely true: it is certainly not possible to observe the process that leads to a single cognitive act at the moment in which it takes place, but it is possible to reconstruct it immediately afterwards, in a "metacognitive" form, so to speak. Nisbett and Wilson acknowledge that we often form a correct reconstruction of mental processes but attribute this fact to the use of personal causal theories. It would seem simpler to speak not of theories or causal attribution but only of awareness at different levels of the implicit causes of behavior. However, the problem of causal attribution would require a wider treatment than possible here and we will therefore have to postpone it to another place.

*7. Conclusion*

In this paper we have proposed a topic which is neither new nor simple: essentially it is the identification of the conditions which allow to "know" what others communicate and to be sure of being right.

With the aim of setting the issue and taking stock of the models currently available to psychology, we have highlighted the fact that this problem can be validly addressed using the investigations of cognitive or cognitivist psychology. Such investigations can be considered to conform to the "systems" approach, in that they are less mechanistic than earlier models that were based on linear causality and homeostasis, and above all because they have had the merit of reopening to scientific research the field of inner subjective experiences, considering them in terms of "processes", i.e. dynamic sequences of events.

However, the problem of knowledge and intersubjective exchange of private events would require greater clarity and a more explicit definition of these events. In our opinion, cognitivist models mainly grasp one aspect of the phenomenon of "consciousness", namely the fact that this phenomenon is the central moment of information processing, but they let other contradictory but important aspects slip by. In particular, it seems to us that should be recovered the dichotomy of the seemingly inevitable and passive "occurrence" of ideas, as opposed to the active "construction" of them. We do not think it necessary to try to resolve this contradiction, more apparent than real: we proposed instead to consider the active intervention something that fits as a "modulation", that is, selective modification, in a continuous and inevitable flow, differentiating it constructively, orienting it towards a certain meaning.

If the subjective awareness of the meaning can be considered a process of production of this kind, even in the phase of expression and communication of that meaning can be observed a similar process. What translates private events on the "public" level is "behavior", not understood in the restrictive sense of behaviorists as a "response", but neither in the too broad sense that includes any act. Behavior has been defined here as the perception or definition of an act. In this sense, behavior can only be identified and delimited in relation to the activity of consciousness. As consciousness is on the private level, behavior is the central unit of information processing on the public level, and presents the same contradiction between an aspect of "inevitability" (when one is in a relationship one cannot not behave) and an aspect of active "construction" (the author of the behavior is the individual himself who behaves).

This dichotomy can be dissolved in the same way as the previous one concerning consciousness, i.e. considering behavior as a continuous and inevitable phenomenon that is "modulated" by the subject, with a meaning that is constructively differentiated and oriented towards a certain direction.

So the criterion of correctness, that is, the one that tells us to be right in the interpretation, can be sought precisely in the isomorphism between the two processes of construction, the

"private" or inner one, and the "public" or outer one. This isomorphism, in fact, exists and has been experimentally proven. The hypotheses of "inner language" with its own codification and of "schemes" that constitute a sort of "pre-behavior" demonstrate the continuity between the inner and outer processes.

Understanding can be considered, then, as the appropriate construction or "modulation" of a certain cognitive domain in accordance with the significant construction of the behavior of another subject, according to a code that reflects the one used by the latter to modulate "for himself" his own cognitive experience. These are cognitive phases or sequences, i.e. processes that require, as a preliminary basis, that there is an interaction between individuals, or rather between consciousness activities.

Obviously, the investigation cannot stop here. We should first consider the problem of the nature of this cognitive process of elaboration, structuring, "modulation" of the two extremes of the continuum of consciousness and behavior (i.e., specify the nature of differentiation) and, moreover, identify the other cognitive coordinates of this process, highlighting the mechanisms of selection of the input and how the input itself increases in complexity in the course of structuring. In a subsequent paper we will consider some hypotheses and some experimental research supporting them, which seem to us to be valid in this regard.

## REFERENCES

Bartlett F. C., *Remembering,* Cambridge University Press, London 1932

Berger P. L., Luckmann T., *The social construction of reality,* Doubledayi & Co. Garden City, New York 1966.

Berlyne D. E., *Conflict, arousal, and curiosity,* Mc Graw-Hill, New York 1960.

Berne E., *Games people play,* Grove Press, New York 1964

Bertalanffy (von) L.,*General System Theory,* Braziller, New York 1971.

Bexton W. A., Heron W. , Scott T. H., Effects of decreased variation in the sensory environment*, Canadian Journal Psychology*., 8 (l954), 70-76.

Broadbent D. E., *Perception and communication,* Pergamon Press, London 1958.

Broadbent D. E.,, *Decision and stress,* Academic Press, London-New York 1971.

Bruner J. S., *A study of thinking,* Wiley &Sons , Ne w York 1956.

Bruner J. S., Nature and use of immaturity*, American Psychologist*, 1972, 687-708.

Chomsky N., *Language and mind,* Harcourt, Brace & World, New York 1968.

Chomsky N., Miller G. A., *Finitary models of language users,* in R. D. Luce, R. R. Bush & E.

Galanter (Eds), *Handbook of Mathematical Psychology,* Wiley, New York 1963.

Collins A. M., Quillian M. R., Retrieval time from semantic memory, *J. Verb. Learn. Verb. Behav.,* 1969, 240-248.

Halle M., Stevens K., *Speech recognition: a model and a program for research ,* in *Ire Transactions on Information Theory,* 8, 2, 1962, 155-159.

Hardyck C. D, Petrinovic L. F., Subvocal speech and comprehension level, *J. Verb. Learn. Verb. Behav.*, 9,6 (1970), 647-652.

Hebb D. C., *A textbook of psychology,* Saunders, Philadelphia 1966.

Jones M., Time, our lost dimension. Towards a new theory of perception, attention and memory, *Psychol. Rev.,*83, 5 (1976), 323.

Landauer T. K., Rate of implicit speech. *Percept. Mot. Skills*, 15 ( 1962), 646.

Mandler G., *Consciousness: respectable, useful , and probably necessary,* in Solso (Ed.). *lnformation processing and cognition,* The Loyola Symposium, Wiley & Sons, New York 1975, 229-254.

Miller G. A., Galanter E., Pribram K. H., *Plans and structure of behavior,* Routledge.

Natsoulas Th., Concerning introspective knowledge, *Psych. Bull*, 73, 2. (1970), 89-111.

Natsoulas Th., The subjective, experiential element in perception, *Ps. Bull.* , 81, 10 (1974), 611-631.

Neisser U., *Cognitive Psychology,* Appleton-Century-Crofts, New York 1967.

Nisbett R. E., Wilson T. D., Telling more than we know: verbal reports on mental processes, *Ps.Rev.*, 84, 3. (1977), 231-259.

Norman D. A., Toward a theory of memory and attention, *Ps. Rev.*, 75, 6 (1968), 522-536.

Norman D. A., *Memory and attention,* Wiley & Sons, New York 1969.

Olivetti Belardinelli M., *La costruzione della realtà come problema psicologico* [The construction of reality as a psychological problem], Boringhieri, Torino 1974.

Ornstein H. E., *The psychology of consciousness,* Freeman, S. Francisco 1972.

Piaget J., *La construction du reel chez l 'enfant,* Delachaux et Niestlé, Neuchatel-Paris 1937.

Posner M. I., Klein H. M., *On the functions of consciousness,* in Kornblum (Ed.), *Attention and performance,* IV, Academic Press, New York 1973.

Shallice T., Dual functions of consciousness, *Ps. Rev.*, 79, 5 (1972), 383-393.

Sokolov A. *N., Inner speech and thought,* Plenum Press, New York 197 2

Sperling G.A., Successive approximations to a model for short-term memory, *Acta Psychologica* 27 (1967), 285-292.

Vygotsky L. S., *Thought and language,* Mit Press, Wiley, New York 1962.

Watzlawick P., Beavin J. H., Jackson D. *D. , Pragmatic of human communication,* Norton, New York 1967.

Werner H., Kaplan B., *Symbol Formation,* Wiley, New York 1963.