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On the scientific context of the concept of communication

Abstract. *Observing is a paradoxical operation: a duality as unity, and a distinction between distinguishing and indicating, that is, a distinction that is repeated in itself. One can speak of scientific observation only if such an operation of distinguishing-indication is achieved through concepts. If one observes observation one cannot avoid observing the paradox. When a second-order observer wants to know how the observed observer observes, it has to observe how the observed observer deals with its own paradox, how it de-paradoxizes the paradox. Even scientific communication is an actualization of the paradox of observation, and therefore it is in principle incapable of dealing with logic. A theory of scientific observation should then be concerned with how science has nevertheless managed. The point comes to be: who observes with the aid of the concept of communication, and how does it observe?*

I

Even in daily life one can only observe what one can distinguish and indicate. To distinguish and indicate is a single operation, for it would make no sense to indicate something that one cannot distinguish; and conversely to merely distinguish would remain undetermined if it were not used to indicate one side and not the other. Observing is therefore a paradoxical operation: a duality as unity, and a distinction between distinguishing and indicating, that is, a distinction that is repeated in itself.

Even in daily life any observation is paradoxically constituted. But observation still remains possible. An observer focuses on what it observes. In so doing, it mostly ignores that from which

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what is observed, is distinguished. It does not see what it does not see. If one observes observation (often today under the heading of new cybernetics or second-order cybernetics) one cannot avoid observing the paradox. Above all, one would then have to observe how an observed observer observes (nevertheless since observing observation is still an observation it has to set what it observes). When a second-order observer wants to know how the observed observer observes, it has to observe how the observed observer deals with its own paradox, how it unfolds such a paradox, how it de-paradoxizes the paradox.

An observed observer can also be a self-observing observer.

One can speak of scientific observation only if such an operation of distinguishing-indication is achieved through concepts. This is not to say that the language of science is exclusively composed of concepts, it only means that the societal differentiation of scientific from ordinary communication has occurred through concepts. As usual, then, the consistency of a plurality of conceptual decisions and the logical control over the use of concepts is achieved – or not achieved.

Therefore even scientific communication – no matter what else it may be – is an actualization of the paradox of observation, and therefore it is in principle incapable of dealing with logic. A theory of scientific observation should then be concerned with how science has nevertheless managed (no doubt indeed that science made it in as much as science is a social reality).

These epistemological debates cannot be investigated any further on this occasion. Here they have been simply introduced to lead to our topic, which is the concept of communication and the scientific context of its definition. Concepts can be wilfully (*willkürlich*) introduced as distinguishing indications, as observing devices. To refer to a phrase from the Middle Ages, they are nominalistically defined. But what does it mean, and what does "wilfully" mean?

The doctrine of the free will is here not very helpful. Perhaps one should draw on a formulation by Musil and say "Such a free will is the capacity that human beings have for willingly doing what they unwillingly will" (Musil, 1952), which itself is a definition, a paradoxical definition of unfreedom as freedom. One can then replace this way of enframing the problem with the paradox of observation. By using a definition one does not need to bother with the arbitrariness (*Willkür*) of such a use; he uses it – or not. Its

arbitrariness is a problem of a second-order observer (and once more: it can also be the observed observer itself). At the level of second-order cybernetics, arbitrariness means not only that one cannot observe distinctions and indications as a matter of fact independent of observation, i.e. ontologically, but also that one observes the observer using them.[1]

Now the pertinent question comes to be: who observes with the aid of the concept of communication, and, above all, how does it observe with the aid of the concept of communication?

II

Communication is usually defined as a kind of action: as communicative action, as an action transferring information. Therefore one can distinguish, as it were, action from non-action by using the difference active/passive. Furthermore, one can distinguish communication from other sorts of action, such as swimming (or other forms of "praxis"), or from going mushrooming. Within such an understanding of communication, Habermas[2] has worked out a strictly empathic concept of communicative action that ends up in saying that not all communication but only this communicative action does establish a relation with a particular ethos of communication. So far so good. But why is it so and not differently?

Such an option, which has rarely been taken and discussed as such, displays distinctive features which become clear to us as soon as we take the position of a second-order observer.

First, a definition in terms of action calls for an actor: a human being, a person, an individual, a subject. Why is it so? Many conclude by saying that only human beings, and perhaps just a few species amongst animals can communicate – as if this were a fact. Such a claim remains at the level of the "what" questions. For a second-order observer there are no facts, and the first-order "what" questions turn into "how" questions. That is: how does someone observe in order to claim that only human beings can communicate?

Perhaps the most striking consequence is the puzzle of subject. A theory that is accordingly developed has to solve this puzzle, either with a transcendental theory or in other ways. The self-reference that every theory of communication runs into is localized in man, anthropologized, to be then displayed as a unity that can bear both validity claims and demands for recognition.

Second, from that, a sheer juxtaposition ensues between at least two human beings taking part in communication – call them the sender and the receiver. The unity that the concept (provided that this is a concept) aims at indicating is presented as a duality, with an "in-between" as a consequence. Such an "in-between" may be presented either as a convergence of subjects, as intersubjectivity, or even as consensus or as a transfer of information. As anyone reading Habermas knows, there is an interactional version and one in information technology. But how important is this very distinction, and for whom? Obviously, for theories believing to be able to observe that such an "in-between" exists.

A second-order observer will quite soon realize that a reformulated paradox is at work here, which is unfolded in a distinction. Subjects constitute the world. But intersubjectivity is by no means a subject. It is the excluded/included third – the parasite, as Michel Serres would have it (Serres, 1982)[3] – which is about to exploit and consume subjects. Relying on this parasite, then, Habermas believes that in the end he can manage without resorting to any foundation in a theory of subject.

Though, to a lesser extent, information technology is facing a similar problem. By also resorting to mathematical formalization, information technology describes empirical phenomena in a theoretical and technical form that can be further exploited. But even in this case, it has to be presupposed that a transfer occurs. Therefore interaction and technology do share a common premise. In this respect, Habermas does not take his critique any further, a point that has already been made in relation to his own polemic against the so-called positivism.[4]

But we have to ask: as regards these theories, how is it constituted what is indicated as intersubjectivity, consensus, transfer, and eventually as communication?

III

Taking a theoretical framework back to the basic operative distinctions enabling it to indicate what it wants to observe may help to improve the transparency of such a theory. As a critique it is valuable only if it makes it possible for a different argumentative line to emerge. As long as only a single way to deal with the concept of communication is provided (no matter how debatable it

may become in further theoretical developments), it will remain almost inescapable to offer a non-constructivistic reading of the theory in its conceptual starting points. That is to say: to read it as the correct representation of an object. In this way, and even with surprise, people react if one puts into question that human beings can communicate.

And that is what I want to do. My argument is: it is not human beings who can communicate, rather, only communication can communicate. At a first glance, it would seem as if reference has been replaced by tautology, or, better, hetero-reference by self-reference. This is actually intended, but the situation is more complicated than it would appear at face value.

It is obviously not my aim to suggest a tautological concept. The intention is to relate the concept of communication to a self-referential domain. Accordingly, communication is an autopoietic operation of an autopoietic system.[5] It only occurs if systems exist, which with the aid of an elementary operation, namely communication, produce and reproduce a network reproducing this elementary operation. I call these systems social systems.[6]

I cannot here elaborate on the technical details of such a theory of social systems. We now remain at the level of second-order observation and ask: how has the concept to be worked out so that it may function in the context of a theory of autopoietic systems, and which distinctions become relevant instead of those that the concept uses within action theory?

Thus, the first question is: how can the unity of the operation of communication be conceived of if the theory programmatically gives up the chance of drawing it from the unity of a subject, or leading it back to this? Here it is no longer a matter of a consciously intended action that gains its own unity by the idea that someone wants just what he wants. On the contrary, the concept of autopoiesis requires that any external reference is interrupted. The unity of a communication is due to the system that reproduces itself by producing units of this kind through a network of units of this kind.

With this formal description one can try to figure out more precisely how such a unity is constituted. My own suggestion is to define this unity as the synthesis of information, utterance and understanding. Only if such a synthesis occurs, communication occurs. If one of its components is missing, something different takes place. For instance, if the difference between information and

utterance is missing, no communication occurs, but at the most a perception on the part of the one observing someone else's behaviour. If understanding (including misunderstanding) is missing, the chance to either accept or reject communication will be missing as well. Thus, it won't be possible to achieve the bifurcation proper to communication which decides that to which further communication has to react. Moreover, it is not in the meaning of this concept to express any preference for consensus and against dissent. It is not to investigate why communication should be prone to "disprefer" (*dispräferenzieren*) dissent (if you will allow me this awful but appropriate phrase). But it is necessary that communication continuously composes and decomposes situations in which one can distinguish between consensus and dissent.

Thus, we can also say that a successful synthesis of information, utterance and understanding is the condition of the connectibility (*Anschlußfähigkeit*) of communication in the system, and therefore the condition of the autopoiesis of the system. Not even here can we eschew the paradox of the *unitas multiplex*. But we provide it with a different form in the light of other chances of de-paradoxization that are to be found in the temporal and dynamic constitution of an autopoietic system.

IV

Communication is usually conceived of as an action. Thereby, the concept of communication presupposes the concept of action as its fundamental. We turn such an understanding upside down and we call upon John Locke as the main witness.

According to Locke, an action exists only by resorting to a verbal indication, therefore the indication itself is not yet the action, but it necessarily has to be accomplished as action. Without such a "mixed mode" it would be impossible to distinguish and identify an action.[7] "Stabbing" (in Locke's own example) would then be a form of killing reserved for the English. People from Sicily kill differently, but they still need a word for it.

What is striking is that such a word-dependency of the elementary unit applies to actions but not to communications. There are, in fact, also words with which one can describe communications as actions. Swearing would be an example, communicative action another. But communication as the unity of information, utterance

and understanding does not require any keyword. It identifies itself through the minimal units of a meaning that can be denied. The elementary units of the ongoing communication do not require any name, nor do they take any. They continuously result from the ongoing autopoiesis of communication, and when a communication refers to previous communication, it always has to make clear which segment of communicative occurrence it means. It has to concisely summarize the content, and possibly to either interpret it or to quote it through the contextual references needed. Only by so doing is it possible to communicate on communication. And if one wishes to stress the aspect relating to action more strongly than that relating to communication, one has to use more effective words to make clear that further communication has to focus on the mode of utterance and not on the given information.

Such a distinction between action and communication seems to support what I have in mind. Compared to action, communication is a more basic event. Thus, only communication is a genuinely social occurrence, whilst actions, no matter whether socially oriented or not, can be accomplished provided that they can be shown and isolated by an indication. It has to be noted that such a reversal has far-reaching consequences for sociology, for it urges to transcribe the latter from action theory into communication theory.

V

Recontextualizing the concept of communication from action to system and from subject to autopoiesis has several effects that may become clear only at a slow pace. Even those who already know that they won't ever follow such a restructuring, for it destroys too many habits of thought, should tentatively take the position of observing theory and see how it is done and which distinction leads to which distinction.

In previous debates it became clear that the focus on man, or, to be more precise, the focus on consciousness, brought about an incredible amount of clashes and incomprehensions, or even misunderstandings. I therefore wish to elaborate a little further on this point.

The commonly held view relates the concept of communication to a consciously acting subject. Moreover, it presupposes that there is at least another subject receiving, understanding communication

by which he can also be influenced. The performance of communication would then reside in bridging the difference amongst a plurality of subjects, who are consistently conceived of as carriers of the process, as *hypokeímena* of the transfer. Ethics and rationality can therefore be applied to this problem. This is just what should be done, whatever the criteria of evaluation.

The theory of autopoietic communication does not take into account such a reference to "a foundational level". Nor does it consider the problem as a problem of bridging. At the same time, it does not share any traditional emphasis on ethics and rationality, a brilliant formulation of which has been once more suggested by Habermas. On the contrary, it takes communication as a recursively closed, autopoietic system, and actually as a structurally determined system that may be specified only by its own structures and not by states of consciousness.

In a systems theory formulation, this means that consciousness belongs to the environment of communication as a system. This is not to say that consciousness does not matter or that it can be dropped without any consequence. Systems theory is a theory of observation with the aid of a system/environment distinction, and that implies that it won't be possible to drop the environment without dropping the system as well.

Following Maturana, it might possibly be helpful to consider a second formulation. Inasmuch as life is defined as autopoiesis with regard to molecules, one could define communication as autopoiesis with regard to consciousness. Inasmuch as all life could be described in biochemical terms (with the sole exception of autopoiesis), the overall occurrence of communication could be described in terms of change in states of consciousness – once more, with the exception of the autopoiesis of communication.

Consciousness itself is an autopoietic, recursively closed system (Luhmann, 1987; Gilgenmann, 1986). No operation of consciousness can ever be communication just as no communication can ever be an event of consciousness. Systems remain orthogonal to each other.[8] This means that they can never observe the same. Even if each communication required the participation of many psychic systems (and that would be a theoretical question to be separately discussed), this would be a matter of a necessary coincidence of events in either type of system, and not a partial fusion of systems or an overlap of operations, and by no means a conscious accomplishment of communication. The autopoietic reproduction of

either type of system remains necessarily split. For that which in any momentary coincidence communication makes out of communication, remains something completely different from that which the currently felt, consciously experienced thought makes out of thought. No autopoiesis can use operations that it has not self-produced. Such a closure provides the system with its own capacity for building high eigencomplexity, which may then result (to an observer) as openness towards the environment, as the chance of being irritated by a plurality of events, as the structural coupling of system and environment.

Assuming that communication is the operating mode of a specific structurally determined system, and that only communication can produce communication, does not lead to a denial of the self-determination of the individual. On the contrary, no other social theory takes the individuality and self-determination of the single consciousness so seriously as an empirical fact. Each consciousness is in turn a structurally determined system. It is a recursively closed operating system that can consequently be specified neither by communication nor by a different consciousness, but only by its own operation on the basis of its own structure. Even words such as "subject" or "freedom" are but vague phrases for this domain to be used in communication. Within communication they make it possible to refer to the non-transparent eigendynamic of psychic systems, though it by no means depends on this definition.

No doubt, consciousness can structure its own operation on the basis of language, it can think in form of language, or with the flavour of words and sentences if you like. But even then, it is not the language that thinks, but consciousness itself. The so-called speech competence enables consciousness to build its own complexity (which includes the amazing skill of immediately bringing the right word to mind), and this to an extent that could not be achieved without language. It is indeed not by chance that the alphabetical writing has been paralleled by a theory of artificially improving memory performances.[9] But this by no means changes communication remaining communication and consciousness consciousness. For no system can operate outside its own boundaries.

VI

I now leave this sketchy course in system theory in order to make

clear which distinctions are at work here. System/environment, closure/openness, reduction/construction of complexity; as well as life/consciousness/communication as entirely diverse modes of realizing autopoiesis, and on the level of observation of this as well as of other theories: the distinction between operation and observation, the distinction between distinction and indication, the distinction between paradox and de-paradoxization.

All this draws on the empirical research which today is often brought together under headings such as cognitive sciences, or second-order cybernetics. Cell biology and brain research, computer science and the increasing dependency of this ongoing research (including logic itself) upon computer-aided data-processing and testing procedures, all this is so new that it is not even possible to say whether it is really new. Developments in these research domains are so fast that there is almost no time to be seriously engaged with classical philosophical texts and the "subtle distinctions" that belong to the *bon ton* of this society. Even sociology does not keep up. This is why communication has now become particularly difficult. A long transition is to be expected. But, at the end of the day, it would be at least worth equipping each discipline with its own capacity to observe what is happening.

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Notes

1. Within the context of an interpretation of Saussure, see Glanville (1984).
2. It is enough to quote Habermas (1984).
3. For my own doubts about "intersubjectivity", see Luhmann (1986).
4. In this direction, Barnes (1977: 12ff.) with a not fully deployed orientation towards a constructivist epistemology.
5. The concept stems from biology and has been introduced to define life. As the starting point of a still ongoing debate, see Maturana and Varela (1980). The formal properties of this concept enable an extension to other domains, for instance communication. As he made clear to me, Maturana himself would agree on this provided that an actually existing autopoietic organization may be taken as evidence.
6 Extensively on this, see Luhmann (1984).
7. See the analysis very close to the text by Yolton (1979: 138ff).
8. On this, see the concept "intersection" as suggested by Günter (1979: 283–306, esp. p. 289).
9. A tradition going back to a singer, Simonides, who also became well known by

offering his services for money. There is evidence that in its early stages writing prompted an improvement of memory skills in oral recitation rather than the production of books and written communication: as, for instance, in India with the intensive ritualization of reciting until the beginning of this century (see Wood, 1985).

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