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*Philosophy of communication:
what does it have to do with philosophy of social sciences*

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Abstract

As concepts, communication and information are very closely related, but they also designate more than their usual conceptual meaning when they are called upon in social theories as well as in philosophical theories about the reality and the truth of social life; information and communication are then designating physical events or event like objects of the observable reality, which will be hereafter described as a procedural ontologization of information. Why do they have this role and how do they play it in contemporary social sciences and philosophy of social sciences? This article questions the scientificity of these concepts in these theoretical contexts. It wants to propose a framework for an epistemology of communication and information that is critical about the cybernetician paradigm in the social sciences. It presents this paradigm's main features: informational ontology and probabilistic sociality. It offers a critique of this paradigm's epistemological and methodological pretensions. It finally exposes the basis of an alternative philosophical theory of communication that wants to support the thesis that the cybernetician paradigmatic communication theory is not scientifically productive; and that it cannot be used in social scientific theoretical contexts without being dramatically redesigned and reoriented towards new goals.

Introduction

Is “communication” a sufficiently well defined concept that it can undoubtedly be an object of philosophical investigation? To be sure, the word has been in usage for quite a while now, but not so much in philosophyⁱ where it has been used mostly to designate a commonly accepted known fact of social life, following which human beings communicate amongst themselves, like other primates as well as other mammals for that matter, but they do so with more precise devices such as human languages and technologies of different sorts – which characterize *Homo communicans*. This way of seeing communicational observable facts in human societies has a lot to do with a well known anthropological posture inherited from social scientists of the mid 1950s of which many were active members of what since has been called the “Cybernetics Group”ⁱⁱ. This posture has gradually been shaped as a Kuhnian paradigm by social scientists as well as by philosophers. Hence, it is never surprising to read that communication theory can serve as a set of postulates in cultural surveys, nor is it less unusual to hear about many social action types in terms of the information they supposedly embrace. As concepts, communication and information are very closely related, but they also designate more than their usual conceptual meaning when they are called upon in social theories as well as in philosophical theories about the reality and the truth of social life; information and communication are then designating *physical events or event like objects* of the observable reality.

Why are these concepts playing such a role? Why is it that criticizing their paradigmatic usages and the epistemological trends to which they belong, always or almost all the time sounds odd? What makes this cybernetician paradigm so strong?

This article is about possible answers to these questions. It is aimed at proposing a framework for an epistemology of communication and information that is critical about the cybernetician paradigm in the social sciences. I will first present this paradigm's main features. Secondly, I will criticize its epistemological and methodological pretensions. Thirdly, I will conclude by exposing the basis of an alternative philosophical theory of communication that will, I hope, correctly support my thesis that *that* paradigmatic communication theory is not scientifically productive; nor is it true that it can be used in social scientific theoretical contexts without being dramatically redesigned and reoriented towards new goals.

I. The Cybernetician Paradigm

When the concept of cybernetics was proposed by N. Wiener in the late 1940s, its meaning was not obvious at all – so it was with Wiener's peculiar philosophy (he insisted it was a fully-fledged science but of a new type, however) in which it appeared. It signified that informational-mathematical modelling could from thereon cover the entire spectra of physical, biological, social and psychological phenomena. Its scope was so broad, that it allowed Wiener to be optimistic about the unification of all sciences under a simpler oneⁱⁱⁱ; a science, furthermore, that was meant to offer a real potential for practical applications of all kinds, i.e. for the development of truly efficient technologies, which goal would be the controlling of processes of any kind – whether physical, biological, social or psychological. If it was Cybernetics' first postulate, an epistemological claim, that everything could be modeled as an informational process; its second postulate, a more methodologically oriented one, was that informational processes could be controlled, which meant precisely that men could intervene on them and modify them at will purposively. To achieve this, of course it would have been necessary to obtain a complete understanding of how these processes function as informational ones; not to mention understanding what sciences would be like once translated into the new language of informational theory. These became the heart of a vast research programme that is not quite achieved yet^{iv}.

But if nowadays it is commonly accepted to speak lavishly of objects of scientific inquiries in terms of communication and of information, one has to ask oneself, not only why this is now the case; but how this transformation process from the inside of social sciences became possible and feasible. In brief, one has to ask: what did these concepts and theories do to social sciences?

First, scientists and philosophers had to accept to work towards a common goal; unification of sciences was part of this programme, but not solely. The goal in question is tantamount to the naturalization of social sciences, which means in practice that scientific methods would need to be standardized and operationally determined to procure relatively “safe” explanations and perhaps theories about social facts. The concepts of social facts had then to be believed to mean “observable facts”, where the observability of these facts was defined in opposition to some sort of Kantian dichotomy as to whether facts are phenomenologically determined or lie behind physical appearances. Whence it follows that a form of *physicalism* was necessary. It implied that social facts were observable manifestations of interactions forming the social structure, but not all of them could be directly observed, if only because of the size of some of the social facts and because of their experimental irreproducibility. A hierarchy of what counted as observable social facts had to be established in order to escape from the classical traps of holism and methodological individualism. With this dynamic physicalist representation of social factuality, it was therefore possible to distinguish in between different classes of social actions that mobilized lesser justifications, only because, as it were, the inobservability of some class members wasn't a real problem anymore: it was a matter for better model and techniques. For example, macro-social facts could be derived from aggregation techniques of some kind^v, whether statistical or not.

As is well known, physicalism (which is somewhat different from *physicism*) is a doctrine mostly referred to as typical of Vienna Circle's theory of scientific language (Carnap's, to be more precise) as reducible to physics's protocol formulas about observable physical facts. These methodological postulates reproduce the relations that observational and analytical languages were said to have in natural sciences. But what happened with social sciences was not only about their language, its theory or its practical normative rule set. It was also and probably in majority about the identification of the fundamental nature of social facts. The observational-analytical relation inspired from physical sciences (and/or its philosophy at least) and established inside the social sciences was therefore a methodological stance that allowed social scientists to import model theories and concepts from natural sciences. With or even because of them, social systems became real^{vi}, observable and analysable as any other complex systems, whether natural or cultural. And as real systems, they were decomposable into sub-units or sub-systems of social reality. The social scientists' work became from this moment on, a task consisting of finding these units and analysing them as composed of variables of systemic equations – even though it is true that not all social scientists master differential calculus or statistics techniques, but such equations did not and still don't receive always a mathematical treatment.

This may seem a bit farfetched, but I suggest that this impression can be easily dissipated if one considers that these formalization techniques are equally quantification ones. For there is no point at all to model social or economic facts with these logical or mathematical apparatus if one doesn't have the implicit ambition of quantifying observed social facts and treat them as participants in the bigger picture, which is the theorization of society as a communicative system in which methodologically identified social units carry bits of information about the system itself. The numerous surveys, whether social, political or economic, are first hand examples of this paradigmatic attitude towards quantification of social facts: they all result in a representation of society as a matrix of interactions in which numbers give immediate information about the social composition of analyzed facts.

I am suggesting that the cybernetician paradigm profoundly transformed the core of the philosophy of social sciences as well as of these sciences themselves. Did it transform all of them? Or, more precisely, did it influence even the social scientists and philosophers who were or still are not much excited by quantitative methodologies? I think so. For, what I think is most important here, is not the fact that some social scientists adopted or not mathematic or formalization techniques, but the fact that the cybernetician paradigm offered what I. Hacking calls "style of reasoning"^{vii}. It became therefore possible for these researchers to think of society as something like a force field in which interactions were organized as to form systems, and where these systems could be described empirically and formally, and their results and consequences or systemic productions could be explained in objectively founded terms - all of which are evidently methodological prescriptions that have the peculiar effect of imposing spectacles for better seeing what social science ought to do and be. Whether or not social scientists used information theory's formal and conceptual devices, is relevant only to the point where these same scientists believed that what sociality was all about was only the basic fact that it was informational and communicational in nature.

The cybernetician paradigm thus gave, secondly, to social sciences the faith in their own legitimacy as sciences, in every way comparable to any other. The history of the introduction of early social scientists in the Cybernetics Group is quite instructive on how they were called to justify their works as these were compared and discussed on the same level and submitted to the same analytical categories that information theories' ones. But that is not the whole story, which is not only about justification. It is also the story of social recognition, amongst scientists, of the possibility of connecting together natural and social sciences, within a common conceptual framework and by using a common technical vocabulary. If for instance physics was to incorporate and work inside informational schemes of reasoning, the only way to have the social sciences "communicate" with them was most surely to give the latter the opportunity to

apply the same schemes to complex and non-directly observable systems, namely social systems. Social sciences became therefore also sciences whose objects were not all and always explainable within a classical empirical framework. They could draw of society a more abstract picture indeed.

II. Cybernetician paradigm's methodological and epistemological claims

My thesis is that these imports from natural sciences to social sciences, under the protective umbrella of cybernetics' informational schemes of reasoning, if they were intended to give to the latter the opportunity to specify its language and techniques, only resulted in a more blurred and unspecified conceptual schemes, for the new social concepts and theories were useful only in metaphoric or rhetoric ways of speech. There is nothing intrinsically wrong with the use of metaphors or analogy, if we consider them to be, as Durkheim proposed it^{viii}, a legitimate form of comparison, not a proof technique whatsoever. But one has to be clear about the goals he or she is pursuing when using categories that are bound to fail any test about their epistemic productivity or reliability.

However, leaving aside the analogy problem for further reflections, this second part of the article will be studying only two of the cybernetician paradigm's major components. The first one, I identify it as the ontologization of information; the second one has to do with the probabilistic scheme with which social facts are analysed. These characteristics cannot be understood rightly without noticing that they are incipient to a meta-theoretical framework that states that some special causal relations are to be identified and handle with if one wants to supply with a truly scientific explanation of the social system's behaviour.

Informational ontology

In the present context, the phrase "informational ontology" is not intended to refer to the concept of "formal ontology" as used in cognitive sciences, as the latter identifies a categorization technique whose purpose is to represent a set of knowledge propositional contents in a structure compatible or associated with knowledge-based system technologies^{ix}. The former refers to the fact that within much of the social sciences, the concept of information is often subjected to a dramatic meaning shift, from epistemic to ontological, rendering it, as a consequence, fuzzy and giving of social facts an oversimplified view.

In order to analyse the shift in question, we have to settle the meaning of the notions we are working with. First, whatever mathematical or so-called

scientific concept of information we have in hand, it is not generally the case that social scientists or philosophers interested in the philosophy of social sciences will make use of it in the way it is supposed to be used, i.e. as a formal model. Their very design, in mathematical forms, is not what is in stake here; it is the interpretation often given to a mathematical model in social sciences that is^x. Anyhow, let this model be Shannon's^{xi}, for this particular theory is the one an immense majority of thinkers generally refer to, whether explicitly or not. How does this model work in social sciences? A blunt answer is: not very well. Then again, this answer has to be explained, knowing from the start that Shannon worked after concepts like one of entropy, which is of course a thermodynamic concept. The very definition of entropy is used by Shannon as a representation of the measure of the maximal uncertainty of a message. It is not surprising that Shannon reproduces literally Boltzmann's formula as also applicable to the measure of information in a message:

$$H = -k \sum_{i=1}^n p_i \log p_i,$$

where the constant k determines in Shannon's theory the selection of information units, or bits.

Now, what this formula says has nothing to do a priori with any social facts, events or whatever. For Shannon himself, it had no meaning whatsoever, stating that the "semantic aspects of communication are irrelevant to engineering problem." (Shannon, 1961; p.32)^{xii}. It only has to do with what is supposed to happen *ideally* in a communication channel - in wires and lamps of all sorts, and what had you not in the late forties as communication technology or whatever technology is available today. This formula is solely aimed at quantifying a physical process of signal transfer from a source to a receptor through coding and channelling (assuming, as it is correct to do, that signals are conveyed under the form of electrical energy). Still, it says nothing about the process in itself because the signals cannot be observed as such; their behaviour is inferred because it is possible to measure the differential quantum or state after the process has been performing its tasks.

Was the theory proved efficient in the engineering field? Of course it did - with the help of other technical devices such as programming languages, programs and computers and so on and so forth, which all contributed to render a somewhat radical empirical demonstration of its possibilities and worth. What about its efficiency in the social sciences? In order to have any, the concepts of information and the notion of its measurement in social activities had to be incorporated into the latter; moreover, it had to be accounted for, that any social fact, activity or event could not be measured without considering that they were appraisable within a probabilistic or even stochastic systemic matrix; of which I

will soon say more. To achieve this, social sciences had, in fine, to integrate a philosophical view which would support all of these methodological and epistemological claims. Such a view states that social facts, activities or events are what they are because of an encoding process that exists independently of the actors themselves, of their will or their awareness of being in different ways submitted to this very same process – promoting a non phenomenological thesis, closely related to a positivist approach, about social interactions of any kind. Observation was therefore a searcher’s activity that relied not on observing social facts, activities or events *in themselves*, but one aimed at identifying what they *meant* from this philosophical point of view, i.e. in discovering their structural relations and their significance *as instances of a social code*, whether symbolically manifesting itself through exchanging beliefs about what holds symbols together in the social net they contribute to weave – which gives them their social relevance and their sociological meaning – , or by reproducing structural properties of a system so constructed. This has to do with a Durkheimian type of holism – this should not be a surprise to anyone – which modern social scientists would probably prefer calling an emergentist theory of the social (which gives a Darwinian colour to the theory). But does this amount to a complete theory of society as being informational? The answer is: no, not even close. Why? It does not simply because the concept of information hardly refers to anything that can surely be measured at all. What in effect is observed and measured: Behaviours? Discourses? Speech acts? Belief contents? Communicational contents? Actions? Events? And what are all these concepts supposed to correspond to in real social life? What exactly the constant k should refer to as meaning a selection procedure? How can we attribute a probability value to any of these “facts” once we agree on how to describe them and on how to categorize their empirical properties and the functions and relations they entertain in what could *only then* be called a social system, i.e. a set of functional relations between some or all of its elements’ properties?

We can see that observation has not much to do here with an empiricist theory that would reproduce Humean perceptual assessment of the social facts’ reality. In the cybernetician paradigm’s epistemology, such facts, activities or events are just not what they look like; their very nature is *deduced* from meta-theoretical postulates about the truthfulness of a series of rather normative propositions. Their informational nature is nothing more than the result of a deduction or of a deductive (-recursive) loop that starts with an affirmation about the existence of informational events in society and ends with the comparison of some social facts (events, etc.) and the behaviour of “information” in a communication system *à la* Channon^{xiii}.

This is possible only because social scientists working within the cybernetician paradigm share the belief that information is “out there”. Even though it is not directly observable, as we have already seen, still, analyses can

depict it with, so they say, a grand precision. The belief in the informational nature of social facts is nothing more than an ontological belief; a belief, that is, about what is supposed to be the reality of some facts otherwise destined to be unexplained by science. (We can see that in doing so, social science, as Luhmann (1995) suggested, is typically understood as being a social vector contributing to the reduction of society's "entropy", helping, in other words, to maintain it as a system whose conserved "energy" supports society's own reproduction from within – a conservative theory if any.)

Probabilistic sociality

What is a social fact or action (or activity) or event? If one answers that it is something *like* an information process and that it can therefore be measured like any other kind of information, then one is certainly not realizing that what one says is that an *analogy* can be quantified and analysed as a quantity of information with regards to the information theory. This is one of the tasks U. Eco, for instance, tried to achieve long ago.^{xiv} But what this means, in particular, is that there is a possibility that the true reality of social facts etc, is made of linguistic or semiotic materials. If we can "read" them properly, then the probability of discovering truth from our readings augments: society is hence nothing more than a text in waiting to be interpreted, once our observations are translated into an adequate representative language – may it be observational or analytical. As appealing as this theory can certainly be, it is quite difficult to admit that a rhetorical figure such as analogy could serve as the basis for a methodologically well defined research approach, in the sense that working inside such a conceptual frame cannot do otherwise than to mislead the researcher by having him or her look for something that necessitate to be extracted from the figure of analogy as a model for something that it is not representing anything in itself. In short, analogies cannot be found somewhere else than in texts and cannot be about anything else that linguistic content.^{xv} How about models? Do they work differently? Isn't true that a mathematical model is nothing else than an analogy when it is representing something that is observable in the real world?

The role played by models of any kind, in sciences is, I think, of idealization. What they represent is what scientists make them represent, by necessity or by convention. In this sense, models are always approximations, even though some of them prove to be extraordinarily efficient. They are so because reality cannot be entirely doubled by scientific activities, from the experimental point of view as well as from the modelling one.^{xvi}

Now, the most important reason why social facts, etc, cannot be informational in nature is "simply" because, from a realistic point of view, their

very mode of realization is *not* probabilistic – a probability that would realize itself is furthermore nonsense. Compared, let's say, to the urn model – containing an x number of balls of two or more different colours in any proportion you like – a social model of some sort does not and cannot have the same characteristics than of the urn itself. Picking up balls in total blindness from the urn produces an outcome. This outcome or random event is what concerns probabilistic analysis, not the action of picking up randomly balls from the urn. (When the total number of balls is known, the probability P_1 of sorting a number x of balls of colour a is equal to the probability P_2 of sorting a number y of balls of colour b added to $P_1 \dots P_n$ divided by $P_2 \dots P_n$; if all actions consisting of picking up a ball are mutually exclusive. This formula doesn't take in account the actions of picking.) Whereas social facts, actions or events do not always present themselves as outcomes of preceding facts, actions nor events (they are often "mutually exclusive", in a sense); the causal bond, if any, is just impossible to appraise, but more importantly their "selection" as what *they are said to be* is merely arbitrary. What this is intended to mean is this: a social fact, action or event cannot be defined, as concept, as the outcome of a random selection of a fact, action or event from a categorically well constructed ensemble of facts, actions or events. Such ensembles are something that can only be significant inside a social theory: they are pure analytical devices whose purposes are to illustrate a thesis of some kind about society's organization or structure, or about whatever progress it is said to be the case that it has if any, etc.^{xvii} This is why selection is arbitrary meaning, but not exclusively, that it is a theory-guided process interested in fulfilling social theory's goals of scientific achievements.

Sometimes it is likely possible for someone to evaluate some kind of social behaviour, from directly observing the fact, action or event being realized before one's eye: a riot, a protest, lovers having dinner at a restaurant, a homeless person strolling about with no apparent reason, etc. What one can observe, then, is in fact the bond that ties the observable fact, action or event and the intentionality of the actors, which we can both infer inductively from our comparing what is being observed and our actual social common knowledge. In other words, we act as if we were in the anthropologist's boots observing how some tribe's members interact^{xviii}, that is, we observe people doing something in context because we know how to represent to ourselves what contexts are. And that context is what is evaluated and what allows finding signification in what is observed; but signification is not directly observable. If it were, we could then accept the idea that, in a certain way, there is perhaps a communicative process going on; it would then be easy and fortunate to assimilate a concept of signification to an informational content one, even though the problem of choice of composing whatever helps transmit the signification should be excluded of this theory, and even though the semantic analysis here implied does not make great sense in the context of information theory.^{xix}

III. Concluding remarks: Outline of an alternative philosophical theory of communication

In the social sciences, “communication” is a term and concept generally used to designate a special category of human behaviour. Communication *theory* is about explaining how this behaviour comes about amongst social groups. To do this, communication theory has to associate at least three concepts: communication, social group, social fact (or activity, or action, or event); and it has to postulate, likewise Wiener, that communication, as a fact, is the cement of society^{xx}. So, explaining this special type of behaviour reduces to explaining how society can hold its parts together. Communication, as a concept, is then self-referential: it means what it means only because it logically implies that it is a proper representation of a special order of social factuality. The obviousness of the informational character of the behaviours subsumed under the unifying category of “social behaviour” is hence not even questionable. Why should it be? The model apparatus and, mostly, the “style of reasoning” involved in their usage, have proven to be reliable. But were they?

My critiques show, at the very least, that this reliability is highly problematic. To begin with, what I would call the *procedural ontologization* of the concept of information – giving information an existing status, i.e. in a non-phenomenological manner, in the social field – cannot be interpreted as a scientific approach to communication. I do not want to give the impression that I think that the only features of reality deserving to be considered of some scientific interest are directly observable ones. To the contrary, I do not find problematic at all that, for instance, physics study unobservable particles of matter^{xxi}. What I find has rather important shortcomings is the thesis that sociality is about a communication process involving selection of information conceived as an immaterial constituent of sociality. The major problem with this thesis is that it doesn’t seem possible to define this concept of information in a legitimate way – that is, in such a way that what it is supposed to refer to could be significant of social facts, actions or events that are not describable in informational terms. Would a linguistic (whether contextualist or pragmaticist^{xxii}, or conventionalist) description do the job? This is far from sure. Because it is hardly the case that these facts, etc, could be resumed as linguistic: language cannot be said to cover the entire scope of sociality. A linguistic approach of sociality would necessarily not clearly distinguish between the level of the fact, or the action, or the event as it can be described, and the level of its linguistic description proper^{xxiii}.

So, what is sociality? This concept cannot be defined without being compared to the concept of “social”. For example, for Durkheim, sociality is what characterizes the individual consciousness of the moral norm imposed to individuals by society and in spite of the individual’s will and his or her conscience of the norm. The social level is from that point of view a supra-individual order. This dichotomy is easy to identify in the vast majority of

sociology's textbooks – in whatever language, I might add. The concept of social is therefore referring to this second order of society's constitutive structure in opposition to the first order exemplified by the concept of sociality. This first order is usually referred to as the one where facts, action or event occur and are observable – whether directly or not is not important at this point. And I think that this is true in almost all sociological traditions.^{xxiv} Sociality has to do with the ways by which people interact in the sense of bonding by whatever means available. Communication is only one of them.

Hence, a general theory of communication cannot pretend to offer a full-length portrait of what “society” is like, because this is just not where communication amongst socialized people can be detected as a matter of fact^{xxv}. A general theory of communication cannot therefore serve as a justification matrix for a general theory of society that is called in its turn to serve as an interpretative matrix applied to second order analysis of society. This does not mean that a general theory of society cannot integrate concepts like “communication” in its theoretical structure. But it would have to apply a general prudence maxim to its usage^{xxvi}.

This leaves us with a last question: what general communication theory? To begin with, such a theory should be based on the empirical observation that when people communicate, and they effectively do so by means of language and/or other symbolic devices such as texts, images, etc, what they convey to others is not information, but *meanings*. Understanding sociality is therefore beginning to understand what role linguistic communication plays in binding individuals together^{xxvii}. Amongst the possible ways to represent these, propositions and propositional calculus rules, for instance, are certainly the most applied means, because it is generally admitted, in a more or less Fregean style, that meaning is the outcome or the equivalent of an intentional state. Let it be so. For the only reliable and material way to access to intentional meaning is to have people express them; and usually, this is done via language. Now this linguistic communication takes place in a context and this conditions a great part of both the ways linguistic and non-linguistic expressions are formulated and/or carried out. Therefore, linguistic communication takes place in determined contexts and is about sharing meanings; in turn, context determines that meanings are in a way self-contained in the sense that they cannot be communicated otherwise than in linguistic forms and they refer to what bonds individuals in the context of the very linguistic communication. Do its descriptions in whatever formalized language give the whole portrait of sociality? Of course it doesn't. This model is a *local* one; it gives a fair representation of what is going on in a portion of reality but says nothing on how sociality is *outside* language.

This model cannot be generalized to society, because the level to which this last concept refers to is always and most surely describable in analytical terms, not empirical ones. What we need, then, is a model of *social* communication that

integrates a model of sociality as partly describable in communicational and linguistic terms. What we need is a theory of social meaning, not a semantic, but a theory that would show how it is possible for meanings to be socially efficient – in a pragmatic way. Such a theory could handle systemic concepts and means, but would not need to base its epistemological thesis on any information theory whatsoever. Meaning and information are not comparable, from a pure informational point of view. It would leave systemic concepts work as they should be working, within the analyticity and abstraction level they belong to. Social communication can therefore be labelled a systemic type of communication, meaning by this that it concerns abstract properties and variables describing a world of meaning that only exists because of its usefulness to procure safe theoretical explanations about what could not otherwise be apprehended. It gives a conceptual scheme for understanding some class of social facts, actions or events whose elements escape direct observation. It is not a set of rule for interpreting the information distribution in society; for this is a conceptual flaw.

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SMITH, Barry, « Ontology », in FLORIDI, Luciano (Ed.), *Philosophy of Computing and Information*, Oxford (UK) : Blackwell Publishing, 2004, p. 155-166.

SPERBER, Dan, WILSON, Deirdre, *La pertinence : communication et cognition*, Paris : Éditions de Minuit, 1989 (Fr. translation of *Relevance. Communication and Cognition* London: Blackwell, 1986).

VON BAEYER, Hans Christian, *Information: The New Language of Science*, Cambridge (Mass.): Harvard University Press, 2004.

WIENER, Norbert, *The Human Use of Human Beings: Cybernetics and Society*, New York : Avon Books, 1967, (1950 by Houghton Mifflin and Company).

ⁱ Over the last thirty years, more or less, there were indeed efforts made to give of this concept some philosophical grounding; ethics and social philosophy first offered the needed locus for philosophical discussions about, essentially, the *effects* of communication on society, when e.g. considering the Medias' actions of distributing "information" amongst groups and individuals. Let us remind that this was already in Kant's interrogations on the foundations of republican democracy. But communication and information theories and concepts have just begun, over the past decade or so, to be regarded as philosophical objects *per se*. This paper is a contribution to these efforts. (By saying this, I am not saying that, e.g., Dreyfus's, Dretske's, Crosson's or Sayre's earlier works are strangers to this type of philosophical work, on the contrary, but they represent exceptions, a small number of pioneer works. CROSSON, Frederick J., SAYRE, Kenneth M. (eds) (1967), *Philosophy and Cybernetics*, Notre-Dame: University of Notre-Dame Press; SAYRE, Kenneth M., *Cybernetics and the Philosophy of Mind*, London: Routledge and Keagan Paul, 1976; DRETSKE, F. (1981), *Knowledge and the Flow of Information*, Cambridge, (Mass.): M.I.T. Press.)

ⁱⁱ HEIMS, S. (1991), *The Cybernetics Group*, Cambridge (Mass.): MIT Press; SEGAL, J. (2003), *Le Zéro et le Un. Histoire de la notion scientifique d'information au 20^e siècle*, Paris : Éditions Syllepse, coll. Matériologiques; LAFONTAINE, Céline (2004), *L'empire de la cybernétique. Des machines à penser à la pensée machine*, Paris : Éditions du Seuil.

ⁱⁱⁱ On the general problem of unification of sciences, see: GALISON, Peter, STUMP, David J., (1996) *The Disunity of Science. Boundaries, Contexts and Power*, Stanford: Stanford University Press. But what is less known is that in fact Wiener did not believe that physics should serve as the reference science to which any other should be reduced. Information theory was called to play this role.

^{iv} See e.g.: BENIGER, James R. (1986), *The Control Revolution. Technological and Economic Origins of the Information Society*, Cambridge (Mass.): Harvard University Press; VON BAEYER, Hans Christian (2004), *Information: The New Language of Science*, Cambridge (Mass.): Harvard University Press. Theoretical and sociological backgrounds are discussed in Segal (2003), Lafontaine (2004), Heims (1991). See also: SAYRE, Kenneth M., "Cybernetics" in SHANKER, Stuart, ed. (1996), *Philosophy of Science, Logic and Mathematics in the Twentieth Century*, London: Routledge., Coll. History of Philosophy, Vol. 9, p. 292-314.

^v See e.g.: SIMON, Herbert (1997), *Models of Bounded Rationality, Empirically Grounded Economic Reason, Volume 3*, Cambridge: M.I.T. Press.

^{vi} Except maybe for Niklas Luhmann who proposed a social system theory where social systems were not observable as such but only derivable from communication process inferred as the result of meaning transfer within self-referential social systems. See: LUHMANN, Niklas (1995), *Social Systems*, Stanford : Stanford University Press, and "The Autopoiesis of Social Systems" (1986) in GEYER, Felix, van der

ZOUWEN, Johannes (eds), *Sociocybernetics Paradoxes. Observation, Control and Evolution of Self-Steering Systems*, New Delhi : Sage Publications, pp. 172-192.

^{vii} HACKING, Ian, “The Disunities of the Sciences”, in GALISON, Peter, STUMP, David J. (1996), *op. cit.*, p. 37-74. Also: HACKING, Ian (1983), *Representing and Intervening. Introductory Topics in the Philosophy of Natural Sciences*, Cambridge: Cambridge University Press.

^{viii} DURKHEIM, Émile (1996), *Sociologie et philosophie*, Paris : Presses Universitaires de France, collection Quadrige.

^{ix} For a critique of the concept of formal ontology theory, see: ROBILLARD, Jean (2004), « Ontologies : antinomies, contradictions et autres difficultés épistémologiques du concept », *Revue STICEF*, Volume 11, ISSN : 1764-7223, put on line on 15/10/2004, <http://www.sticef.org>. Also see: SMITH, Barry (2004), « Ontology », in FLORIDI, Luciano (Ed.), *Philosophy of Computing and Information*, Oxford (UK) : Blackwell Publishing, p. 155-166.

^x As Mario Bunge puts it: “In order for a mathematical formula to represent a fact, it must be conjoined with one or more semantic assumption – that is, statements identifying the intended referents and the properties of the referents that the predicates are suppose to represent.” BUNGE, Mario (1996), *Finding Philosophy in Social Science*, New Haven and London : Yale University Press, p. 64. The problem with mathematical formalization in the social sciences is, as a whole, the imprecise characteristics of the reference class members. What do mathematical formulas represent?

^{xi} SHANNON, Claude, WEAVER, Warren (1963; 1949), *The Mathematical Theory of Communication*, Urbana and Chicago: University of Illinois Press. Segal (*op. cit.*) has shown how these theories were introduced in many scientific domains. For a study of the information theory’s impacts in social sciences, see: LAFONTAINE, Céline (2004), *L’empire de la cybernétique. Des machines à penser à la pensée machine*, Paris: Seuil.

^{xii} K.M. Sayre confirms this in his “Cybernetics” article in Shanker, 1996, *op. cit.*, p.298.

^{xiii} It is not rare, in effect, to read a description of whatever social or economic behaviour as corresponding to the different phases implied in the black box metaphoric model, which of course C.E. Channon used to illustrate some of his theses on codification in communication.

^{xiv} ECO, Umberto, *La struttura assente*, Milano: Casa Ed. Valentino Bompiani & C.S.p.A., 1968; *La structure absente*, Paris : Mercure de France, 1972. For him, « *Information represents the freedom of choice we have in composing a message, it is thus a statistical propriety of the messages’ source.*” (Italics original; my translation from Eco (1972), p. 46.)

^{xv} I am not referring to Peirce’s semiotics – which I will not try to resume here. Let it just be said that Peirce, in brief, defined a typology which includes one type of sign that is precisely acting as a symbol whilst not being linguistic neither in its constituents, nor in its ways of signifying; it has a cognitive dimension. PEIRCE, Charles Sanders (1931), *Collected Papers*, (Edited by Charles Hartshorne and Paul Weiss) Cambridge: Harvard University Press.

^{xvi} HACKING, Ian (1983), *op. cit.* See also: BUNGE, Mario (1973), *Method, Model and Matter*, Dordrecht : D. Reidel.

^{xvii} See ROBILLARD, Jean (1999), “ L’enquête et l’analyse dans les sciences sociales : trois problèmes ”, *Cahiers d’épistémologie*, Groupe de Recherche en épistémologie comparée, Département de philosophie, Université du Québec à Montréal, n° 9905.

^{xviii} I am not proposing that interactionism is the only valuable method of social science, which on the contrary seems to be the case with Jeff Coulter in his “Chance, cause and conduct: probability theory and the explanation of human action”, in SHANKER, *op. cit.*, p 266-291.

^{xix} There are further problems that should get one’s attention, in particular the problem of determinism: is society deterministic or not? Then again, this problem is not proper of society as such, but it is of the type of analysis we do of: i) the empirical characteristics of the fact, activity or event that are retained as typically social for the sake of social analysis; and ii) the epistemic structure of concepts and other theoretical constructs used in social analysis. Determinism makes sense if and only if we can observe regularities of some sorts, and if these regularities can be explained as having the same observable features and as being caused by the same cause or causes. That means that determinism cannot find a probabilistic justification, if we let aside the thesis that a probabilistic causality is not contradictory in itself as a concept, and that it presents epistemic features that makes it quasi-causal. See: GARFINKEL, Alan (1981), *Forms*

of *Explanation*, London: Yale University Press; GRANGER, Gilles-Gaston (1992), *La vérification*, Paris: Editions Odile Jacob, coll. Philosophie; FRANCK, Robert (dir.; 1994), *Faut-il chercher aux causes une raison? L'explication causale dans les sciences humaines*, Paris : Librairie Philosophique J. Vrin.

^{xx} “I do not mean that the sociologist is unaware of the existence and the complex nature of communications in society, but until recently he has tended to overlook the extent to which they are the cement which binds its fabrics together.” WIENER, Norbert (1967), *The Human Use of Human Beings: Cybernetics and Society*, New York : Avon Books, [1950 by Houghton Mifflin and Company], p. 39.

^{xxi} Though this thesis can be submitted to historico-philosophical analysis as well. GALISON, Peter (1997), *Image and Logic. A Material Culture of Microphysics*, Chicago and London: University of Chicago Press.

^{xxii} As in GILBERT, Margaret (1992), *On Social Facts*, Princeton: Princeton University Press.

^{xxiii} Which Habermas doesn't see in his theory of communicative action. HABERMAS, Jürgen (1987), *Théorie de l'agir communicationnel : Rationalité de l'agir et rationalisation de la société*, t. 1, Paris: Fayard; *Théorie de l'agir communicationnel : Pour une critique de la raison fonctionnaliste*, t. 2, Paris : Fayard; HONNETH, Axel, JOAS, Hans (eds.) (1991) *Communicative action : Essays on Jürgen Habermas's The Theory of Communicative Action*, Cambridge : M.I.T. Press; PHARO, Patrick (1993), *Le sens de l'action et la compréhension d'autrui*, Paris : L'Harmattan, coll. Logiques Sociales.

^{xxiv} It would be tempting to attribute this theoretical trait of sociology's intrinsic philosophy to Auguste Comte, who coined the very word and concept of “sociology”. Comte divided sociology in two parts, “physique sociale” which studied directly observable actions of agents in relation to what then was perceived as physiological laws of human behaviour; and “statique sociale” that studied social institutions and orders of different kinds, as they were in Comte's terms the resulting effects of directly observable human actions but independent of individuals' conscience and will; their mode of existence were therefore supra-individualistic.

^{xxv} This is implied by a theory of society where it is clear that the concept of “society” is an epistemological construct that has no ontological range whatsoever. Consequently, “society” cannot refer to anything that can be described in empirical terms. It is a pure analytical device whose usefulness is to supply factual descriptions expressed in an observational language, with a semantic adapted to the task of understanding some general type propositions (or empirical generalizations) about facts, actions or events. Now, one can surely question this usefulness; which I will not do here.

^{xxvi} This can be deduced or formulated after last note's statements.

^{xxvii} Gilbert's (1992) contribution is from that point of view exemplary (*op. cit.*); so is Sperber & Wilson's (1989): SPERBER, Dan, WILSON, Deirdre, *La pertinence : communication et cognition*, Paris : Éditions de Minuit, (Fr. translation of *Relevance. Communication and Cognition* London: Blackwell, 1986. Searle's *The Construction of Social Reality* cannot count as a contribution only if one counts that the application of speech act theory to social theory (why not?) is relevant in any possible way (SEARLES, John R. (1995), *The Construction of Social Reality*, New York: The Free Press). Now, in response to the epistemological claims, purposes and goals of any social constructivism see: HACKING, Ian (1999), *The Social Construction of What?*, Cambridge : Harvard University Press.