Extended Abstract

Masters and Slaves of Information

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Are we still able to monitor and to survey the information related to hot research topics? It happened that, according to my variety of scientific interests, I became aware of and sometimes directly involved in several directions of research related to the biological cell and coming from mathematics, computer science, linguistics, physics, chemistry, semiotics, philosophy, sociology and obviously biology, all starting with approximately the same claim: „Our aim is to understand the functioning of the biological cell". But in their next steps you hardly recognize that they have a common aim. Each of them adopts a specific terminology, a specific jargon, and has specific bibliographic references with specific journals where the respective studies are published. You expect that these different directions need to interact, but this expectation is not satisfied. In most cases they ignore each other. I suppose that the same scenario is valid for brain studies and for the field of information (inf) and communication (comm).

Various disciplines can be classified in two classes, according to their self-referential capacity. It is meaningless to refer to „the physics of physics" or to „the chemistry of chemistry", unless we have in view a metaphorical utilisation. By contrast, it is perfectly meaningful and very important to refer to „the philosophy of philosophy", „the literature about literature", „the inf about inf", „the comm about comm". But just the iteration of these operators characterizes our time and so, instead to get inf about something, we get inf about...inf.

In contrast with matter and energy, located in some sciences of nature, inf challenges the segmentation of knowledge in disciplines and the science/ humanities opposition. It emerged concomitantly from thermodynamics (its quantitative version), assoociated with entropy, and from

Darwinian biology (its qualitative version), associated with form, which is another self-referential operator, it is meaningful to refer to „the form of form". Inf comes from the Latin informatio. while the verb informare means „to give a form". Plato, with his Theory of Forms, George Boole, with his algebras and C. S. Peirce, with his signs should be placed in this order of ideas. So, inf as form is much older than inf as a measure of order. A third itinerary of inf refers to telegraphic, engineering comm; a fourth itinerary is concerned with direct human comm; a fifth itinerary, the algorithmic information theory, refers to the algorithmic complexity, which is local, in contrast with Shannon's theory, which is global; a sixth itinerary is concerned with inf in the infinitely small universe, be it the quantum universe (see the extraordinary adventure of quantum information theory) or the universe of the biological cell, where classical inf theory fails; a seventh itinerary refers to social inf and comm, particularly to the theory of social indicators, showing striking similarities with the contemporary theory of signs; eight itinerary: inf and comm in non-verbal arts, i.e., visual arts, music, dance, where selective (i.e., non-semantic) inf may be relevant and inf in literature, theater, film; ninth itinerary; inf and comm on Internet; tenth: philosophy, etc. Moreover, all of them are interacting.

So, in a world in which, against history, the bureaucracy of segmentation in disciplines and of science/ humanities opposition is still strong, the whole development of the inf paradigm challenged the disciplinary borders and, to a large extent, ignored them. But, in its dominant trend, the world of researchers was not prepared to cope adequately with this novelty. So, we can understand why researchers in the field of biological cell or of inf and comm, were not trained to face the today situation of explosion from all directions of the literature related to their problems of interest. Instead to challenge the complexity of the new situation they reduced it to the dimensions of their disciplinary vision.

There is a tension between inf and sign, between inf and meaning, between qualitative and quantitative inf, this tension cannot be completely cancelled, but it can be attenuated; at a first glance, each of them seems to reject the other, like it happened with other conflictual pairs such as <position, momentum>, <consistency, completeness>, <rigor, meaning>, <sensibility, clarity> in well-known specific contexts. However, in logic, linguistics, mathematics, computer science the past century promoted the meaning generated by syntactic means, by contextual behavior, where rigor is at home. On the other hand, inf and comm are often under the action of what G. Bateson called the double bind constraint. One cannot improve at once both the emotional and the coding capacity of a communication process. Sometimes, Grice's conversational principle does not work; you cannot be short and at the same time avoid ambiguity. The school life, the social life in general often create double bind situations. To the extent to which we learn more and more, we increase our chance to keep under control inf and comm; but to some extent, larger for some of us, smaller for others, we remain slaves of inf and comm, manipulated by them.

A major obstacle in coping with inf comes from the genuine limits of human semiosis, blocked as soon as we want to understand what happens beyond the macroscopic world.

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