# The Concepts of Signifier and Signified Revisited

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The concept of information gives rise to an intense interest in computing and other significant disciplines. However more than twenty five theories on information have been devised and none has reached universal consensus. About five theories attempt to complete and perfect the Shannon conceptualization, the remnant propose a variety of more or less original alternative definitions of information. The diverging intents and purposes of the theoretical frames emerge without question. Carnap's view on information revolves around on semantics; instead Shannon deliberately ignores the aspects of semantics. Kolmogorov reasons at the pure technical level, whereas Bateson, Maturana and Varela aim at unifying the view of the mind with the world out there. Norman Wiener rejects the idea that information is physical, and Tom Stonier sees information as much a part of the physical universe as energy and matter. A group of authors searches for a comprehensive conceptualization; others give up holistic aspirations. Fisher, Burgin and others see information as a quantity to measure; Floridi and colleagues are convinced of the prismatic constitution of information which should be explored exclusively through philosophical arguments.
We noted that while theorists polemicize, large number of practitioners and scientists assume that a sign has a body and this body symbolizes something else that can either be material or abstract. The concepts of signifier and signified, typical of linguistics and semiology, infiltrated uncountable fields of research and application, and sustain the achievement of fundamental results in medicine, in physics, in biology and other disciplines. In addition the concepts of signifier and signified cast light over innovative fields such as computer science. A recent book [1] shows how these notions clarify aspects of computing treated in generic terms so far, they enhance our knowledge and can improve technology. For example the signifier and the signified:

- answer some classical paradoxes in information science,
- specify the dualism analog/digital,
- calculate the redundancy of systems in a unified way,
- justify the hardware components of a computer system and the overall structure.

In conclusion the concepts of signifier and signified offer original lens to interpret the modern digital revolution.

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The concepts of signifier and signified sometimes seem to take an ancillary role in literature, they lie in the background despite their wide popularity Authors coming from different disciplines share the idea that a piece of information has a physical origin and stands for something. Technicians usually deal with the body of signs, the signifier, and its meaning in daily professional practice. However the literature shows how writers often cite these notions in generic terms, the notions are used by intuition and offer feeble support to researchers.
We are inclined to believe that the secondary position occupied by the signifier and the signified depends on the cultural gap placed between humanities and sciences. This pair of notions is not stated in accordance to the rules of the scientific method. Engineering is grounded on measures; instead humanists illustrate the parts of signs by means of words. The signifier and the signified are popular in science but play secondary roles due to methodological divergence.

The concept of signifier could be appropriately used by practitioners and could provide an epistemological support to thinkers as long as one begins to provide the mathematical definition for signifiers. A formal expression could contribute to narrow humanities and the scientific/engineering domain.

How to make the notion of signifier more accurate?
Gregory Bateson places the idea of dissimilarity at the basis of his theory. He conceives the "elementary unit of information" as "a difference which makes a difference". Broad literature – e.g. neurology, artificial intelligence, telecommunications, biology – assumes that a sign can operate provided that an observer is able to distinguish its form. Thus we suggest taking the entity $E$ as the signifier that contrasts with an adjacent entity $E^*$ respect to the observer R. We formally translate this property into the following inequality:

$$E \text{ NOT}=_R E^* \tag{1}$$

The aforementioned results have been obtained thanks to the revisited concept of signifier (1) and the consequent mathematical developments.

**Reference**

[1] Rocchi, P. 2010. *Logic of Analog and Digital Machines*. Hauppauge, NY: Nova Science Publishers.