* Introduction to a Systemic Theory of Meaning *

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(More information is available at "Information and Meaning" http://cogprints.org/3694/ and at "Information and Meaning in Life, Humans, and Robots" http://cogprints.org/4531/)

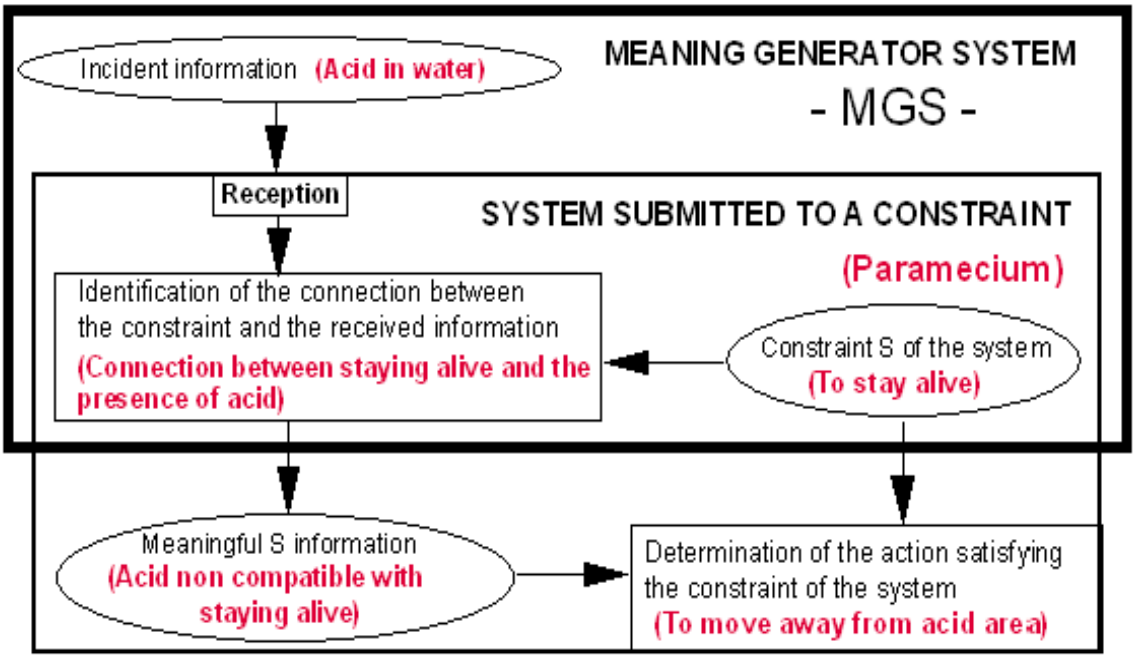
1) Introduction.

a) Information and meanings are present everywhere around us as well as within ourselves.
b) Specific studies have been implemented in order to link information and meaning:
- Semiotics, Biosemiotics
- Phenomenology
- Analytic Philosophy
- Psychology
c) No general coverage is available for the notion of meaning.
d) We propose to complement this lack by a systemic approach to meaning generation.

2) Information and Meaning. Meaning Generator System.

a) The word "meaning " is most of the time related to the performances of humans.
b) The nature of human is unknown ("Hard Problem") => Nature of "meaning" unknown.
c) Proposal is to analyse "meaning" at the level of elementary life (paramecium), and to reformulate the results in a systemic approach.
d) Definitions and properties of "meaning" and of "Meaning Generator System" (MGS).

A meaning *is a meaningful information that is created by a system submitted to a constraint when it receives an external information that has a connection with the constraint.*
The meaning is formed of the connection existing between the received information and the constraint of the system.
The function of the meaning is to participate to the determination of an action that will be implemented in order to satisfy the constraint of the system.



3) MGS Characteristics.

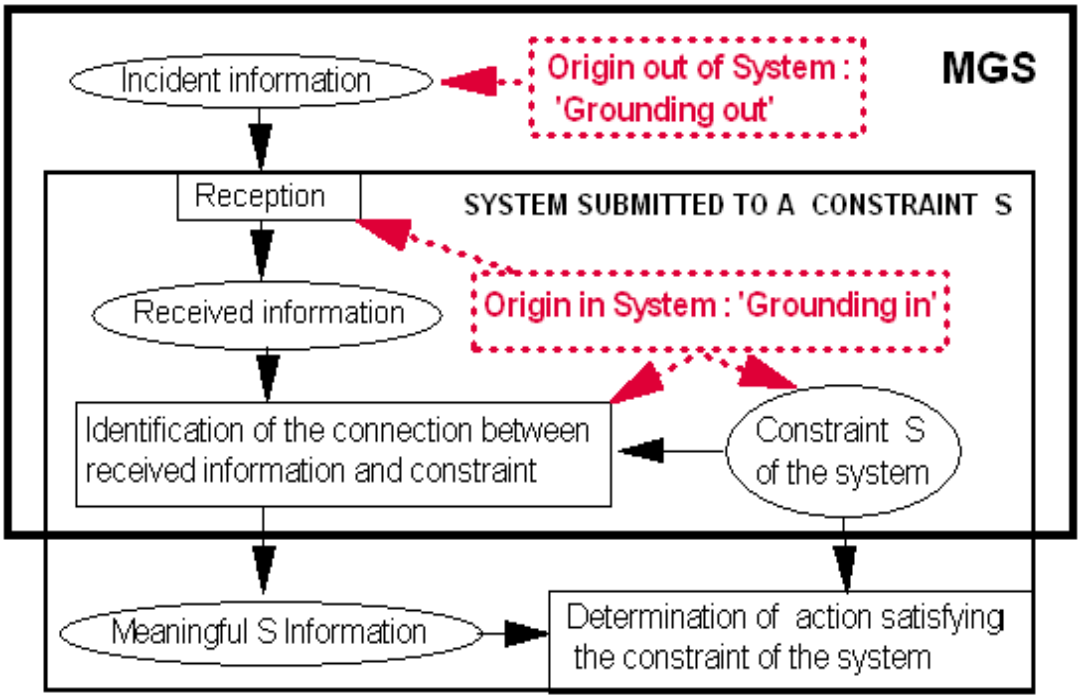
a) Is to be considered as a building block, part of higher level systems. Is a dymanic process.
b) Links the characteristics of a system to its environment.
c) Is usable for different systems having different constraints (animals, humans, robots, ...).
d) Allows the grounding of a meaningful information "in" and "out" the system that produced it.
e) Several MGSs can be linked to build up networks of meanings.
f) Needs some conceptualization of the notion of constraint.

4) Transmission of a Meaning.

a) A meaningful information can be transmitted to other systems and survive to the MGS.
b) Introduction of "Efficiency of a Meaning" and of "Domain of Efficiency of a Meaning".

5) Grounding of a Meaning.

a) The MGS approach provides two components for the grounding of a meaningfull information generated by a system submitted to a constraint:
- Grounding in the system by the specific elements which belong to the system (reception, constraint, identification of the connection between the received information and the constraint).
- Grounding out of the system by the incident information which comes from outside of the system.
b) Introduces possibilities for evolutionary groundings by networking of systems.



6) Conclusion and Continuation.

a) Basic elements for a systemic theory of meaning have been introduced.
b) Key notions have been defined (meaning, constraint, MGS, meaning transmission, efficiency of a meaning, groundings of a meaning in/out a system).
c) Continuation with applications to specific domains (life, human, robots, ..) and extension of the MGS to the notion of representation as built up by a set of meaningful information.