

Biosemiotics, Aboutness of Meaning and Bio-Intentionality. Proposal for an Evolutionary Approach

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Abstract

The management of meaningful information by biological entities is at the core of biosemiotics [Hoffmeyer 2010]. Intentionality, the ‘aboutness’ of mental states, is a key driver in philosophy of mind. Philosophers have been reluctant to use intentionality for non human animals. Some biologists are in favor of such usage. J. Hoffmeyer has been using evolutionary intentionality and Peircean semiotics to discuss a biosemiotic approach to the problem of intentionality [Hoffmeyer 1996, 2012]. Also, recent philosophical studies are bringing new openings on the subject.[Asma 2014].

We propose here to use an existing system approach to meaning generation to introduce a link between biosemiotics and bio-intentionality at basic life level in an evolutionary perspective.

Meanings do not exist by themselves. They have to be generated for a given reason by a defined entity. A system approach to meaning generation based on constraint satisfaction has been developed to that end: the Meaning Generator System (MGS) [Menant 2003a]. It has been used for biosemiotics in an evolutionary perspective [Menant 2003b, 2011].

In order to look at relating biosemiotics to intentionality through meaning generation we use the system structure of the MGS with the agent that contains it. Meaning generation and agent interfacing with environment make available components for the groundings of the generated meaning in terms of data, data processing, interfacing and constraint [Menant, 2011].

These groundings of the meaning can be in or out the agent containing the MGS. They display what the generated meaning is about. For basic life the ‘aboutness’ of the generated meaning relies on a ‘stay alive’ constraint that has to be satisfied (others constraints, like ‘live group life’, are to be introduced through the evolution of life). Such ‘aboutness’ of a generated meaning within basic life can be associated to an elementary biological intentionality, to a ‘bio-intentionality’.

As biosemiotics deals with meaning management by biological entities, the relations introduced by the MGS between meaning generation and bio-intentionality introduce a link between biosemiotics and bio-intentionality for basic life. We present and develop that link.

Besides making available a model usable for bio-intentionality, the proposed approach may also provide an entry point to the concept of intentionality without having to take into account human specificities like self-consciousness. It should also be noted that the approach takes life as a given and that the ‘stay- alive’ constraint brings in a teleological component. Such presentation of bio-intentionality calls for other developments and continuations. Some will be introduced.

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Biosemiotics, Aboutness, Meaning and Bio-intentionality.

Proposal for an Evolutionary Approach

C. Menant – Bordeaux—

- 1) **The possibility for a Biological Intentionality**
- 2) **Evolution =>Bio-intentionality as Meaning of Information in Biological Systems**
- 3) **Meaning of Information in Biosemiotics. Usage for Bio-intentionality**
- 4) **Meaning Management and Meaning Generation. The MGS**
- 5) **Biosemiotics and Bio-intentionality. A Common Evolutionary Approach?**
- 6) **Conclusion and Continuations**

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* Intentionality as ‘aboutness’ of mental states. Deals with ‘meaning’ (Searle, Haugeland, ..)

* ‘Animal intentionality’ is not new (Searle, Varela, Allen, Bekoff, Hoffmeyer, Asma,...)

* ‘Evolutionary intentionality’ (Hoffmeyer) => Possibility for biological intentionality

2) Evolution => Bio-intentionality as Meaning of Information in Biological Systems

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2) 'Aboutness' in the ladder of evolution

*** 'Aboutness' of human mental state:**

- For humans « la Joconde » is about beauty

*** 'Aboutness' of animal representation:**

- For a mouse: Presence of a cat is about/means « danger » (survival)

*** 'Aboutness' of sensed information for an insect;**

- For an ant: Pheromone means « track to follow for food » (survival)

*** 'Aboutness' of sensed information for a unicelular living entity:**

- For a paramecium: Presence of acid means « danger » (survival)

=> Bio-intentionality:

meaning of information in biological systems

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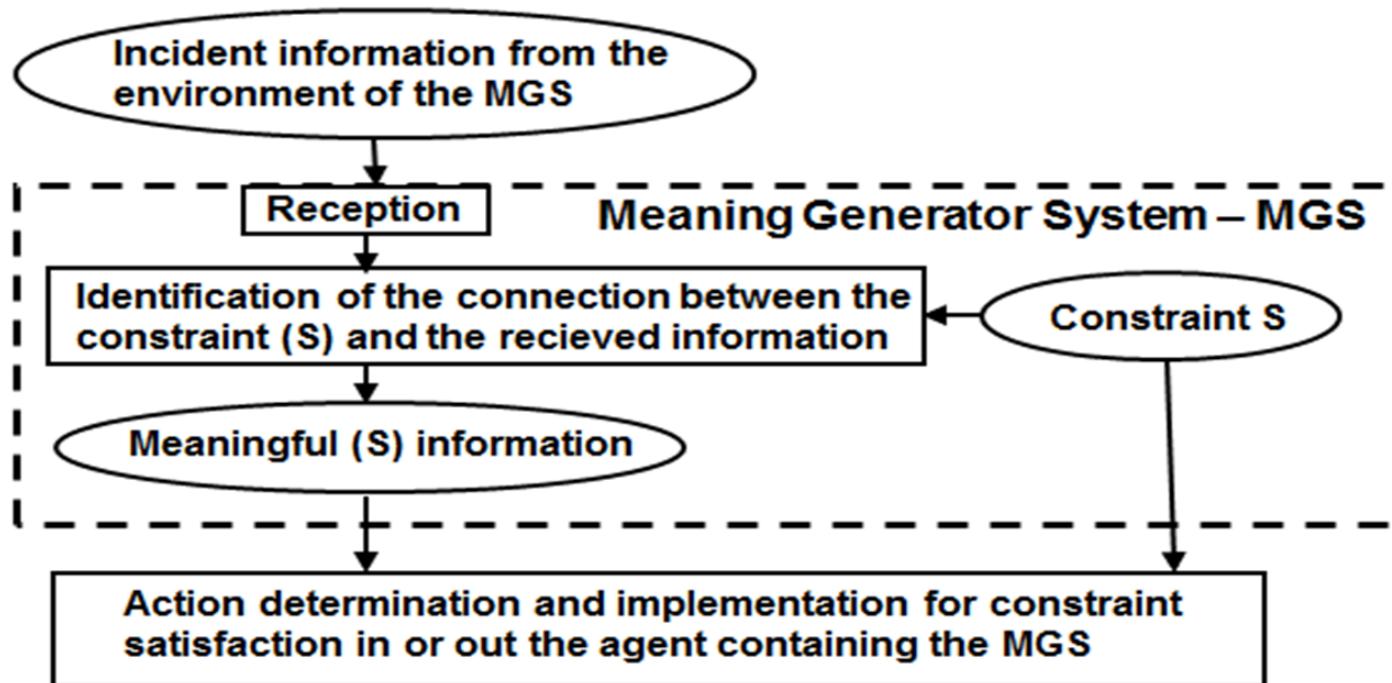
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4) Meaning Management and Meaning Generation. The MGS

*** Meanings do not exist by themselves. Meanings have to be generated by and for agents***



*** *Animal constraints:***
- Stay alive
 (individual & species)
- Live group life

*** *Human constraints:***
- Look for happiness
- Limit anxiety
- Valorize ego
-

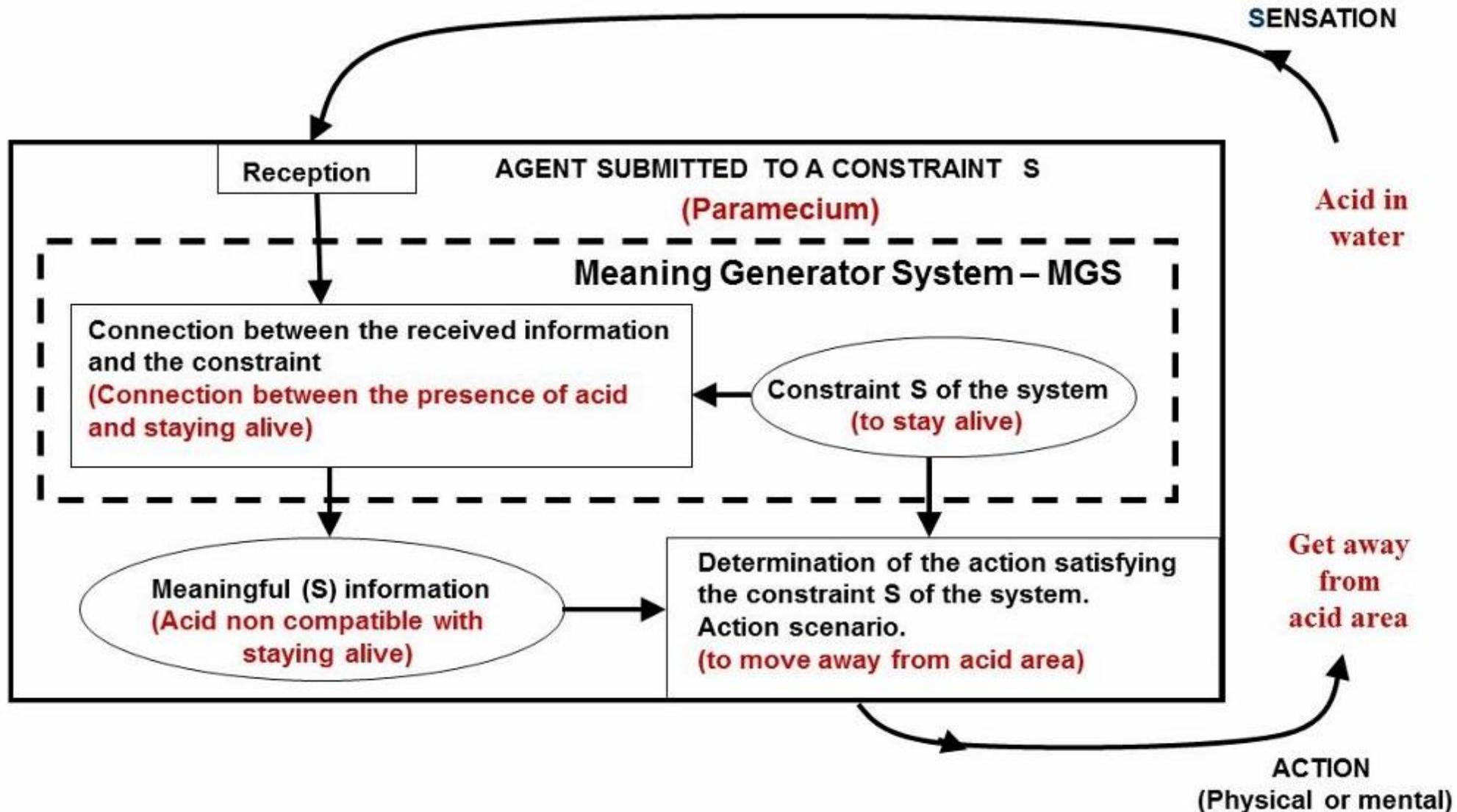
‘When an agent submitted to an internal constraint receives from the environment an information that has a connection with the constraint it generates a meaning usable for the implementation of an action satisfying the constraint’

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4) The Meaning Generator System for Basic Life. Stay alive constarint



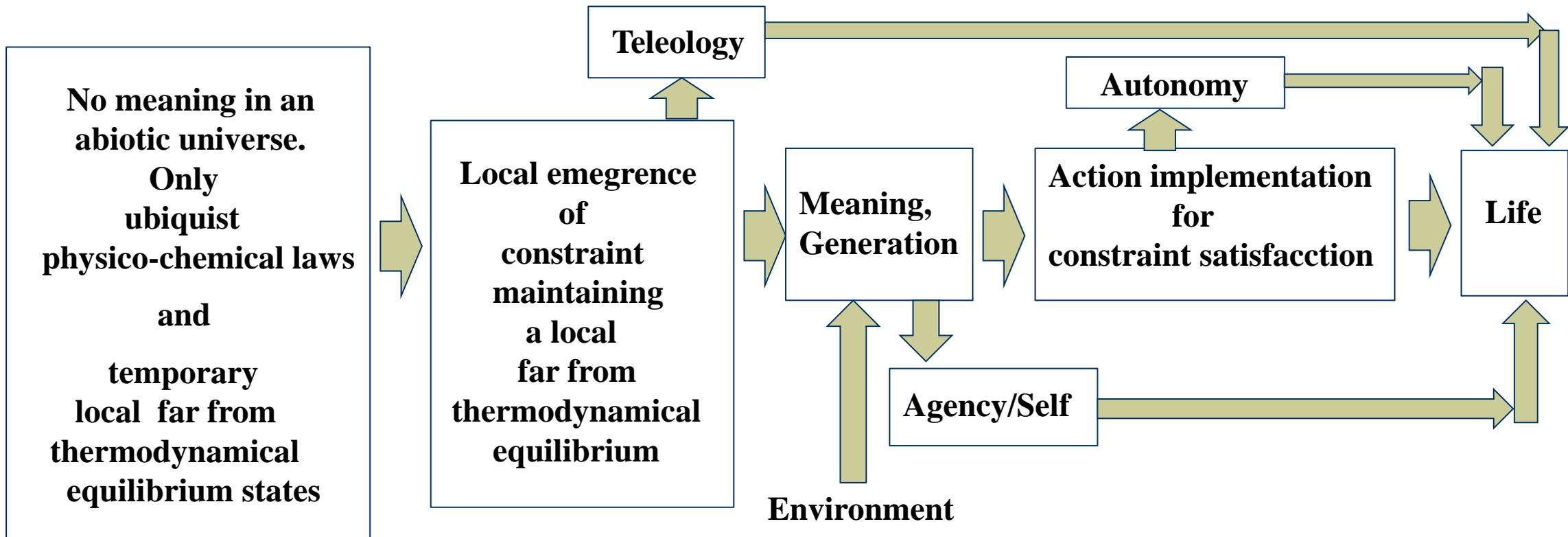
MGS brings in a modeling of the significance of the chemical gradient for the organism

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4) Emergence of Meaning from an Abiotic Universe. Local constraints



Emergence of local constraints, meaning, teleology, agency/self, autonomy and life

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- * Meaning generator system for basic life. Stay alive constraints (individual & species)

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6) Conclusion

- * **Bio-intentionality introduced as the meaning of information in biological systems**
- * **Meaning management in biosemiotics can be an entry point for bio-intentionality**
- * **Possible common evolutionary approach for biosemiotics and bio-intentionality**

6) Continuations

- * **Development of bio-intentionality per se via biosemiotics through meaning generation processes**
- * **Look at how bio-intentionality can introduce an evolutionary approach to intentionality**
- * **Address endo/exo bio-intentionality and possible links with ‘coding’**
- * **Evolutionary history of ‘meaning’: Emergence of local constraints in a universe of ubiquitous laws leading to teleology, meaning generation, agency, autonomy and life**

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