

Information, Constraint and Meaning.

From the pre-biotic world to a possible post human one. An evolutionary approach.

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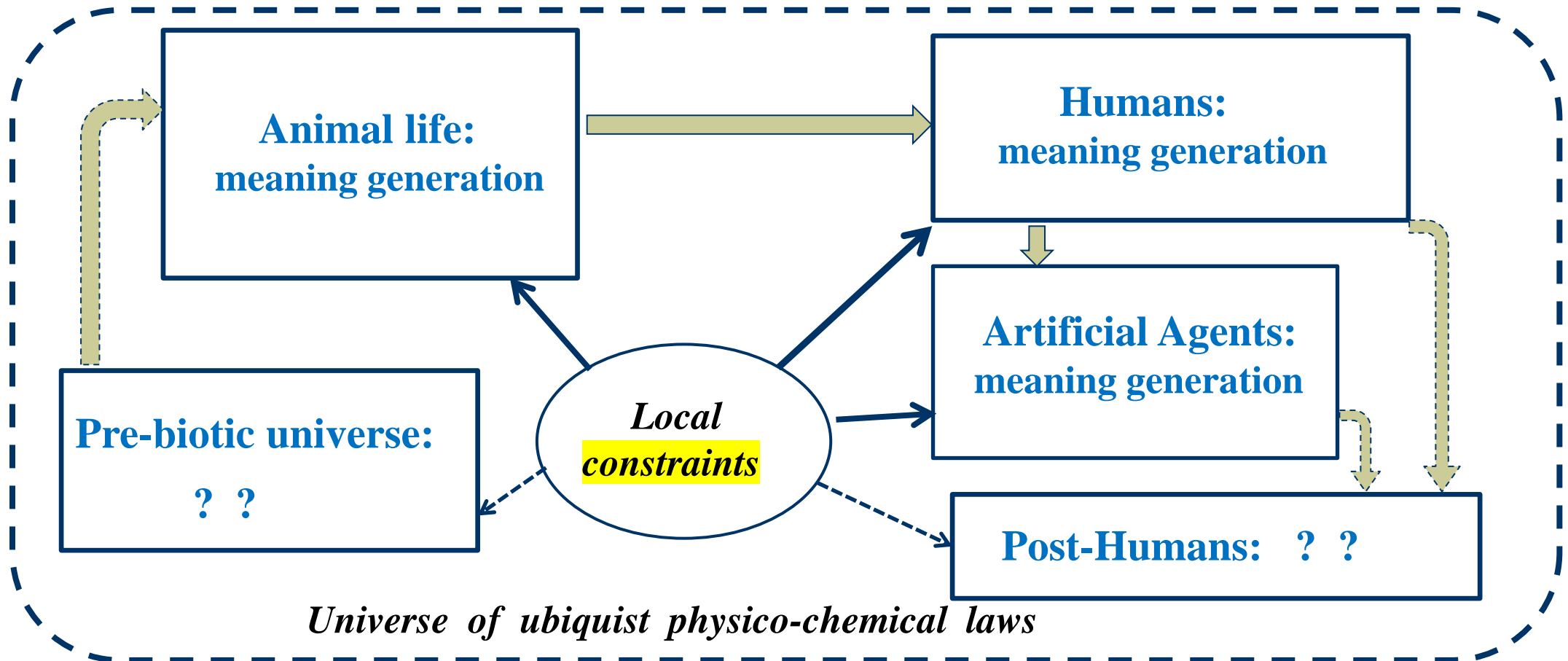
Abstract

The presentation proposes to complement an existing development on meaning generation for animals, humans and artificial agents by looking at what could have existed at pre-biotic times and what could be a post-human meaning generation. The core of the approach is based on an existing model for meaning generation: the Meaning Generator System (MGS). The MGS is part of an agent submitted to an internal constraint. The MGS generates a meaning when it receives an information that has a connection with the constraint. The generated meaning is used by the agent to implement an action (physical, biological or mental) aimed at satisfying the constraint. The action can be in or out the agent. The purpose of the presentation is to widen the MGS approach in order to reach a coverage for information, constraint and meaning from a pre-biotic level to a possible post-human one. We present the MGS for animals, humans and artificial agents with the corresponding constraints. We then look at what could have been a constraint at a pre-biotic far from thermodynamic equilibrium level. At the other end of the spectrum we look at a possible post-human status with an evolution of a ‘limit anxiety’ human constraint and also with AAs submitted to animal or human type constraints. Such approach links information science with physics, evolution, anthropology, semiotics and human mind. Continuations are proposed.

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1) Characterization of evolutionary stages by local constraints. Overview



Local constraints come in addition to ubiquist physico-chemical laws

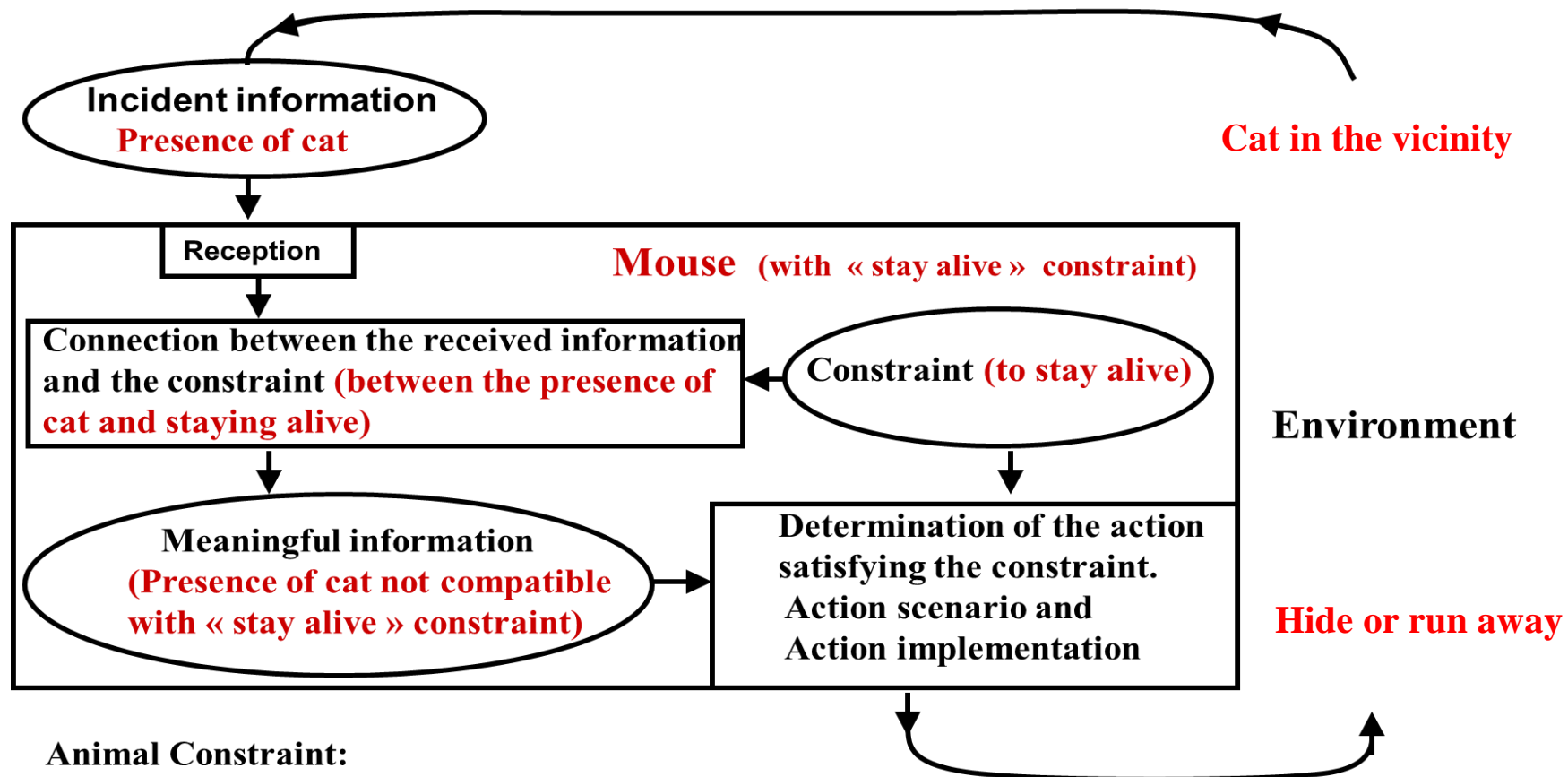
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2) Meaning generation for internal constraint satisfaction in animal life

*** Internal constraint to be satisfied ('stay alive') => Meaning generation => Action
(Mouse escaping a cat)**

<https://philpapers.org/rec/MENIAM-2>



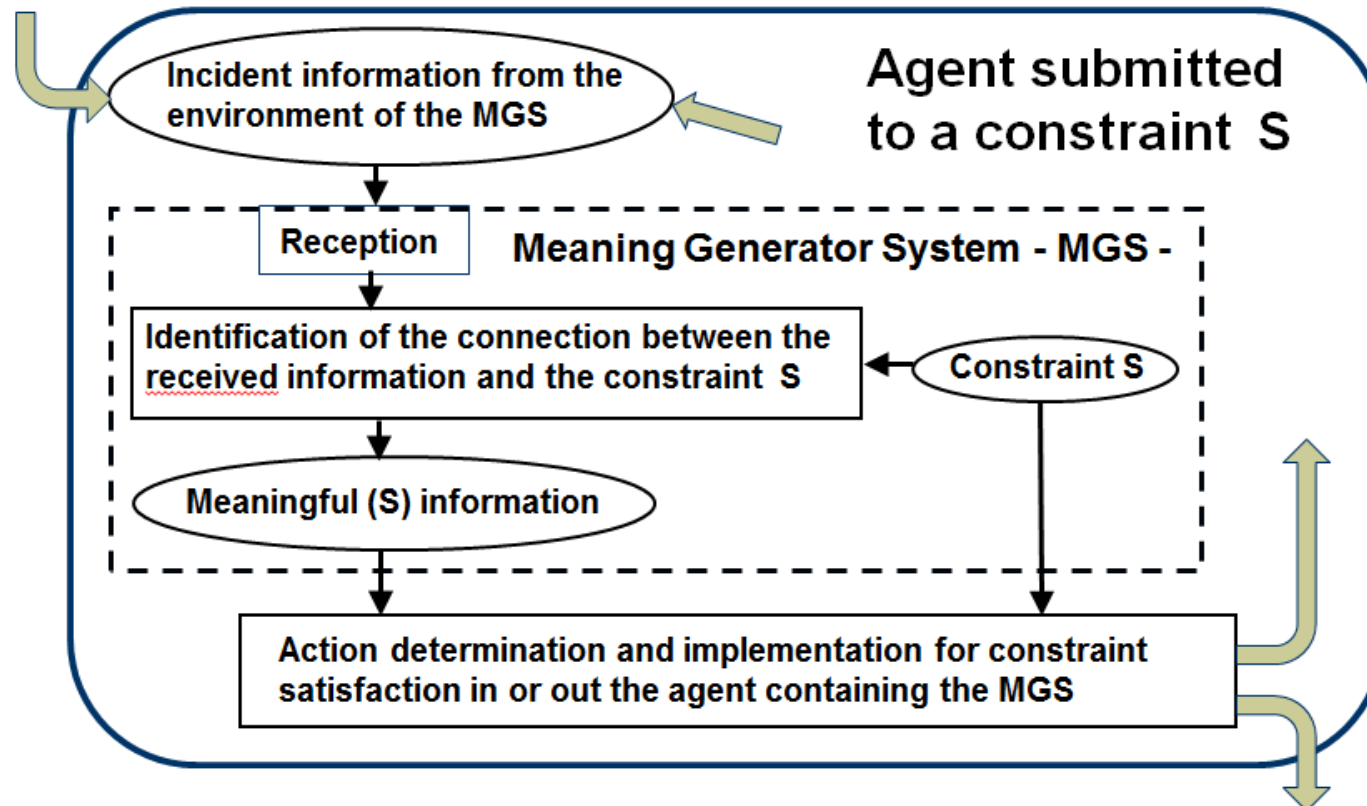
Animal Constraint:

- Stay alive (individual & species)
- Live group life

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3) The Meaning Generator System (1/2) (<https://philpapers.org/rec/MENCOI>)



*** Generated meaning (meaningful information):**

- Is the connection between received information and internal constraint.
- Leads to action implementation for constraint satisfaction.
(action: physical, biological, mental. Can be in or out of agent).

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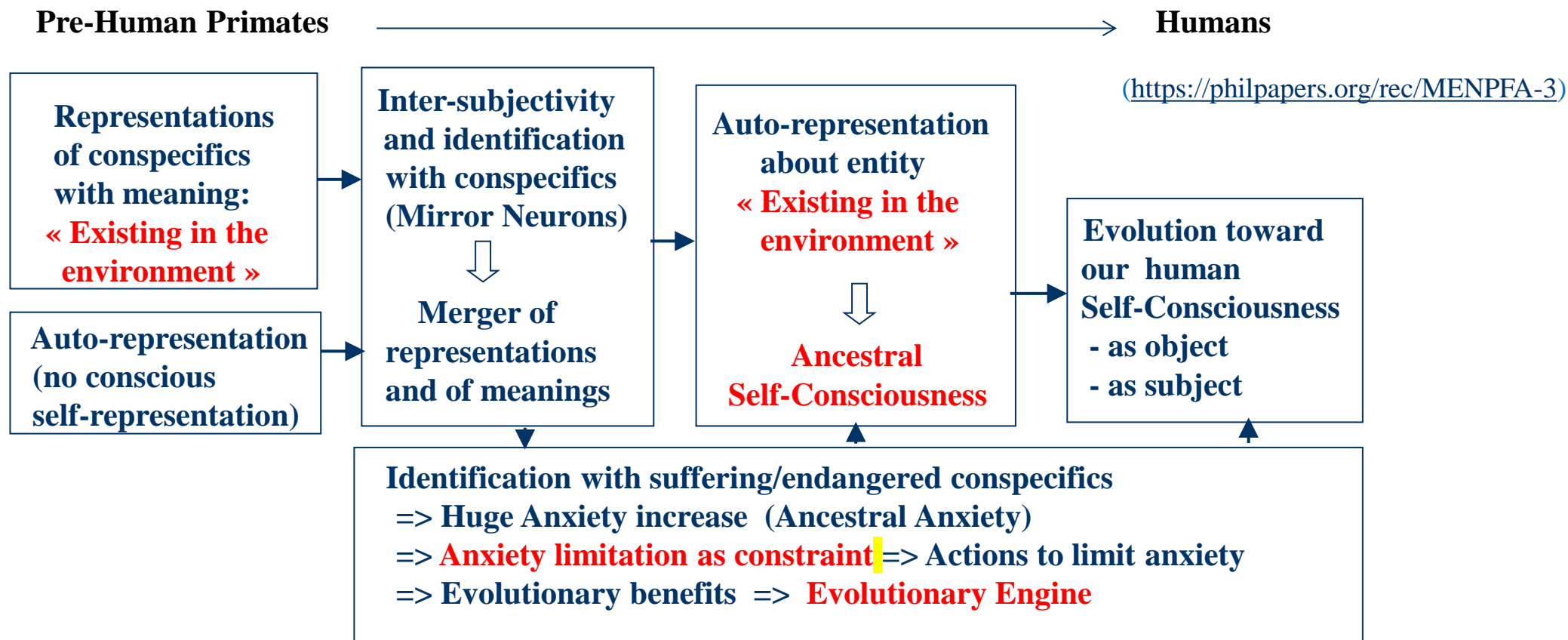
3) The Meaning Generator System (2/2)

- * MGS => What the meaning is and what the meaning is for**
- * MGS: system approach & evolutionary usage. Agents: Animals, Humans, Artificial agents.**
- * MGS: entry point for philosophy of mind.**
 - Evolutionary scenario for self-consciousness (<https://philpapers.org/rec/MENPFA-3>).**
- * MGS usable for AAs with constraints from human designer (derived constraints).**
- * MGS => Normativity, Teleology, Agency, Autonomy**
 - Normativity: constraint can be satisfied or not.**
 - Teleology: constraint to be satisfied => final cause.**
 - Agent: “entity submitted to internal constraints and capable of action to satisfy the constraints”.**
 - Autonomous agent as agent that can satisfy its constraints by its own.**
- * MGS => Meaningful representations as networks of meanings.**

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4) MGS and Evolution. Human Self-Consciousness and human constraints



* Evolutionary scenario => Self-consciousness is unconsciously interwoven with anxiety management.

* Unconscious anxiety limitation processes as key drivers of human minds. Much more than assumed so far.

* Human Constraints: **Limit anxiety, Look for happiness, Valorise ego, ...**

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5) Meaning generation and artificial intelligence

<https://philpapers.org/rec/MENTTC-2>

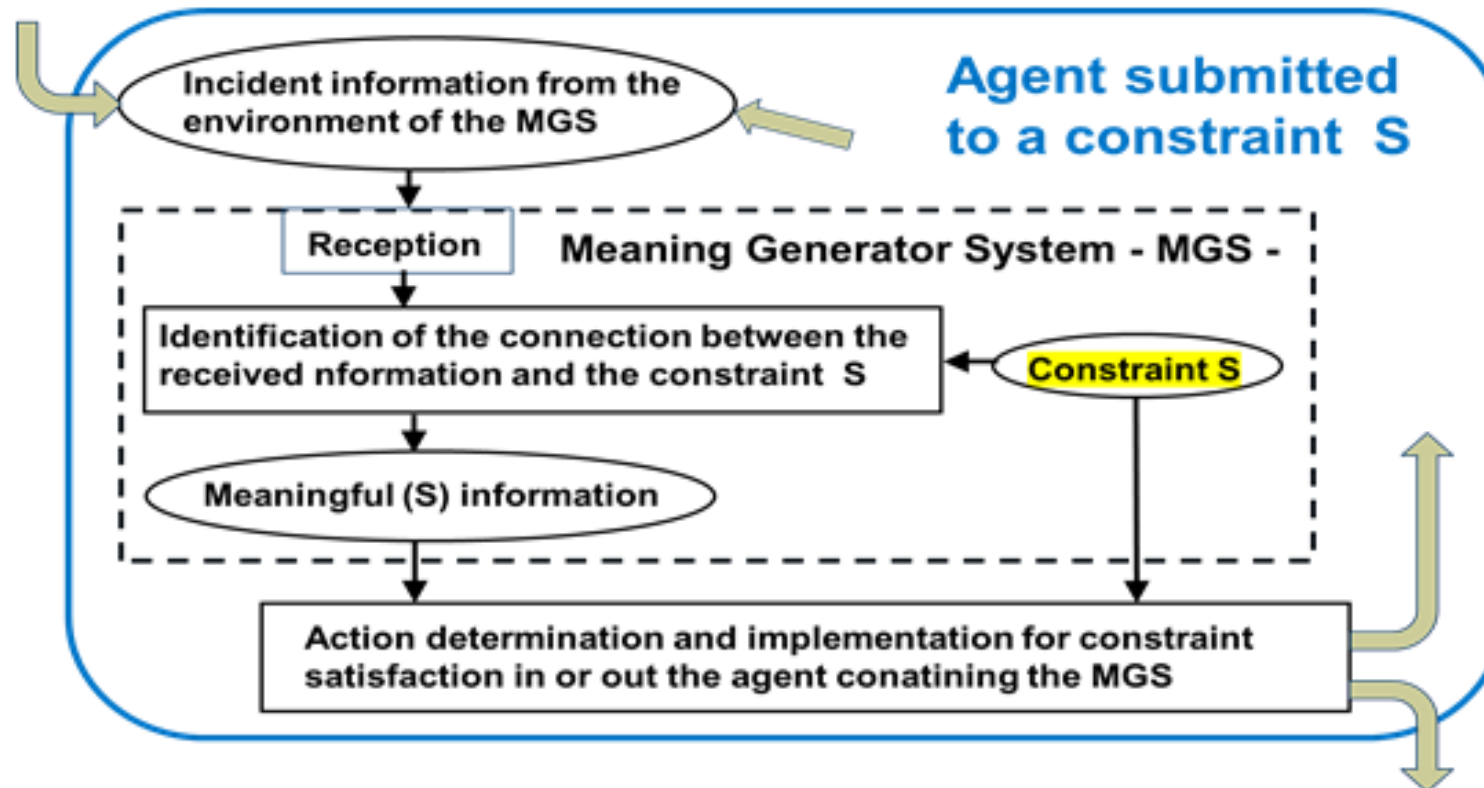
- * MGS usable for Artificial Agents with constraints from designer (derived constraints).
Derived constraints are different from intrinsic (natural) constraints that exist in living entities.**
- * MGS usable for Turing Test, Chinese Room Argument, Symbol Grounding Problem :**
 - To understand a question is to give it a meaning, to generate a meaning.**
 - Animal or human constraints cannot today be transferred to AAs.**
 - => With today AI:**
 - TT is to fail.**
 - CRA is right.**
 - SGP has no solution.**
- * Future (strong) AI may come from extension of animal/human constraints to AAs.**
 - Living AAs may be necessary => artificial life as key for AI.**
- * Ethical concerns to come up from AAs dealing with derived human constraints.**

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6) MGS as a system for animals, humans and AAs. Overall perspective

(<https://philpapers.org/rec/MENCOI>)



MGS: System approach

Animal constraints:

- (Intrinsic)
- *Stay alive (individual & species)*
- *Live group life*

Human constraints:

- (Intrinsic)
- *Limit anxiety*
- *Look for happiness*
- *Valorize ego,*

Artificial Agent constraints:

- (Derived)
- *As programmed*

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7) Constraint satisfaction in a pre-biotic universe

- * Prebiotic universe submitted to ubiquitous physico-chemical laws.**
- * Presence of random and short local Far from Thermodynamic Equilibrium states (FfTE).**
- * Hypothesis of a local 'maintain status' constraint applied to a local FfTE state.**
 - => Local FfTE maintained status** (<https://philpapers.org/rec/BICAFA>).
 - (<http://www.mdpi.com/2078-2489/3/3/290/pdf>)
- * Introduces teleology, autonomy & reproduction at a pre-biotic level.**

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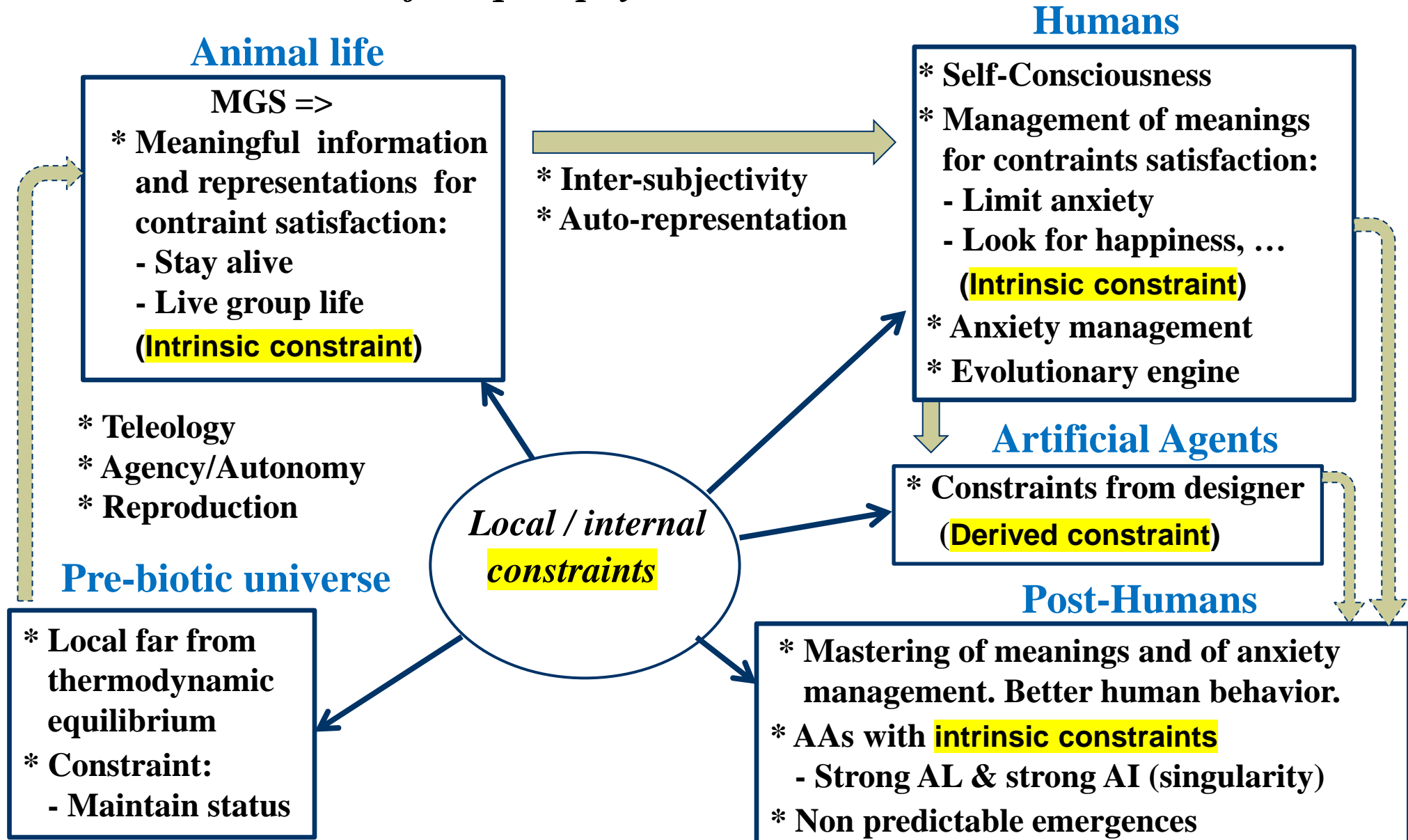
8) Constraints for possible post-humans

- * Clear enough understanding of human consciousness as interwoven with anxiety management => Post-humans with:**
 - Less unconscious anxiety management constraints.**
 - Behaviors less guided by unconscious anxiety limitations (Freudian drives, ...).**
 - More conscious mastering of anxiety management.**
 - Behaviors coming from more responsible human beings.**

- * Possible presence of AAs with new performances to cope with:**
 - Strong ALife (intrinsic autonomy) & strong AI (self-consciousness & free will). Singularity.**
 - Unpredictable behaviors (non computable determinism, unpredictable emergences).**

- * => New ethical and behavioral constraints**

Universe of ubiquist physico-chemical law



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9) Conclusions

- * **Processes of local constraint satisfaction from a pre-biotic world up to a possible post-human one.**
- * **Prebiotic universe: maintain status on a local FfTE.**
- * **Animal life & intrinsic constraints: stay alive (individual & species), live group life.**
- * **Humans & intrinsic constraints: limit anxiety, look for happiness, valorise ego, ...**
 - **Evolutionary scenario => Self-consciousness is unconsciously interwoven with anxiety management.**
 - **Unconscious anxiety limitation processes as key drivers of human minds. Much more than assumed so far.**
- * **Artificial Agents with derived constraints: as programmed by human designer.**
- * **Post humans with behavior less guided by unconscious anxiety limitation constraints.**
 - **More conscious anxiety management processes. More responsible human beings.**
 - **Strong ALife (intrinsic autonomy for AAs) & strong AI (AA free will). Ethical constraints. Singularity.**
 - **Unpredictable AA behaviors (non computable determinism, unpredictable emergences).**

Continuations

- * **Consider local constraint satisfaction as an evolutionary thread.**
- * **Investigate physical explanations of maintained local far from thermodynamic equilibrium status.**
- * **Analyze the evolutionary build up of unconscious anxiety limitation processes as part of human nature.**
- * **Relate some human psychological diseases to anxiety management (as escapes from unbearable anxiety).**
- * **Work to be done on the evolutions of ancestral anxiety and ancestral self-consciousness into our human mind.**