

# The Ethical Validity of Human Enhancement: A Preliminary Framework for Objective Ethics

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## Introduction

As science and technology continue to progress, so too does the extent to which they affect society, causing the need for rational decision making to be paramount, especially with regards to ethics.

Key issues:

- Ethical decisions in biomedical science are currently approached in a largely subjective, unscientific and non-optimal manner.
- Subjective moral judgments have been found prone to illogical cognitive biases, of the sort common to human reasoning [1], bringing about further concerns over the manner in which ethics are addressed in society.
- Increases in human-robot interaction and the prospect of a negative Singularity have raised questions over how to implement ethics in robots, however to date little practical work has been done towards this end [2].
- Ethics and rights have started to be discussed with regards to how these will change with future technologies [3,4]. Research into how the scientific understanding can affect ethics has also raised awareness of the link between the two fields [5,6]. The evolving concepts and ideas in the work of James Hughes, Susan Blackmore, John David Garcia and the Extropy Institute have formed some of the groundwork in researching what a formalised and objective ethic would consist of.

This research aims to formulate an objective, scientifically-based system of ethical valuation, placing consciousness and consciousness-conducive complexity as the fundamental units of value, and ultimately address the subjective biases in ethics which value consciousnesses, objects or processes for properties other than their instrumentality for survival.

## Scientific Justification

### Genes and Memes

- Genes and memes function in a manner that allows them to best survive.
- For low complexity structures there is no distinction between replication and individual survival.
- Cumulative and complex structures such as consciousness can presently not be replicated – hence the emergence of memplexes that value the individual.
- By extension, ethics can be viewed as an emergent property of genes and memes, and it is proposed that these must now be optimised to reflect survival of the individual.

### Effective Consciousness

- Due to the many subjective and convoluted interpretations of conscious, an objective ethic needs to define consciousness in a scientific and empirical manner.
- There is growing evidence supporting the embodied theory of cognition.
- Cognitive processes emerge from complex sensorimotor interactions with the environment [7].
- It is claimed that consciousness is one of these emergent processes and is both wholly physical and quantifiable in nature.

### Thermodynamics and Complexity

- Exergy: Maximum amount of useful work possible before reaching thermodynamic equilibrium.
- Thermodynamic equilibrium equates to cessation of consciousness, therefore exergy management should be considered imperative to survival and ethics.

### A Preliminary Model

Let  $X$  represent the set of all possible  $x$  (where  $x$  is any process, action, event, etc.), then the most ethical  $x$  is given by

$$\max_{x \in X} U(x)$$

for the objective function

$$U(x) = \left[ \sum_{i=1}^n \Psi(i, x) \cdot w_i \right] + \Delta B_x \cdot \beta_B$$

where  $n$  is the number of consciousnesses affected by  $x$ ;  $\Psi w$  and  $\Delta B_x$  are the weighted changes in consciousness and exergy as a result of  $x$ . The weight for consciousness is given as the average ethical value for that consciousness

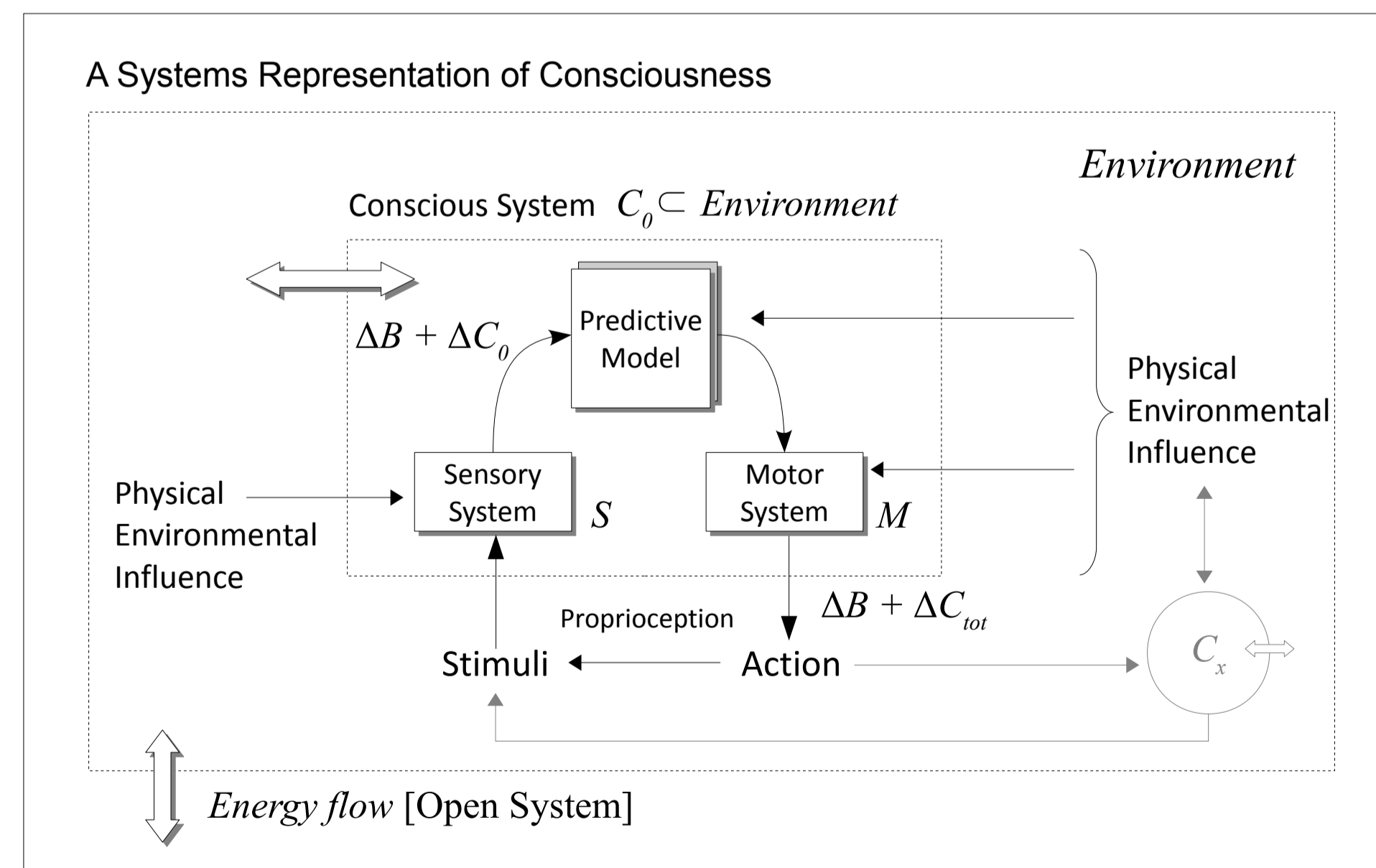
$$w = \bar{U} \cdot \beta_w$$

If  $D$  is a set of observations for consciousness, then the change in consciousness due to  $x$  can be given as

$$\Psi(i, x) = \Delta C_i \cdot P(\Delta C_i | x \cap D) - \Delta C_i \cdot P(\Delta C_i | \bar{x} \cap D)$$

Let  $S$  be the total sensory capabilities of a system,  $M$  the total motor capabilities, and  $P(H|D)$  the degree to which a system can make accurate predictions, then the effective consciousness is defined as

$$C = S \cdot M \cdot P(H|D)$$



## Conclusion

- It has been shown that a scientifically objective system of ethics is possible to construct.
- A scientifically objective ethic will undoubtedly be critical when trying to answer questions regarding the permissibility of certain actions, especially when considering future medicine, technology and social issues. This is especially true due to the large putative impact of futurist issues on life.
- If research into objective ethics continues, it is claimed that it will be possible to make statements about whether certain future events such as human enhancement or healthspan extension will be objectively good or bad for individuals involved. Continued research on this subject and utilisation of the findings might also limit the political and subjective agenda-driven mentality of policy making.
- Lastly, objective ethical decision making, due to its integral and implicit link to survival, would potentially have the effect of allowing observing entities to avoid many existential risks and also living longer.

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