

Evolutionary Advantages of Inter-Subjectivity and Self-Consciousness through Improvements of Action Programs

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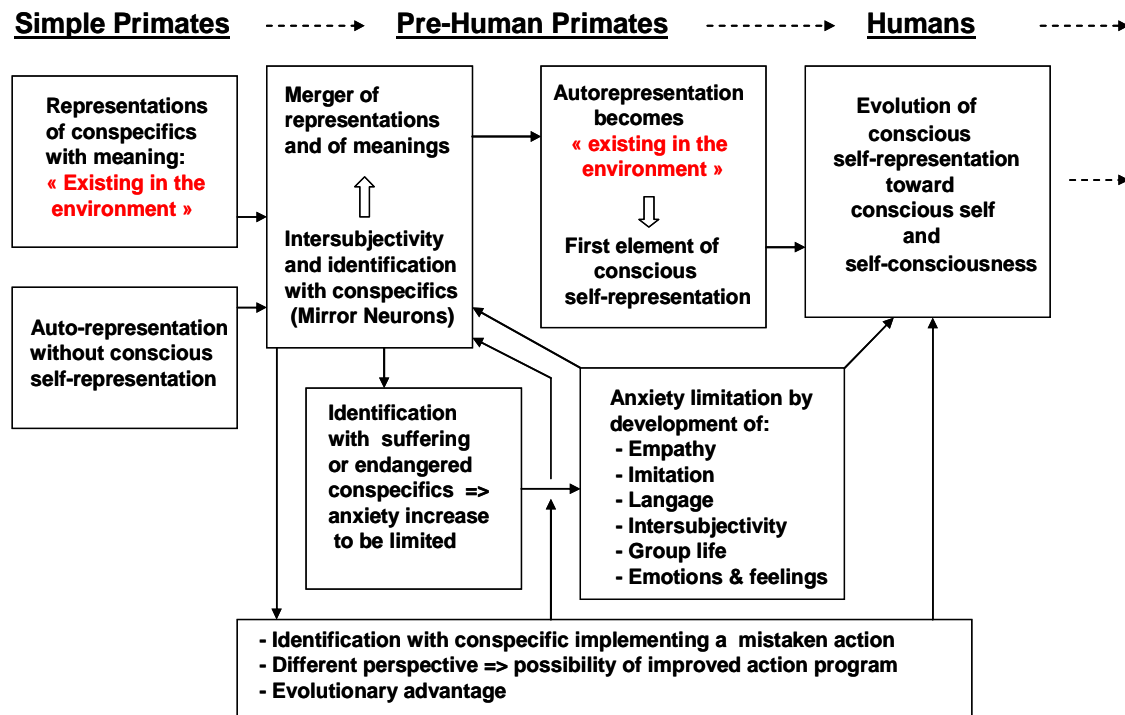
A) Evolutionary advantages of inter-subjectivity and self-consciousness:

* Anxiety limitation process [1, 2, 3]:

- Inter-subjectivity and identification with suffering/endangered conspecifics => anxiety increase.
- Anxiety limitation by development of Empathy, Imitation, Language, Group life, Inter-subjectivity.
- Positive feedback. Evolutionary advantage.

* Action programs improvements:

- Inter-subjectivity => agent identifies with observed conspecific.
- Agent feels as her own a mistaken action implemented by the conspecific.
- Agent perceives the mistaken action from her position. Different perspective => possibility of new action programs that avoid the mistake.
- Improved action programs are available to the agent. Transfer to conspecifics through imitation processes.
- Evolutionary advantage.



B) Possible link between self-consciousness and phenomenal consciousness:

* Evolution of the non self-conscious auto-representation towards conscious self-representation:

- Contains primitive versions of self-consciousness that can introduce pre-reflective self-consciousness [4].

C) Continuation:

- * Describe conscious self-representation and self-consciousness by meaningful representations.
- * Deduce a possible evolutionary nature of pre-reflective self-consciousness.
- * Analyze the evolutionary roots of inter-subjectivity in animals.
- * Analyze possible application to artificial systems and robots.

References:

- [1] TSC2005: <http://cogprints.org/4533/>, [2] TSC2006: <http://cogprints.org/4843/>,
[3] ASSC10 -2006-: <http://cogprints.org/4957/>, [4] ASSC12 -2008-: <http://cogprints.org/6120/>