The Semantic Process as a Reinforcement Learning Algorithm

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What will identify the Semantic Process as a reinforcement learning algorithm?

- Multiple goals / agents working against one another
- Evolution in time
- Maintain environment state
- Updates of the environment state at every moment in time and learn from past actions of the agents
- Evolution of a steady state
- Maximize some (possibly unknown) cumulative objective over time

The Benefits of building a mathematical model as a Reinforcement Learning Algorithm

- The model becomes easily extensible
- The execution speed of the model is high as the most time-consuming part is updating each agent state and the environment state at discrete moments of time
- The model is relatively easy to maintain

Alternatives management can be formulated as Reinforcement Learning process.
Activity scheduling can be formulated as Reinforcement Learning process as well.

Agents are created based on ranked concerns. Every agent deals with a specific concern. Agents are competing for attention in a decision-making process. Each agent maintains a state recording previous decisions and the participations of the other agent and its own vote in the decision-making process. Each decision is validated by a target data which is analyzed and ranked with proximity score for each decision.

Multi-Agent reinforcement learning algorithm for making an Executive Decision

As part of this section there will be brief discussion on semantic structure execution process which will bring details relevant to the current discussion which focuses on finding a good way to choose a semantic structure for execution among many candidates.

Let us consider the following scenario:
We have a set of semantic structures $S_1, S_2, \dots, S_k$ in the current context C. Each of those semantic structures $S_i, i = 1..k$ has inbound associations $AS^-_{i,1}, AS^-_{i,2}, \dots, AS^-_{i,m_i}$ and outbound associations $AS^+_{i,1}, AS^+_{i,2}, \dots, AS^+_{i,m_i}$ within the current context C and outside of it (contexts $C_{i,1}, C_{i,2}, \dots, C_{i,k_i}$).