

Conscious cognition

Conscious information processing differs from non-conscious. Understanding the difference could facilitate developing more mind-like Artificial Intelligence. The 'predictive coding' perspective suggests that cognising entails guessing about reality, regardless of our momentary priorities in paying attention. Based on relevant experience, we simulate, then check; and if no-match, refine our guess. Likewise for action guidance, which encompasses cognitive guessing. Checking for optimal effectiveness means withholding action as outcomes are simulated, but originating priorities must be responsive to feedback, consequently requiring separation from simulations. Accordingly, the familiar feeling of interested subjectivity, identified as detachment from objective reality, may potentially be incorporated by AI.

Abstract

Cognitive sensing or imagining entails attentional data-gleaning through the senses, including memory, but how do conscious and non-conscious attending differ? This study aims to illuminate the difference via two prominent views; the Predictive Processing Model stemming from Karl Friston, and the Biosemantic project of Ruth Millikan; with analysis of 'subjective' attending. Predictive Processing theories portray cognition as probabilistic error-correction based on a multi-contextual 'reality model' developed by inference regarding actions and information sources relevant to resolving an organism's disequilibria states, or satisfying wants. Prioritised wants are satisfied through actions whose suitability derives from past experience. Sensitivity to contextually salient data, however, results in diverse actions being simultaneously prioritised and withheld while resourcing new data for optimal action selection. Such dilemmas trigger the reality model to generate predictive simulations for comparing sensorially &/or against memory qua consistency. Alternative actions are also weighed for 'satisfaction value' in potentially broader contexts.

Biosemantic cognition involves systemic producer-consumer 'representations' possessing both qualitative and interrelational aspects. Action-selecting produces simulations essentially being reviewed for veracity and consequences, feeding back into revision of current priorities. In this view, originating action priorities must remain modifiable in response to feedback and hence quarantined from triggering interrelations, in the production and consumption processes, determining their relevance. That is, action motivating wants are necessarily separated from predictive simulations. These circumstances potentially create the familiar feeling of subjectivity, identifiable as detachment from objective reality, which may be incorporated in AI. Thus, exploring these models could progress the development of mind-like Artificial General Intelligence.