

Presented intention and free will

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Free will has long been a topic of philosophical and scientific debates for humanity. From the perspective of neuroscience, Benjamin Libet et al. introduced three concepts that have been commonly used for empirical measurement: the timing of action execution (M-time), the timing of intention (W-time), and the onset of readiness potential (RP) [1]. His following studies suggested that the RP onset precedes the W-time, which implies that conscious will does not initiate a specific voluntary act but selects and permits presented options that arise unconsciously [2]. The notion that the brain automatically creates intentions from physiological processes and sends signals before one can consciously realize them, without doubt, triggered numerous discussions on the nature of free will.



Illustration. Thinking about a thinking brain (AI-generated with Stable Diffusion)

A recent study questioned Libet's experiments and interpretations, stating that the timing of intention awareness can be influenced by experimental procedures [3]. Their study shows that training (prior experiences reporting one's timing of intention) can significantly affect when the W-time is reported. They did not find a direct link between the RP onset and the W-time. While the measured timing of the RP was stable, intention awareness was reported at different points in time depending on the measured subject. Dmitry Bredikhin, the lead author of this study, emphasized the complexity of the concept of free will. He suggested that neuroscience should be careful with making interpretations toward life attitudes and develop novel approaches to further our understanding of how the brain produces decisions [4].

From the perspective of information processing, an intention and the awareness of said intention are two processes with different mental outcomes [5]. The outcome of an intention's process is a thought (subjective value) corresponding with a behavior (where actual activation depends on the context-specific behavioral threshold). The outcome of the awareness process is a comparative value of the examined thought concerning the "self" as a mental construct. A behavior can be consciously intended, unconsciously decided, or anywhere in between. In other words, an intention can be presented for awareness (connected to the "self" construct and thus representing conscious subjectivity) to various degrees. Furthermore, a mental simulation corresponding to an objective occurrence heavily depends on available inputs; thus, prior experiences serve as feedback that updates both the direction and magnitude of the subjective value optimization process [5]. Such a mental simulation can occur way ahead of an intended behavior in terms of timing, or it can occur afterward in a retrospective manner, whichever fits the current demands of the mind.

We may romanticize this scientific matter, thinking about a fierce battle between primitive automatic instincts and advanced cognitive freedom. However, for some people in society, these two opposite concepts basically hold the same ultimate meaning regardless of what the brain does: "Wherever there is food, there is freedom!" [6].

References

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