Timing the onset of deliberate and arbitrary choices

Libet (1983; 1985) showed that information about action onset exists in the brain before participants report the conscious intention to act. This led to claims that all decisions are made unconsciously, challenging concepts of free will and moral responsibility. In that paradigm, participants' subjectively timed intention onset and movement onset (W and M time, respectively). Importantly, the decisions they studied were arbitrary and bereft of consequences. Here we investigated the extent to which W and M time generalize to deliberate and consequential decisions.

In our study, participants first tasted 10 different drinks and rated their palatability. Then, in the main part of the experiment, they were shown pairs of drinks, asked to make a choice between them and report W and M times. The experiment included three decision types in a counterbalanced, blocked design. In deliberate-decision blocks, participants drank their chosen drink from a randomly selected trial at the end of the block, to motivate deliberation. In arbitrary-different blocks, participants were again shown two different drinks. However, in order to motivate non-deliberate (arbitrary) choice, participants drank both drinks from the randomly selected trial at the end of each block, regardless of their choice. In arbitrary-same blocks, the pair of drinks consisted of the same drink twice, motivating arbitrary selection through a different mechanism. Randomly interleaved memory catch trials throughout the experiment ensured subjects paid attention and better equated cognitive resources between the conditions.

Participants consistently reported earlier W times in deliberate decisions compared to both arbitrary types. M time was reported earliest for deliberate decisions, incrementally later for arbitrary-different, and later still for arbitrary-same decisions. We found that these results were consistent with a modified drift-diffusion model of these decisions. This challenges the generalizability of the Libet results from arbitrary to deliberate decisions.