Record Nr. UNINA9910136807703321
Autore Richard P. Heitz

Toward a Unified View of the Speed-Accuracy Trade-Off: Behaviour,

Neurophysiology and Modelling

Pubbl/distr/stampa Frontiers Media SA, 2016

Descrizione fisica 1 online resource (160 p.)

Collana Frontiers Research Topics

Soggetti Neurosciences

Lingua di pubblicazione Inglese

Formato Materiale a stampa

Livello bibliografico Monografia

Sommario/riassunto

Titolo

Everyone is familiar with the speed-accuracy trade-off (SAT). To make good choices, we need to balance the conflicting demands of fast and accurate decision making. After all, hasty decisions often lead to poor choices, but accurate decisions may be useless if they take too long. This notion is intuitive because it reflects a fundamental aspect of cognition: not only do we deliberate over the evidence for decisions, but we can control that deliberative process. This control raises many questions for the study of choice behaviour and executive function. For example, how do we figure out the appropriate balance between speed and accuracy on a given task? How do we impose that balance on our decisions, and what is its neural basis? Researchers have addressed these and related questions for decades, using a variety of methods and offering answers at different levels of abstraction. Given this diverse methodology, our aim is to provide a unified view of the SAT. Extensive analysis of choice behaviour suggests that we make decisions by accumulating evidence until some criterion is reached. Thus. adjusting the criterion controls how long we accumulate evidence and therefore the speed and accuracy of decisions. This simple framework provides the platform for our unified view. In the pages that follow, leading experts in decision neuroscience consider the history of SAT research, strategies for determining the optimal balance between speed and accuracy, conditions under which this seemingly ubiquitous phenomenon breaks down, and the neural mechanisms that may

implement the computations of our unifying framework.	