Unconscious Processes

11th May, 2010 - 10:30am-5pm

Dr Gustav Kuhn - Brunel University
The Science of Magic

Over the centuries, magicians have learned to distort our conscious awareness of the world in truly phenomenal ways. Many of the techniques used to create these illusions share similarities with topics investigated by Psychologists and Neuroscientists. For example, magicians use misdirection to systematically orchestrate people's attention so as to manipulate what they see. Misdirection may therefore provide us with valuable insights into visual attention and awareness. Alternatively, magicians may manipulate our perception through the use of illusions, which may provide insights into the effects of top-down processing on perception. In this talk I will draw parallels between magic and science, and demonstrate how these principles can be investigated scientifically.

Prof Zoltan Dienes - Sussex University
Subjective Measures of Unconscious Knowledge

Given that a conscious mental state is a state which we are conscious of being in, I will argue for the use of subjective measures to determine whether people know consciously or unconsciously. The use of verbal reports and of gambling as subjective measures will be discussed. The use of subjective measures to demonstrate unconscious knowledge will be illustrated by data on how people come to perceive strings of letters as being well formed or not (artificial grammar learning paradigm) and the procedural knowledge people use to catch a cricket ball. A distinction will be made between knowledge of the structure of a domain that enables skilled interaction with the domain (structural knowledge) and knowledge that an item has relevant structure (judgement knowledge). I will illustrate how when judgment knowledge is conscious, structural knowledge can be conscious or unconscious by subjective measures, using data from the artificial grammar learning paradigm. Finally, cross cultural differences in the acquisition of unconscious structural knowledge are explored.

Professor Axel Cleeremans - Université Libre de Bruxelles
The Reach of the Unconscious

A great conceptual pendulum oscillates, with a period of about 30 or 40 years, over our understanding of the relationships between conscious and unconscious information processing. Its path delineates the contours of the unconscious mind as well as its contents: Sometimes smart and defining the very fabric of the mind, the unconscious is at other times relegated to taking care of little more than our bodily functions. At this point in time, the pendulum finds itself hovering rather steadily on the side of those who think so many functions are served by the unconscious that they even question the necessity of consciousness.

Here I will suggest that the pendulum has swung a little too far, and illustrate the argument with recent experimental findings that document how challenging it may be to arrive at a satisfactory conception of the relationships between conscious and unconscious information processing. I will focus on two recent studies, one concerning visual awareness, and the other on decision-making. Both are suggestive that the specific methods we use, as well as the manner in which we interpret the data, are of profound importance with respect to the conclusions we draw about the power of the unconscious.

The visual awareness study (Timmermans, Sandberg, Overgaard & Cleeremans, in press) compares three measures of subjective awareness when participants are exposed to both subliminal and supraliminal stimuli: The Perceptual Awareness Scale (PAS), through which participants are asked to rate the clarity of their visual experience; confidence ratings, through which participants express their confidence in their identification decisions, and Post-decision wagering, in which participants place a monetary wager on their decisions. We found support for the idea that PAS seems to be the most exhaustive measure of awareness. We also found that above-chance performance in the absence of subjective awareness, but such unconscious knowledge only contributed to performance when conscious knowledge was observed as well.

The decision-making study (Waroquier, Marchiori, Klein & Cleeremans, in press) was an attempt to replicate Dijksterhuis et al. (Science, 2006)'s finding that complex normative decisions (e.g., choosing a car or an apartment) are best made without conscious deliberation. This has led to the idea that "unconscious thought" not only exists, but also often results in superior information processing, specifically when the required decisions involve the processing of many attributes. We take issue both with the theoretical claims that underpin Dijksterhuis' "Unconscious Thought Theory" and with the relevant empirical findings. We report on five experiments (n = 529) inspired from the

original design, in which participants were asked (1) to process information about cars by learning about their different attributes (e.g., "The Hatsun has a powerful engine"), and (2) to choose the best car after given a chance to engage in deliberate, conscious thinking about the cars ("conscious thought" condition) or after being distracted through performing an anagram solving task ("unconscious thought" condition). Experiments 1, 2, and 3 respectively offered conceptual, identical, and methodologically improved replications of Dijksterhuis & al. (2006). We failed to find any evidence that decisions made after a period of distraction are better than after a period of conscious consideration. Experiment 4 showed that a majority of participants had in fact determined their attitudes towards each car before they engaged in the deliberation or distraction tasks ‹ a finding that explains the previous null results. In Experiment 5 shed further light on the role instructions play in this situation. We found that participants instructed to form an impression made better decisions after distraction than after deliberation, so replicating earlier findings. However, we also found that decisions made immediately were just as good as decisions made after distraction, which suggests (1) that people had already made their decision during information acquisition, (2) that no further thinking occurs during distraction, and (3) that mulling about one's first impression can deteriorate decision quality. Strikingly, in another condition that should have favored unconscious thought, considered decisions were better than those made immediately or after distraction. These findings were replicated in a field study. Thus we suggest that the superiority of decisions made after distraction results not from unconscious thought, but rather from the fact that conscious deliberation can deteriorate first impressions formed online during information acquisition. While not denying that complex unconscious information processing exists, we conclude that it is not as powerful as previously claimed and that there is in fact no evidence for the idea that one can "think" without awareness.