Invisible facts and perceptual illusions – David Copperfield vanishing the Statue of Liberty

Description

Large facts can be made invisible

de Gardelle, V., Sackur, J., & Kouider, S.. (2009). Perceptual illusions in brief visual presentations. Consciousness and Cognition

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“We often feel that our perceptual experience is richer than what we can express. for instance, when flashed with a large set of letters, we feel that we can see them all, while we can report only a few. however, the nature of this subjective impression remains highly debated: while many favour a dissociation between two forms of consciousness (access vs. phenomenal consciousness), others contend that the richness of phenomenal experience is a mere illusion. here we addressed this question with a classical partial-report paradigm now modified to include unexpected items in the unreported parts of the stimuli. we show that even in the presence of unexpected pseudo-letters, participants still felt that there were only letters. additionally, we show that this feeling reflects an illusion whereby participants reconstruct letters using partial letter-like information. we propose that the feeling of seeing emerges from the interplay between partially accessible information and expectations. © 2009 elsevier inc. all rights reserved.”
Jazayeri, M., & Movshon, J. A.. (2007). A new perceptual illusion reveals mechanisms of sensory decoding. Nature

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“Perceptual illusions are usually thought to arise from the way sensory signals are encoded by the brain, and indeed are often used to infer the mechanisms of sensory encoding. but perceptual illusions might also result from the way the brain decodes sensory information, reflecting the strategies that optimize performance in particular tasks. in a fine discrimination task, the most accurate information comes from neurons tuned away from the discrimination boundary, and observers seem to use signals from these ‘displaced’ neurons to optimize their performance. we wondered whether using signals from these neurons might also bias perception. in a fine direction discrimination task using moving random-dot stimuli, we found that observers’ perception of the direction of motion is indeed biased away from the boundary. this misperception can be accurately described by a decoding model that preferentially weights signals from neurons whose responses best discriminate those directions. in a coarse discrimination task, to which a different decoding rule applies, the same stimulus is not misperceived, suggesting that the illusion is a direct consequence of the decoding strategy that observers use to make fine perceptual judgments. the subjective experience of motion is therefore not mediated directly by the responses of sensory neurons, but is only developed after the responses of these neurons are decoded.”
Smeets, J. B. J., Brenner, E., De Grave, D. D. J., & Cuijpers, R. H.. (2002). Illusions in action: Consequences of inconsistent processing of spatial attributes. Experimental Brain Research

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“Many authors have performed experiments in which subjects grasp objects in illusory surroundings. the vast majority of these studies report that illusions affect the maximum grip aperture less than they affect the perceived size. this observation has frequently been regarded as experimental evidence for separate visual systems for perception and action. in order to make this conclusion, one assumes that the grip aperture is based on a visual estimate of the object’s size. we believe that it is not, and that this is why size illusions fail to influence grip aperture. illusions generally do not affect all aspects of space perception in a consistent way, but mainly affect the perception of specific spatial attributes. this applies not only to object size, but also to other spatial attributes such as position, orientation, displacement, speed, and direction of motion. whether an illusion influences the execution of a task will therefore depend on which spatial attributes are used rather than on whether the task is perceptual or motor. to evaluate whether illusions affect actions when they influence the relevant spatial attributes we review experimental results on various tasks with inconsistent spatial processing in mind. doing so shows that many actions are susceptible to visual illusions. we argue that the frequently reported differential effect of illusions on perceptual judgements and goal-directed action is caused by failures to ensure that the same spatial attributes are used in the two tasks. illusions only affect those aspects of a task that are based on the spatial attributes that are affected by the illusion.”

Category

1. General

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