



Colour perception and colour cognition: Revisiting classical findings of categorical influences on perception



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One of the longest-lasting debates in psychology is how different psychological functions, such as cognition or perception, influence each other. Are they largely independent, with perception providing the inputs into cognition, or can our concepts shape the way we perceive the world? In this debate, studies on colour categorisation in speakers of languages with different colour vocabularies have always played a key role. This is not surprising, as colour is a unique perceptual domain in which a continuum of perceptual representation is divided into multiple distinct, categorically-labelled areas. If speakers of a language with an additional categorical boundary have an advantage in comparison to speakers that lack this boundary, this provides evidence of cognition influencing perception. For example, English has a single term for 'blue' while Russian instead has two distinct terms, 'sinij' and 'goluboj', which refer exclusively to dark and light blues. In two recently conducted studies, we re-evaluated the evidence that these additional colour terms can alter colour perception and associated neural processing at an early stage. We failed to replicate previous work showing reaction time advantages and early differential activations in speakers with two 'blue' categories, instead finding that the original results were likely to stem from uncontrolled, low-level effects of contrast processing which were uneven between the two colour-categorical conditions. Thus, it appears that colour perception and colour cognition overlap much less in their processing mechanisms than generally assumed and that a more nuanced model of perception/cognition interaction is required.

Dr Jasna Martinovic is a senior lecturer in Psychology at the University of Edinburgh. Jasna's research concerns the mechanisms that transform the basic visual information that we sample from the environment in the form of luminance and colour contrast into a representation of our environment. This might seem like a trivial question, but the rich world of objects that we experience in everyday life is derived from basic signals about brightness and chromaticity which subsequently get processed by structurally and functionally complex areas of our brain. Jasna's work relies on psychophysical and electroencephalographic (EEG) methods and aims to characterise the neural mechanisms that enable such synergistic processing of luminance and chromatic information. She is particularly interested in how colour and luminance signals feed into mid and higher-level stages of perception, as well as how they are sampled by visual attention. More recently, she also started being interested in categorical effects on colour perception and in colour appearance.

