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Unlearning to See: Linking the Perceptual and Clinical Effects of Psychedelic Drugs

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Abstract

Controlled clinical trials using LSD, psilocybin, ayahuasca to treat major mood disorders and addictions have recently achieved significant results. Psychedelic drugs cause acute alterations in visual object perception, where object borders within the visual scene exhibit illusory rhythmic movements. What is the relationship between the perceptual effects and the clinical efficacy of psychedelic drugs? Here, I sketch a novel hypothesis to link the perceptual phenomenology of psychedelic drugs with their clinical efficacy. I propose that psychedelics temporarily suspend statistical regularities (Bayesian priors) accumulated through past experience across perceptual, affective, and cognitive domains of neural information processing. This temporary unlearning of established priors can explain both the destabilization of visual perception and the potential for psychedelics to disrupt unwanted patterns of thinking and emotion associated with mood disorders and addictions. I support these hypotheses with plausible neurobiological mechanisms and empirical data from neurophysiological and clinical studies with psychedelic drugs in humans.