

## ***Breaking down consciousness: hints for a conceptual clarification of the notion of “altered states” from psychedelics studies***

Alessio Bucci (University of Torino)

### *Abstract*

Both the scientific and the philosophical communities have yet to achieve consensus on a clear-cut definition of consciousness. However, the notion of “altered states” is being extensively used in the literature since the first attempts to define it (Ludwig, 1966). Given the absence of an agreement on the definition of a “baseline” of consciousness, it is particularly problematic for a taxonomy of consciousness to establish when a conscious state is altered or not (Jonkisz, 2012).

Classic examples of altered states are the ones induced through psychedelic substances (such as LSD, DMT, psilocybin, mescaline, etc.). A recent new wave of scientific studies about the effects of psychedelics on the brain and its ability to process information (Carhart-Harris et al., 2014; Roseman et al., 2014; Carhart-Harris et al., 2016; Tagliazucchi et al., 2016) has put pressure on current theories of consciousness to accommodate these results in a clearer picture. In this paper, I will discuss what these studies can tell us about our notion of consciousness and “altered states”. I will make use of two frameworks to interpret the studies: Predictive Processing (as proposed by Clark, 2016) and Integrated Information Theory (Tononi, 2015) and, in the spirit of Bayne et al. (2016), I will suggest that there are reasons to understand consciousness as a continuum of states in a multidimensional space rather than a linear progression of states with a baseline. Finally, I will argue that there are hints to revise our ontology of the mental, re-conceptualising the notion of altered states and baseline consciousness.

### *References*

- Bayne, T., Hohwy, J., & Owen, A. M. (2016). Are there levels of consciousness?. *Trends in cognitive sciences*, 20(6), 405-413.
- Carhart-Harris, R. L., Leech, R., Hellyer, P. J., Shanahan, M., Feilding, A., Tagliazucchi, E., ... & Nutt, D. (2014). The entropic brain: a theory of conscious states informed by neuroimaging research with psychedelic drugs.
- Carhart-Harris, R. L., Muthukumaraswamy, S., Roseman, L., Kaelen, M., Droog, W., Murphy, K., ... & Leech, R. (2016). Neural correlates of the LSD experience revealed by multimodal neuroimaging. *Proceedings of the National Academy of Sciences*, 113(17), 4853-4858.
- Clark, A. (2016). *Surfing uncertainty: Prediction, action, and the embodied mind*. Oxford University Press.
- Jonkisz, J. (2012). Consciousness: a four-fold taxonomy. *Journal of Consciousness Studies*, 19(11-12), 55-82.
- Ludwig, A. M. (1966). Altered states of consciousness. *Archives of general Psychiatry*, 15(3), 225-234.
- Roseman, L., Leech, R., Feilding, A., Nutt, D. J., & Carhart-Harris, R. L. (2014). The effects of psilocybin and MDMA on between-network resting state functional connectivity in healthy volunteers.
- Tagliazucchi, E., Roseman, L., Kaelen, M., Orban, C., Muthukumaraswamy, S. D., Murphy, K., ... & Bullmore, E. (2016). Increased global functional connectivity correlates with LSD-induced ego dissolution. *Current Biology*, 26(8), 1043-1050.
- Tononi, G. (2015). Integrated information theory. *Scholarpedia*, 10(1), 4164.