

The ticking composite mind: psychological, social and clinical consequences

Based on trained phenomenological experience, and on psychological and neuroscience studies human conscious cognition can be characterised by cooperating parallel processes which proceed in time in a discrete 'ticking' fashion. This model has natural implications for psychological well-being, and thus important consequences for society and mental health. The project aims to consolidate the literature (from phenomenology and science), and conduct two experimental studies. The applicant aims to valorise this work with dissemination, via publications, lectures, and a scientific workshop.

Trained phenomenology using insight meditation makes the practitioner aware that conscious cognition is essentially a cooperation of partly synchronous discrete processes [6], [9]. Flashes of consciousness come in rapid sequences of packages. This idea is consistent with experimental data from psychophysics (see the [2003, 2006] papers of van Rullen et al., with whom we are collaborating), neuroscience, and computational models. Common human experience is different: it is seemingly fluid and holistic, rather than discrete and compartmentalized. Using genetic or acquired defense mechanisms a person strives for stability. This may be obtained via neurohormones obtaining stable mind/brain-states, see [2], [3]. If these are based on desires and fears, then attachment results with undesirable side-effects. If they are based on mindfulness [4], [5], then one is essentially more free. The reason is that mindfulness acts on the meta-level, and does not interpret the phenomena as usual, but more 'syntactically'. This phenomenon of 'reflection' is well-understood in mathematics [1], [10] §6A.

The project aims to describe the psychological, social and clinical consequences of the systematic mismatch between the first-person perspective of human conscious experience as fluid and the underlying mechanisms which are discrete. This mismatch is caused by the powerful and useful illusion of a stable 'agency', viewing ourselves in control of our mind and body. By obtaining a transitory insight that such an agency is indeed an illusion, strong 'existential aversion' may result. The ticking and composite mind already implies a form of dissociation: seeing composition (in time and space), one sees the parts. Dissociation on its turn often is linked to anxiety and depression, Steinberg et al. [2001]. However, using mindfulness one can learn to handle these syndromes [8], Hofmann et al. [2010]. Material from the literature will be collected about loosing agency and be modelled.

During the project two longitudinal studies are foreseen, with assessments before and after an intensive meditation retreat. In the first study the degree of disidentification of meditators will be measured. This is a concept referring to a state of mind that is close to dissociation, but with the difference that the subject is fully and calmly aware of what is happening, because of developed mindfulness. During intensive meditation the apparent flow of consciousness is broken, which causes mentioned disidentification. Ethical approval is obtained for this study. In the second study, in collaboration with R. van Rullen (University of Toulouse) and A. Raffone (Sapienza University of Roma), the frequency of the mind-frames will be assessed via the so called Wagon-Wheel-Illusion.

Previous work on these lines, see [4], [5], [7], and [8], has been supervised by the applicant and colleagues at Radboud University in the Mind-Brain-Mindfulness project. The infrastructure of the Radboud Center for Mindfulness (EEG equipment) can be used for mentioned empirical studies.

References [Simply numbered references refer to 'Selected Publications'.]

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- R. van Rullen, C. Koch [2003]. Is perception discrete or continuous? *Trends in Cognitive Sciences* 7, 207–213.
- R. van Rullen, L. Reddy, C. Koch [2006]. The continuous wagon wheel illusion is associated with changes in electroencephalogram power at 13 hz. *Journal of Neuroscience* 26, 502–507.
- M. Steinberg, M. Schnall [2001]. *The Stranger in the Mirror: Dissociation-The Hidden Epidemic*. HarperCollins.