

02: What Are Metacognitive Feelings?

s.butterfill@warwick.ac.uk

Crude Picture of the Mind:

1. epistemic
2. motoric
3. perceptual

Dokic (2012, p. 302) lists some metacognitive feelings including:

- feelings of knowing or not knowing (Koriat 2000)
- tip-of-the-tongue experiences (Brown 2000; Schwarz 2002)
- feelings of certainty or uncertainty (Smith et al. 2003)
- feelings of confidence (Winman and Juslin 2005)
- feelings of ease of learning (Koriat 1997)
- feelings of competence (Bjork and Bjork 1992)
- feelings of ‘déjà vu’ (Brown 2003)
- feelings of rationality or irrationality (James 1879)
- feelings of rightness (Thomson 2008)

1. Familiarity

The feeling of familiarity is not a consequence of how familiar things actually are; instead it may be a consequence of the degree of fluency with which unconscious processes can identify perceived items (Whittlesea 1993; Whittlesea & Williams 1998).

Learning a grammar can also generate feelings of familiarity (Scott & Dienes 2008).

Subjects are also not doomed to treat feelings of familiarity as being about actual familiarity: instead subjects can use feeling of familiarity in deciding whether a stimulus is from that grammar (Wan et al. 2008).

2. Is there a metacognitive feeling of surprise?

‘the intensity of felt surprise is not only influenced by the unexpectedness of the surprising event, but also by the degree of the event’s interference with ongoing mental activity, [...] the effect of unexpectedness on surprise is [...] partly mediated by mental interference’ (Reisenzein 2000, p. 271). That is, the feeling of surprise is a sensational consequence of mental interference.

Foster & Keane (2015, p. 79) appear to offer a conflicting view: ‘the MEB theory of surprise posits that: Experienced surprise is a metacognitive assessment of the cognitive work car-

ried out to explain an outcome. Very surprising events are those that are difficult to explain, while less surprising events are those which are easier to explain.’ However, Foster & Keane (2015) is about reactions to reading about something unexpected, whereas Reisenzein (2000) measures how people experience unexpected events (changes to stimuli while solving a problem).

3. Is there a metacognitive feeling of agency?

Feelings of agency seem to arise from a number of cues including comparison between outcomes represented motorically and outcomes detected sensorily and the fluency of an action selection process (that is, the ease or difficulty involved in selecting one among several possible actions to perform motorically). The latter can be manipulated by, for example, providing helpful or misleading cues to action (Wenke et al. 2010; Sidarus et al. 2013, 2017).

‘the SoA [sense of agency] may provide an important experiential marker, both for alerting to the need for corrective action, and for guiding learning’ (Sidarus et al. 2017, p. 11)

4. What are metacognitive feelings?

Are they aspects of the overall phenomenal character of experiences which their subjects take to be informative about things that are only distantly related (if at all) to the things that those experiences intentionally relate the subject to?

Can metacognitive feelings be thought of as *sensations* in approximately Reid's sense? I.e. they are monadic properties of events, specifically perceptual experiences, which are individuated by their normal causes and which alter the overall phenomenal character of those experiences in ways not determined by the experiences' contents (so two perceptual experiences can have the same content but distinct sensational properties).

Like sensations, metacognitive feelings can lead to beliefs via learnt associations (compare Reid 1785a, Essay II, Chap. 16, p. 228; Reid 1785b, Chap. VI sect. III, pp. 164–5).

Dokic's 'Water Diviner' model: 'noetic [metacognitive] feelings ... are first-order bodily experiences, namely non-sensory affective experiences about bodily states, which given our brain architecture co-vary with first-order epistemic states, in such a way that they can be recruited, through some kind of learning or association process, to represent conditions hinging on relevant epistemic properties of one's own mind' (Dokic 2012, p. 317).

If this is right, metacognitive feelings do

not involve representation. As Dokic (2012, p. 310) suggests, 'the causal antecedents of noetic [metacognitive] feelings can be said to be metacognitive insofar as they involve implicit monitoring mechanisms that are sensitive to non-intentional properties of first-order cognitive processes.'

5. Why do humans have metacognitive feelings?

'metacognitive feelings ... allow a transition from the implicit-automatic mode to the explicit-controlled mode of operation.' (Koriat 2000, p. 150)

References

Dokic, J. (2012). Seeds of self-knowledge: noetic feelings and metacognition. In M. J. Beran, J. L. Brandl, J. Perner, & J. Proust (Eds.), *Foundations of metacognition* (pp. 302–321). Oxford University Press Oxford, England.

Foster, M. I. & Keane, M. T. (2015). Why some surprises are more surprising than others: Surprise as a metacognitive sense of explanatory difficulty. *Cognitive Psychology*, 81, 74–116.

Koriat, A. (2000). The Feeling of Knowing: Some Metatheoretical Implications for Consciousness and Control. *Consciousness and Cognition*, 9(2), 149–171.

Reid, T. (1785a). *Essays on the Intellectual Powers of Man*. Edinburgh: John Bell & G. Robinson.

Reid, T. (1785b). *An Inquiry into the Human Mind* (Fourth Edition ed.). London: T. Cadell et al.

Reisenzein, R. (2000). The subjective experience of surprise. In H. Bless & J. P. Forgas (Eds.), *The message within: The role of subjective experience in social cognition and behavior* (pp. 262–279). Hove: Psychology Press.

Scott, R. B. & Dienes, Z. (2008). The conscious, the unconscious, and familiarity. *Journal of Experimental Psychology: Learning, Memory, and Cognition*, 34(5), 1264–1288.

Sidarus, N., Chambon, V., & Haggard, P. (2013). Priming of actions increases sense of control over unexpected outcomes. *Consciousness and Cognition*, 22(4), 1403–1411.

Sidarus, N., Vuorre, M., & Haggard, P. (2017). How action selection influences the sense of agency: An ERP study. *NeuroImage*, 150, 1–13.

Wan, L., Dienes, Z., & Fu, X. (2008). Intentional control based on familiarity in artificial grammar learning. *Consciousness and Cognition*, 17(4), 1209–1218.

Wenke, D., Fleming, S. M., & Haggard, P. (2010). Subliminal priming of actions influences sense of control over effects of action. *Cognition*, 115(1), 26–38.

Whittlesea, B. W. A. (1993). Illusions of familiarity. *Journal of Experimental Psychology: Learning, Memory, and Cognition*, 19(6), 1235–1253.

Whittlesea, B. W. A. & Williams, L. D. (1998). Why do strangers feel familiar, but friends don't? a discrepancy-attribution account of feelings of familiarity. *Acta Psychologica*, 98(2-3), 141–165.