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Author Response: Emotional Episodes are Action Episodes

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Eder (2017) denounces boxology in mental-level explanations, the practice to represent mental mechanisms between inputs and outputs as a series of boxes (labeled nodes) that are connected with lines and arrows. Boxology can be a heuristic tool for analysis if is done with the right units. We agree that boxing emotion is not helpful, but we do think there is merit in boxing other things. Boxing emotion suggests an entity view of emotion, that is, the view that the set of emotions is an adequate scientific set, with instances that share a deep commonality. Talk about the relation between emotion, motivation, and action and talk about emotional and behavioral systems presupposes such a view. For instance, when Gendolla (2017) writes that he misses a truly motivational perspective, one that stipulates the various ways in which emotion influences motivation, this presupposes that emotion and motivation are different things. Likewise, when Nanay (2017), Scarantino (2017), Hochstetter and Wong (2017), and Blakemore and Vuilleumier (2017) put forward emotions as causes of actions or as influences in various stages of action episodes, this presupposes that emotion and action are different things. The separation of emotion from motivation and from action is incompatible with the consensus in contemporary emotion theories that emotional episodes are comprised of multiple components, including goals and action. It has been argued, moreover, that identifying one or more of these components as “the emotion” is an arbitrary enterprise, which entails that emotion cannot easily be put in a box (Moors, in press).

We further argued that an emotional episode is in fact an action episode or action cycle comprised of the following boxes: (a) the detection of a discrepancy between a first goal and a stimulus (b) a second goal to reduce the discrepancy, (c) a third goal to either engage in a specific action, to choose a different first goal, or to bias interpretation of the stimulus depending on the utilities of these options, (d) an overt action (if this was selected in c), and (e) the outcome of this action, which forms the stimulus input to the next cycle. We also

suggested that action cycles may range from more to less emotional, based on the value of the first goal and hence the degree to which the stimulus is goal relevant. This fits with Nanay's (2017) position that no action cycle is completely non-emotional. Note that emotion is not seen here as an entity as captured in the noun "emotion" but rather as a mode of action captured in the adjective "emotional" (Schafer, 1976). As argued elsewhere (Moors, in press), however, the criterion of goal relevance qualifies as a descriptive but not a scientific criterion for ranking action cycles from more to less emotional.

The boxes corresponding to the representations of values and expectancies of action outcomes do not invoke "a homunculus that ponders about the benefits and feasibility of an action course" (Eder, 2017, p. xx). These representations may be computed on the spot, but they may also be activated via associative mechanisms (e.g., de Wit & Dickinson, 2009). Eder's (2017, p. xx) proposal that "emotional appraisals can direct action through the interface of ideomotor mechanisms" seems to fit in the category of stimulus-driven processes. Although our model leaves room for stimulus-driven processes to determine behavior, we specifically hypothesized that goal-directed processes would be dominant.

The action cycle described above resembles the cycle proposed in predictive coding models (see Ridderinkhof, 2017; Railton, 2017), except that the former starts with a discrepancy between a stimulus and a *goal*, and the latter with a discrepancy between a stimulus and an *expectation*. Expectations differ from goals in that they do not have a value. People may expect a state of affairs that they do not care about. We therefore doubt that discrepancies with pure expectations will be sufficient to move the organism to action.

All mechanistic accounts, whether framed at a higher or lower level of analysis, put components into boxes (e.g., see also Ridderinkhof, 2017). Boxes can be numerous and relations among them need not be linear and feedforward but may also be complex and backward. It is not because actions have outcomes and that these constitute the stimulus input

to the next cycle that it is pointless to distinguish between the stimulus input and outcome of a single cycle (cf. Eder, 2017). Moreover, we argued that there are multiple action cycles, and that lower-order cycles are hierarchically embedded in higher-order cycles. Such a hierarchical organisation is not just appropriate when moving to higher levels but also to lower levels of analysis. The goal to flee can give rise to a sequence of lower-order goals to move the legs in certain ways. These, in turn, give rise to even lower-level motor representations (Mylopoulos & Pacherie, 2016).

This three-step cascade (higher-order goals, lower-order goals, motor representations) already partially fills the gap that Nanay (2017) identifies between the goal to act and the overt action, but not fully. He proposes to fill in the remainder of this gap by resorting to emotions. Here again, an underspecified emotion box is endowed with causal powers. But what if there is no gap to be filled? According to James' (1980) ideomotor principle, any action representation will be directly manifested in overt action unless it is overridden by a stronger, competing action representation. On this view, no additional fiat (or goal to act on the action representation) is required, and the risk for infinite regress (see Railton, 2017) is gracefully sidestepped.

References

- Blakemore, R.L., & Vuilleumier, P. (2017). An emotional call to action: Integrating affective neuroscience in models of motor control. *Emotion Review*.
- de Wit, S., & Dickinson, A. (2009). Associative theories of goal-directed behaviour: a case for animal–human translational models. *Psychological Research PRPF*, 73(4), 463-476.
- Eder, A.B. (2017). Comment: From boxology to scientific theories—On the emerging field of emotional action sciences. *Emotion Review*.
- Gendolla, G.H.E. (2017). Comment: Do emotions influence action ?-Of course, they are hypo-phenomena of motivation. *Emotion Review*.
- Hochstetter, G., & Wong, H. Y., (2017). Comment: Affective control of action. *Emotion Review*.
- Moors, A. (in press). Integration of two skeptical emotion theories: Dimensional appraisal theory and Russell’s psychological construction theory. *Psychological Inquiry*.
- Mylopoulos, M., & Pacherie, E. (2016). Intentions and motor representations: The interface challenge. *Review of Philosophy and Psychology*, 1-20.
- Nanay, B. (2017). Comment: Every action is an emotional action. *Emotion Review*.
- Railton, P. (2017). At the core of our capacity to act for a reason: The affective system and dynamic model-based learning and control. *Emotion Review*.
- Ridderinkhof, K.R. (2017). Emotion in action: A predictive processing perspective and theoretical synthesis. *Emotion Review*.
- Scarantino, A. (2017). Do emotions cause actions, and if so how? *Emotion Review*.
- Schafer, R. (1976). Emotion in the language of action. *Psychological Issues*, 9, 106-133.