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Vindicating the scientific status of emotions and other affective phenomena: A teleological approach to the rescue

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Scholars of emotion have addressed questions such as what emotions are (i.e., how to demarcate the set of emotions from other sets) and which emotions we should differentiate (i.e., how to partition the set of emotions). A question that is often overlooked is whether emotions constitute a fruitful scientific set to begin with. Do they capture something over and above other mental or physical constructs such as cognition, motivation, physiological activity, behavior, and experience?

One approach that emotion theorists seem to follow is captured in what I have called a demarcation-explanation cycle (Moors, 2022). The cycle starts (Step 1) from a provisional demarcation of the set of emotions (i.e., descriptive definition), either in the form of typical and apparent features (e.g., valenced, intense, irrational flavor) or in the form of prototypical members of this set (e.g., anger, fear, sadness). These are what any adequate theory of emotion must be able to explain (the desiderata). In the next step (Step 2), theorists search for an explanation that can provide the common denominator of the members of this set. This has led many theorists to vouch for dedicated, stimulus-driven mechanisms for emotions, which they have contrasted with goal-directed mechanisms involved in mundane instrumental action (e.g., Scarantino, 2014). In a stimulus-driven mechanism, a stimulus activates a fixed link between a (concrete or abstract) stimulus representation and a (concrete or abstract) response representation or action tendency, while in a goal-directed mechanism, actions are selected based on their expected utilities (i.e., expectancies that they will lead to goal satisfaction). A handful of theorists, however, have argued that emotions and instrumental actions rely on the same type of goal-directed mechanism (e.g., Moors, 2022). Any difference between them is gradual: The goals at stake in emotional episodes have a higher value than those in instrumental action episodes and this produces downstream differences in felt urgency and intensity. To illustrate, compare the dropping of a baby vs. a pen on the floor. In both cases, a goal is thwarted, but since the goal to hold on to the baby has a higher value than the goal to hold on to the pen, the body is mobilized with more vigor in the first case and this is felt. The former group or "reactive" theorists expect their stimulus-driven explanations to receive empirical validation (Step 3), which will ultimately allow them to grant the set of emotions scientific status (Step 4). The latter group or "proactive" theorists, on the other hand, acknowledge that the goal-directed mechanism that they propose is not unique to emotions and hence that emotions cannot be granted scientific status (at least not on a mechanistic basis).

The authors of the affectome paper have followed an alternative, teleological, approach for examining whether emotions and other affective phenomena form adequate scientific sets. They start from an analysis of the capacities that human organisms must have to survive and thrive (Step 1). The aim is to examine whether things that can reasonably be called emotions and other affective phenomena fall out of this analysis as indispensable instruments in the functional toolbox (Step 2). If this turns out to be the case, these phenomena can be granted scientific status.

Let's evaluate whether these two steps were carried out successfully. In Step 1, the authors managed to bring together an important range of capacities that organisms must have, but I do have some quibbles. For one thing, I wondered whether the set of nested purposes listed are really discussed in the right order: viability, operations, concerns, and abstraction. I would rather say that the superordinate goal for viability can be implemented in a range of subordinate goals (or concerns) and that overt and covert actions (what the authors call operations) are at the service of all these goals. For another thing, I agree that organisms capable of representing future states and of negotiating between multiple goals have the advantage of flexibility, but I think the capacity to entertain abstraction is not the only capacity that can assist with the challenge to trade off this flexibility with limited resources. The more fundamental capacity here seems to be the capacity for learning or memory (which does not necessarily involve abstraction).

Step 2 can only be truly convincing if it is carried out with the greatest conceptual care. Emotions and other affective phenomena should be defined, at least provisionally, independent of the tasks they are supposed to fulfill. Yet the authors define affective phenomena as those "affecting their environment and being affected by that

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environment such that they are enacting their particular relevance in the world, by executing operations with respect to viability". Thus, it seems that affective phenomena are defined in terms of the tasks they are supposed to fulfill. This circular move suggests that the authors' aim is not so much to *examine* whether affective phenomena deserve a scientific status but rather to *vindicate* this. The authors' analysis provides no criteria to differentiate affective from non-affective phenomena. Yet only if such criteria are formulated can we ask the counterfactual questions: Can an organism not survive, execute operations, enact its own relevance, or entertain abstraction without affective phenomena?

I found myself somewhat lost in translation in other places as well. For example, the equation of "phenomena" with "processes" (or "mechanisms" or "algorithms") seems to conflate explanandum with explanans. And the term "concern" seems to refer to several different ontological entities. Some concerns (e.g., safety, belonging) refer to goals or needs. This aligns with the way in which the term concern is used in the emotion literature (Frijda, 1986). Some concerns (e.g., obstacles, losses, dangers) refer to constellations of goals and events (and other information). This aligns with appraisals in appraisal theories and fundamental life tasks in evolutionary theories.

Furthermore, all the concerns are associated with a set of suggested actions and are matched with emotion words. This reveals that the authors side with the reactive view that emotions are grounded in fixed or preferential links between specific types of problems (stimuli as appraised, life tasks) and specific types of behavioral solutions (action tendencies). For instance, danger can be solved with withdrawal and obstacles can be solved with aggression. Such links fit the format of stimulus-driven mechanisms (Moors, 2022). Like in other reactive proposals, the authors do grant a role for goals or concerns in the appraisals of the stimuli themselves. Indeed, danger refers to the mismatch of a stimulus with the goal for safety, and obstacles refer to the mismatch of a stimulus with any goal. Yet once the organism has appraised a stimulus as dangerous or an obstacle, the initial, emotional action tendency is fixed: withdrawal and aggression, respectively. While reactive theories consider the links between stimuli (as appraised) and the initial, emotional action tendency to be fairly fixed, they do typically grant a role for goal-directed mechanisms in the implementation of this action tendency in concrete behavior (i.e., planning) and in attempts to correct them (i.e., regulation) (for extensive discussions, see Moors, 2017, pp. 10–11; Moors, 2022, p. 65).

The authors also convey the aim to use their teleological approach to organize the landscape of existing emotion theories and propose an agenda for future research. The idea here is to lay out the common ground. Yet if the authors do indeed adhere to a reactive view, they would exclude proactive theories such as my own. While it is true (as indicated in Table 3) that my theory integrates elements from appraisal theory and Russell's (2003) psychological constructionist theory, it is more than the sum of its predecessors because of the central role it assigns to goal-directed mechanisms. Note that such mechanisms are the only ones that do full justice to the notion of "allostasis" put forward by the authors as an important asset of the human organism.

In sum, although a teleological approach in figuring out which entities should be part of the furniture of the mind may be legitimate and worthwhile (see also LeDoux, 2023), the authors have not convinced me that emotions and other affective phenomena fit the bill. This is because goal-directed mechanisms, thanks to their often opaque, incomplete, or biased nature, can account for all apparent features typically ascribed to the phenomena called emotions, mood, valence, and arousal. While the neologism "affectome" expresses considerable ambition, further discussion is required to ascertain whether affect indeed has the scientific legitimacy it takes to be "omed".

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