COMMENTARY

Emotions, Action Tendencies, and the Reinforcement Sensitivity Theory

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McNaughton (2025) provides a thought-provoking overview of more than half a century of research on the neuropsychology of anxiety. Considering emotion systems as key in explaining both behavior (e.g., fleeing behavior) and cognition (e.g., attention), the Reinforcement Sensitivity Theory (RST) has contributed to the rise of affectivism (see Dukes et al., 2021) and shows that the legacy of Jeffrey Gray, as well as the key contributions of Neil McNaughton to the neuropsychology of anxiety, hold great potential to orient future research in the affective sciences. I particularly value how McNaughton (2025) demonstrates the relevance of the conceptual evolution of RST and highlights the more recent focus on goals. While the RST has particularly impacted research on personality and, obviously, on anxiety, I would like to comment on the potential of RST to further impact theories of emotion, particularly with respect to a concept situated at the crossroads of motivation research and emotion research: action tendencies. As conceptualized by Nico Frijda, action tendencies correspond to states of action readiness which "represent the distinguishing mark of emotions, as distinct from reflexes" (Frijda, 2010, p. 573). Action tendencies prepare and guide actions for achieving a particular relation with the object that the emotion is about (Frijda, 2009, p. 2), and offer flexibility by allowing the organism to choose adaptively among several actual behaviors that share the same function with respect to a given (set of) goal(s) of the organism. Gray (1982, p. 13) referred to three emotional systems as corresponding, respectively, (a) approach, (b) stop or behavioral inhibition, and (c) fight/flight. Although action tendencies are often separated as defensive versus appetitive action tendencies (see Bradley et al., 2001), further specifications are useful, in particular to refer to particular discrete emotions, leading scholars to add to the action tendencies of approach and avoidance those of being-with, attending, rejection, indifference, antagonism, interruption, dominance, submission, apathy, excitement, exuberance, passivity, inhibition, and helplessness (see Fontaine & Scherer, 2013). It seems to me that Figure 3B described by McNaughton (2025) shows that such fine-grained options for action are compatible with the RST framework (e.g., leading to distinct rodent behaviors such as freeze, stretch-attend, and eat). How is a specific action tendency elicited? Again, the

RST provides a proposal that resonates with several theories of emotion. Indeed, with its focus on individual differences, RST is consistent with appraisal theories of emotion, for instance by highlighting some key mechanisms that subserve appraisal biases. The very idea of sensitivity is conceptually fully consistent with the appraisal perspective to emotion suggesting that emotions are elicited when events (e.g., conditioned or unconditioned stimuli) are subjectively appraised as relevant to the current concerns (e.g., goals) of the organism. For instance, appraised novelty—a key dimension in appraisal models—is central to the RST. The new formulation of the three systems in terms of their relations to goals brings even further connections to appraisal models. The "scanning operations" described by McNaughton are computationally close to appraisal processes, and the notion of reappraisal can be considered when McNaughton explains that "all of these scanning operations are aimed at confirming/denying the presence of affectively negative information and involve an increase in the salience of such information" (p. 5). To the best of my knowledge, the term "appraisal" is not used in the RST; however, it seems to me that the most important is to specify the computational and neural mechanisms (Sander & Koenig, 2002; Stussi & Sander, 2024), and, with this respect, the focus on individual differences in terms of sensitivities and goals during scanning highlights the motivational and cognitive principles that are at the core of appraisal models of emotion. Adopting a componential approach to emotion (see Sander, in press) therefore particularly reveals the relevance of RST for emotion research. With respect to the emotion elicitation process, constructs from RST such as sensitivities, goals and scanning can be related to the appraisal component. With respect to the emotion response process, constructs such as arousal and approach/avoidance can be related to the component of autonomic nervous system response and the component of action tendencies, respectively. Based on the development of the RST so clearly discussed by McNaughton (2025), I would therefore suggest that RST can be considered as a more general framework for emotion research, and that this may lead to more discoveries in the neuropsychology of emotion (beyond fear and anxiety), and, more broadly, in the affective sciences.

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