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*Emotion Review* 2013 5: 185
DOI: 10.1177/1754073912468300

The online version of this article can be found at:
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emotion review

*Emotion Review*
Vol. 5, No. 2 (April 2013) 185–186
© The Author(s) 2013
ISSN 1754-0739
DOI: 10.1177/1754073912468300
er.sagepub.com

# Author Reply: Appraisal is Transactional, Not All-Inclusive, and Cognitive in a Broad Sense

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## Abstract

I reply to the comments of Parkinson (2013), and de Sousa (2013), discussing the transactional nature of appraisal, the presumably overinclusive definition of appraisal, and the cognitive nature of appraisal.

### Keywords
appraisal, causation, emotion, transaction

In reply to the comments of Parkinson (2013) and de Sousa (2013), I discuss the transactional nature of appraisal, the presumably overinclusive definition of appraisal, and the cognitive nature of appraisal. I also briefly touch on the scientific status of the notion of causation.

## Appraisal is Transactional

As explained in Moors (2013), emotions occur when a sufficient set of necessary conditions is in place, such as the stimulus, goals, coping potential, and expectations. The stimulus is traditionally appointed as "the cause" or "the remote cause," whereas the other conditions are often viewed as "background or enabling conditions" because the stimulus is the thing that changes from a time when the emotion was absent to a time when the emotion is present. Selecting "a cause" from the set of necessary conditions is a subjective matter; objectively speaking, the stimulus should not receive a special status because the other conditions are just as necessary. In this sense, the notion of causation can be called nonscientific (de Sousa, 2013). Yet searching for a sufficient set of necessary conditions (without attributing a special status to one of them) does not strike me as particularly nonscientific.

Appraisal theories are genuinely transactional in that they argue that stimuli must be combined with goals and other types of information to produce an emotion. But appraisal theories go further by adding two points. First, they conjecture that the proximal cause of emotions is an appraisal process (with as a minimal output goal relevance and/or urgency). It is not sufficient that a stimulus is objectively goal relevant; it must also be appraised as such (i.e., subjectively). Put differently, appraisal theorists assume the existence of a process that does the actual transaction and this process is called appraisal. How to empirically investigate this idea is a different matter. Appraisal is a mental process that cannot be observed directly but needs to be derived from observable responses. But these responses are often considered to be part of the emotion itself. So establishing appraisal independent of the rest of the emotion is a difficult challenge.

A second point is that appraisal theories try to identify the other conditions that enter into the transaction besides the stimulus, such as goals, coping potential, expectations, and the cause of the stimulus. Identifying these other factors is a work in progress. Transactional theories of all kinds (those that do and those that do not assume the existence of a process of transaction or appraisal) could team up to map out the various conditions involved in emotion causation.

## Is Appraisal Defined Too Broadly?

I defined appraisal on a functional level of analysis as something that relates the stimulus and other conditions to an appraisal output (i.e., values on appraisal variables). Because the restrictions of what does and does not count as an appraisal process are cast at the functional level, this leaves much freedom regarding the potential underlying mechanisms on the algorithmic level. Although the definition is indeed very broad on the algorithmic level, it is not broad on the functional level. Not all kinds of information lead to emotions. That the set of appraisal variables is not fixed but a work in progress should not be held against appraisal theories. It is a feature of healthy theories that they are open to adjustment and refinement. That the definition is broad (although not all-inclusive) in terms of potential underlying mechanisms is not a reason for rejection either. Appraisal theories choose to

*Author note*: Preparation of this article was supported by Methusalem Grant BOF09/01M00209 of Ghent University.
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define appraisal on a functional level, not because in this way it can creep into every whole or wrap itself around every tree. It is because defining concepts on other levels of analysis is highly problematic (see De Houwer, Barnes-Holmes, & Moors, in press), not least because diagnosing the operation of a particular mechanism (e.g., associative, rule-based) is notoriously difficult (cf. Moors, 2010).

## Is Appraisal Cognitive?

I have specifically avoided calling appraisal a cognitive process because the latter still carries with it the connotation that it is high level (e.g., conscious, rule-based, propositional). My own definition of cognitive processes as ones that are mediated by or result in representations (Moors, 2007) is much broader, and appraisal, defined as a process resulting in representations of appraisal values, falls within these boundaries. Representation, minimally defined as something we need in order to explain variable input–output relations (Moors, 2007), does not imply any high-level qualities, nor that the values are integrated in some kind of core relational theme. Thus, I am not certain that when Gibson (1979) argued that the affordance qualities of stimuli can drive behavior without cognition, he has the same broad definition of cognition in mind as I do.

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