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Insentient “cognition”?

Commentary on [Segundo-Ortin & Calvo](#) on *Plant Sentience*

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Abstract: A sentient state is a state that *it feels like something to be in*. Cows have them, cars don't. Cognitive capacities are a subset of behavioral capacities. Not all behavioral capacities are cognitive (but the distinction is fuzzy). Might the difference have something to do with whether the behavior is sentient?

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A few terminological and conceptual distinctions might be helpful for this discussion of sentience in general and the question of plant sentience in particular.

- 1. Sentience.** Sentience is the capacity to feel (Broom 2022).
- 2. Felt States.** Feeling is not a behavior. it is a *state* -- a state that it *feels like something* to be in (Woodruff 2017). It feels like something (to some [sentient] organisms, sometimes) to be in an overheated state. It does not feel like anything to a pot of water to be in a state of boiling. A pot of water is not sentient. It cannot feel.
- 3. Affective States.** Feelings are not just the pleasurable or aversive states (Powell & Mikhalevich 2020). Many feelings are affectively neutral (“unvalenced”) sensations, such as what it feels like to move, or to see, hear, touch, taste, or smell something. Being in a sentient state can feel not just pleasant or unpleasant, but humid or dry, dark or light, loud or soft.
- 4. Cognitive States.** Felt states can also include “cognitive” states, like what it feels like to recognize someone, to recall something, to want something, to know how to get somewhere, to understand a sentence, or to think something.
- 5. Cognitive Capacities.** Cognitive *states* (which, again, are not behaviors) need to be distinguished from “cognitive” *capacities*: the ability *to do* certain kinds of things, such as move, respond to optical or acoustic stimuli, store information, transmit information, and learn. Cognitive capacities are behavioral capacities -- capacities to *do* certain kinds of observable and measurable things.
- 6. Vegetative Capacities.** Only some behavioral capacities have come to be called “cognitive” capacities. The difference between cognitive and noncognitive capacities can be fuzzy. (Sometimes noncognitive capacities have been called “vegetative,” when they are exhibited by animals; Fatt & Weissman 2013.) Every behavioral capacity is a physical state, and so is every felt

state, but not every physical state is or can be a felt state (i.e., a state that it feels like something to be in). An automobile engine can have a detector that signals when it is overheated, but it would have to be a very different kind of entity in order to be able to *feel* overheated.

7. Observations and Correlations: Feelings, like behavioral and cognitive capacities, are not observable, measurable behavior, although they may be *correlated* with, and predictable from, observable behavior. Behavioral capacities, both noncognitive and cognitive, are capacities to *do* certain kinds of observable, measurable things.

8. Inference. Behaviors themselves are directly observable and measurable. Feelings are not; only their correlates and predictors are observable and measurable. (Those correlates and predictors also include the observable and measurable activities – molecular and physiological -- of the nervous system.)

9. Animal Sentience. In the case of animal sentience, the question is: which behaviors, and which capacities (whether behavioral or physiological), of which animals, are credible and reliable correlates and predictors, hence evidence, of *feeling* (i.e., sentience)? That is what prior target articles in this journal (e.g., on feeling in fish [Key 2016] or invertebrates [Crump et al. 2022]), have been about.

10. Plant Sentience? Segundo-Ortin & Calvo's (2023) current target article is about feeling in plants, which had until recently seemed to have very little behavior, aside from growth, tropisms, physiological and biochemical secretion, and signaling. Are any of the newfound behavioral capacities of plants credible and reliable correlates and predictors, hence evidence, of feeling?

11. Plant Cognition? The growing evidence on behavioral capacities in plants (including learning, memory, and response to anesthesia) is extremely interesting, relevant, plausible, and eminently ripe for cross-disciplinary dialogue and discussion of the kind that is already well underway in the case of animals with nervous systems. Are any of these behavioral capacities *cognitive* capacities? The distinction between vegetative and cognitive function is already fuzzy and somewhat arbitrary. Might sentience itself be the criterion for what counts as vegetative versus cognitive?

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