

## **Evidence of Coordination as a Cure for Concept Eliminativism**

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**Abstract:** I argue that Machery stacks the deck against hybrid theories of concepts by relying on an unduly restrictive understanding of coordination between concept parts. Once a less restrictive notion of coordination is introduced, the empirical case for hybrid theories of concepts becomes stronger, and the appeal of concept eliminativism weaker.

Machery makes a persuasive case that there is no unique body of information that plays the concept-role. An important methodological consequence follows: psychologists of concepts should stop asking whether the realizer of the concept-role is a prototype, an exemplar, or a theory. None of these bodies of information alone can explain all phenomena pertaining to higher cognitive competences. What I reject is the additional thesis that the term “concept” should be eliminated from the vocabulary of psychology because it does not designate a natural kind, roughly a maximal set of entities about which many scientifically interesting generalizations can be formulated.

Machery is inspired by Griffiths’ (1997) proposal that we split emotion theory into the study of several heterogeneous kinds of emotions, such as affect programs (e.g. fear of a suddenly looming object), higher cognitive emotions (e.g. guilt about having missed a friend’s birthday) and socially sustained pretenses (e.g. going postal after having been fired).

Mere evidence of heterogeneity, however, isn’t a sufficient reason for eliminating a kind (Piccinini and Scott 2006). If a set of heterogeneous entities are parts of a higher-level structure about which scientifically interesting generalizations can be issued, the heterogeneity of the parts is compatible with the existence of a higher-level natural kind to which they jointly belong. We do not think that “elephant” does not designate a natural kind just because elephants have heterogeneous parts: these parts are integrated in a way that allows biologists to formulate many scientifically interesting generalizations about elephants.

Now, in the case of emotions, it is quite clear not only that affect programs, higher cognitive emotions and socially sustained pretenses are heterogeneous, but also that there is no overarching higher-level entity of which they are parts. Several distinct causal mechanisms are responsible for the occurrence and unfolding of emotion episodes of different kinds, and this prevents the emergence of a unified scientific psychology of emotions.

In the case of concepts, the situation is considerably murkier, because we do have at least preliminary evidence that co-referential prototypes, exemplars and theories are integrated parts of a larger whole (Hybrid Hypothesis). To get clear on this topic, we must determine when bodies of information are parts of a larger whole. Machery presents two individually necessary and jointly sufficient conditions: Connection and Coordination (Machery 2009, p. 64).

Connection between bodies of information requires that the retrieval and use of one body of information in a given cognitive process facilitates the retrieval and use of the remaining bodies of information in other cognitive processes. Coordination between bodies of information requires that they never produce inconsistent outcomes, for example inconsistent categorization judgments.

Armed with this understanding of the part-whole relation, Machery proceeds to present evidence against Coordination. Language users, he argues, can judge that some liquid is

water because it fits the water prototype (water is transparent, drinkable, found in lakes, etc.) but at the same time that it is not water because it does not fit the water definition (water is H<sub>2</sub>O). Since neither judgment is taken by the folk to be authoritative over the other, Machery concludes that the Coordination condition is violated, and that this counts as a strike against the Hybrid Hypothesis.

My main problem with this line of reasoning is that the Coordination condition is inadequate. In general terms, the parts of a given concept are coordinated just in case they work together, in ways to be empirically discovered, in at least some of the processes underlying higher cognitive competences.

Machery's coordination condition offers a very narrow interpretation of how such bodies of information are supposed to work together, namely by avoiding conflict in all circumstances in which they are jointly activated. But the fact that this very specific principle of organization is not empirically supported does not constitute evidence that bodies of information are not coordinated in some other, theoretically interesting way.

Firstly, there are forms of coordination that have nothing to do with joint activation. For instance, bodies of information can be acquired, rather than deployed, in a coordinated fashion. Finding out how they are acquired demands unveiling what we may call *generalizations of coordinated acquisition*. For example, some have argued that the statistical information contained in prototypes and the causal, functional and nomological information contained in theories are acquired in part through a process of abstraction

from exemplars (Heit 1994). This would represent an important aspect of integration between bodies of information.

A further aspect of integration is that the specific features that are abstracted in a prototype appear to be heavily influenced by the subject's background theory (Wisniewski and Medin 1994). Some consider the integration between statistical and theoretical bodies of information to be so tight that they have proposed representing prototypes not as simple feature lists, but rather as *schemata* which make explicit the theory-based relations between statistically common features (Cohen and Murphy 1984).

Secondly, there are forms of integrated activation that do not aim to avoid conflict under all circumstances. Finding out about such alternative forms of coordination demands unveiling what we may call *generalizations of coordinated deployment*. Some have argued for instance that whether theories are activated or prototypes are activated in a categorization task depends on the perceptual richness of the input: perceptually rich inputs activate prototypes, and perceptually poor inputs activate theories (Murphy 2002, p. 168). This would be a way in which different bodies of knowledge can work together towards a cognitive end by being differentially, as opposed to jointly, activated.

There is also evidence that in some circumstances in which jointly activated bodies of information lead to conflict, the conflict is resolved according to a general trumping principle. For instance, Keil (1989) has argued that conflicts between prototype-based and theory-based categorizations of biological categories tend to be systematically

resolved in favor of the theory-based categorization (e.g. a raccoon that is made to look exactly like a skunk while preserving its internal properties is judged to be a raccoon even if it fits perfectly the skunk prototype). This particular form of coordination is lost, on the other hand, when biological categories are substituted with artifact categories.

My central point is that if enough *empirical generalizations of coordination* can be unveiled, both of the *acquisition* and of the *deployment* variety, a case can be made that “concept”, *pace* Machery, designates a higher-level natural kind for the purposes of scientific psychology. Notice that this strategy for preserving the scientific integrity of the notion of concept differs from the strategy of unveiling empirical generalizations that are insensitive to the differences between prototypes, exemplars and theories (e.g. Weiskopf 2009). Generalizations of coordination are eminently sensitive to the differences between prototypes, exemplars and theories, but they can provide evidence that they are components of an integrated higher-level entity.

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