

Authors of the original article:

Leonhard Schilbach, Bert Timmermans, Vasudevi Reddy, Alan Costall, Gary Bente, Tobias Schlicht and Kai Vogeley

Word counts:

Abstract: 60
Main text: 900
References: 135
Total: 1095

Comment title:

Social cognition is not a special case, and the dark matter is more extensive than recognized.

Commentator's name:

Fred Cummins

Commentator's institution:

University College Dublin

Commentator's mailing address:

School of Computer Science and Informatics,
University College Dublin,
Belfield,
Dublin 4,
Ireland

Commentator's telephone number:

+353 1 7162902

Commentator's email address:

fred.cummins@ucd.ie

Commentator's home page URL:

<http://pworldrworld.com/fred/>

Abstract:

The target article's approach is applauded, but it is suggested that the "dark matter" may be much larger than even the current authors suspect. Cartesian and mechanistic assumptions infuse not only the discipline of cognitive psychology, but all societal accounts of the person. A switch to dynamical accounts in which lawfulness is observed within a given systemic context is suggested.

Comment:

The basic idea underlying this proposal to establish a second-person neuroscience is profound. People are incomprehensible without recognizing that experience arises, and behavior unfolds, in context. The context, for humans, is massively conditioned by our fellow humans—the physical environment having been reduced by-and-large to smooth, easily navigable, surfaces with essentially no danger of predation. The suggestion that nervous system activity might be likewise interpretable only with due recognition of the role of the social context in which it takes place might even be considered revolutionary, if it were not that very many converging sources of evidence seem to be aligning to force the recognition that our best account of our lives, experiences and actions are not provided by a solipsistic and mechanistic model of a hermetically sealed cognitive system, tragically isolated from its world, and implemented in the currency of nervous system activity (Varela et al., 1992; Gallagher and Zahavi, 2008).

The considerable change in perspective of the scientist that is required to fully acknowledge this insight will not come easily, and it is clear in the present article that the authors too struggle to free themselves from a vocabulary that is built on a foundation of (methodological) Cartesian psychology, where causes lie hidden, the world is inferred, and others are a problem to be solved. For there is more to be overturned here than the excesses of individualistic and mechanistic cognitive psychology. The sciences of the person that have developed in a post-Enlightenment, Occidental context have been constructed upon a pre-theoretical notion of an autonomous individual, bearing causal and moral responsibility for his or her own actions, with the brain/mind as the sole source of agency; this background is hard to shake. We will need to develop our concepts with care.

Old habits of thought die hard. For example, in considering the failure of HFA individuals to engage in successful social coordination, the authors say (p. 38) “[the failure] might be related to their ability to activate ‘social brain’ areas when asked to make a conscious effort to do so”. This fails to step up to the mark and recognize that a felicitous social interaction is a coordinative process that can not be disassembled into its components without losing its essence. The paean to computational models (p. 47 ff) also suggests a clinging to mechanistic, individualistic, understanding of the person. The authors are not hugely at fault here. It is virtually impossible to discuss experience and behavior without falling back on the problematic assumptions on which modern psychology is founded.

The language of dynamics is surely the way to make progress here. In dynamical modeling, the first and most important task is the identification of the system under consideration, and the differentiation of it from its domain-specific background. For the cognitive scientist, the system may be parts of the body, the whole body, the body plus tools, multiple bodies, etc. In my own work (Cummins, 2012), two speakers reading a text in synchrony are viewed as a single system, with no central locus of control. In modeling the behavior of sports fans in the Mexican wave, a simple model of the individual will suffice, if the interactions among those units are appropriately constrained (Farkas et al., 2002). This flexibility with respect to the domain in which lawfulness is recognized opens the door to a plurality of explanatory accounts of the structure of behavior and, equally, to a wealth of potential avenues for perturbing, influencing, and directing that behavior. Such an explanatory pluralism would not have been foreign to the pragmatic founders of the discipline of psychology, but it sits uneasily with naive scientism that expects a single truth to emerge in our study of the person.

One might contrast accounts of *control*, where the assumed causal origin of a behavior lies with a central executive, with the complementary notion of *coordination*, an emergent property that arises from the reciprocal interaction among complex systems with many redundant degrees of freedom (Kelso, 1995; Cummins, 2010). Where the control perspective will interpret skillful coping in a rich environment as a *predictive* (and representationally voracious) tour de force, a coordinative account will look rather for evidence of *coupling* and *entrainment* as hallmarks of the establishment of transient domains of relative autonomy across individuals. Within such domains, knowledge may, indeed, lie between persons, but this insight can only be properly shored up if the language of modular computationalism is replaced by a dynamical account, and the mentalistic vocabulary of psychology is quarantined and questioned.

Neuroscience *simpliciter* continues to make huge advances. Cognitive neuroscience must perforce build bridges between the physiology and the kind of concepts with which we describe ourselves. In leaning on the constructs of cognitive psychology, it risks failing to recognize the degree to which we collectively bring a human world into existence. The authors have done us all a service by pointing to a large domain of our ignorance, what they call the “dark matter” of neuroscience. I suspect that the scale of the unknown territory may be much larger than currently appreciated. Even Descartes, in his presumed solipsistic introspection, expressed the thought “Cogito, ergo sum” in language—a means made possible only by recurrent practices of mutual coordination among individuals, and hence intersubjectively constituted in every way. Social cognition, so regarded, is not a special case, or a marginal sub-species, it is the fabric whereof human experience and behavior is woven.

References

Cummins, F. (2010). Coordination, not control, is central to movement. In Esposito, A., Esposito, A. M., Martone, R., Müller, V. C., and Scarpetta, G., editors, *Towards Autonomous, Adaptive, and Context-Aware Multimodal Interfaces: Theoretical and Practical Issues*, volume 6456 of *Lecture Notes in Computer Science (LNCS)*, pages 252–264. Springer.

Cummins, F. (2012). Periodic and aperiodic synchronization in skilled action. *Frontiers in Human Neuroscience*, 5(170), doi: 10.3389/fnhum.2011.00170.

Farkas, I., Helbing, D., and Vicsek, T. (2002). Social behaviour: Mexican waves in an excitable medium. *Nature*, 419(6903):131–132.

Gallagher, S. and Zahavi, D. (2008). *The Phenomenological Mind: An Introduction to Philosophy of Mind and Cognitive Science*. Taylor & Francis.

Kelso, J. A. S. (1995). *Dynamic Patterns*. MIT Press, Cambridge, MA.

Varela, F., Thompson, E., and Rosch, E. (1991). *The Embodied Mind: Cognitive Science and Human Experience*. The MIT Press.