



## Editorial

## Introduction to the special issue “Perspectives on Social Cognition”

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No longer is *sociality* the preserve of the social sciences, or “culture” the preserve of the humanities or anthropology. By the same token, cognition is no longer the sole preserve of the cognitive sciences. Social cognition (SC) or, *sociocognition* if you like, is thus a kaleidoscope of research projects that has seen exponential growth over the past 30 or so years. That so many disciplines now invoke the term “social cognition,” shouldn’t tempt one into thinking that they are all denoting the same idea. On the contrary, with such methodologically and perspectively diverse interests involved, there is every chance that they are talking at cross-purposes. The so-called “cognitive revolution” of the post-war period has seen the rise of cognitive anthropology, cognitive archaeology, cognitive economics, cognitive linguistics, cognitive sociology and even the cognitive science of religion, all vibrant fields of endeavor. Furthermore, there is a wealth of literature going under the label of *social cognition* that is concerned with several other mammalian species (for some recent surveys on SC from a life sciences perspective see Adolphs, 2001, Lieberman, 2005 & Saxe, 2006). Some clarification of the term *social cognition* is thus in order.

SC typically denotes an offshoot of social psychology, an offshoot that took root 30 years ago by importing much from cognitive psychology. SC came to be characterized by its emphasis on the methodological, whereas social psychology was traditionally problem driven. These days SC has both “cold” (concepts and inferences) and “hot” (goals, desires, and feelings) cognitions as its subject matter: there is now more that binds SC and SP than separates them (Kunda, 1999). A central question SC seeks to address and one that would be salient to our conception of SC is “to what extent are social judgments determined

by social knowledge as opposed to feelings and desires.” Our conception of SC has some overlap and extends these broad concerns.

For our purposes SC is used in a much broader sense. It takes inspiration from philosophical arguments presented by Burge (1979) and Putnam (1975) for the view that mental states are world-involving or that some mental states are linguistic-community-involving. These arguments have come to be known as arguments for externalism or anti-individualism or broad content. For us, SC involves the individual’s cognitive relationship to the social corpora (family, friends, institutions, etc.) and the ambient postulates that inform a culture, its technology, and the complex manifold of artefactual and environmental considerations that are transpersonal. There are two inextricably linked aspects to this: (a) the examination of the individual mind’s processes, encoding, and storage of social information; and (b) the examination of how the individual mind is influenced by social interaction. Acknowledging this dual aspect to cognition might seem blindingly obvious but it should be remembered that traditional epistemology and classical cognitive science are highly individualistic, focusing on mental operations of cognitive agents in isolation or abstraction from other persons or other environmental considerations. Orthodox materialist-computationalism is committed to the methodological supposition that cognition can be studied independently of any consideration of the brain, the body, and the physical or social environment. Sociology has of course a long tradition of theorizing group psychology and its import for the individual (Marxist “false consciousness” being a star example), but its business was never to examine the mechanics of the individual mind. As a response to this individualism there has arisen what best would be termed a “movement” and which we have termed the **DEEDS** literature, a loose and internally fluid philosophical and empirical coalition comprising the

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**Dynamical-, Embodied-, Extended-, Distributed-, and Situated-** approaches to knowledge and cognition.

The writers that have contributed to this issue are bound by either an implicit or explicit rejection of *bold* individualism. This acknowledgment does not present a stark individualist/anti-individualist choice. There are certainly individualistic methodological insights that one would wish to preserve and indeed enhance with anti-individualistic insights. Whatever the confluence on this broad issue, there are still vigorous internecine disagreements regarding the appropriate delimiting of the individual mind and its environment. The SC theorist addresses the question “How does one apportion the extent to which individuals’ cognitive states are dependent upon their social milieu?” She thereby recognizes that the issue is not one of a choice between an individually oriented and a socially oriented account of cognition, but *rather of a grasp of the interaction between these two components*. This issue’s *raison d’être* is to bring out the importance of this interaction, its scope and the issues it raises, as well as to examine its implications for different areas of human activity, from the cognitive functions of language and memory, to economics and science.

As befits a multidisciplinary journal as this is, the writers (and referees) that have contributed to this issue come from the diverse backgrounds of artificial intelligence, applied linguistics, applied mathematics, communication studies, computer science, economics, engineering, philosophy, psychology, and systems analysis. SC has appeared in various guises over the years in this journal: we view this issue as being complimentary to [Ron Sun’s \(2001\)](#) special issue on multi-agent learning; [Tom Ziemke’s \(2002\)](#) special issue on situated and embodied cognition and more recently, [Luca Tummolini and Cristiano Castelfranchi’s \(2006\)](#) special issue on collective intentionality.

Despite the diverse contributions, some informal groupings and a running order suggest themselves. The *first* grouping ([Robbins, 2007](#); [Shapiro, 2007](#)) tackle a central problem raised by SC’s critical investigation into the boundary individual-social environment, namely that of the nature and locus of consciousness. Shapiro specifically addresses this issue through the so-called “extended mind” literature. Is mind metaphysically, or should mind methodologically, be constrained by the unit that is the cranium? Thus conceived, the point of interest for Shapiro is not over what minds are but *where* minds are. In the service of this discussion, Shapiro takes to task the functionalist arguments typically appealed to by extended mind theorists: this, broadly speaking, is the idea that mental states should be accounted for by a functional, causal relationship, rather than the intrinsic features of a given state. For Shapiro, the functionalist perspective, the common coin for arguments for and against extended cognition, is unsuitable to make any assessment either way. Shapiro takes the view that any assessment must take place against the backdrop of *non*-functionalist considerations.

Robbins argues that consciousness is fundamentally a social phenomenon, a claim that rests on recent empirical

research that suggests that social pains (just like physical pains) share significant brain mechanisms. For Robbins, social pain denotes (a) the perception of actual or potential damage to one’s interpersonal relations, and (b) the phenomenon of affective contagion: the tendency for emotions, moods, and other affective states to spread from person to person in social contexts. The upshot of this is that phenomenal (first-person) consciousness, traditionally viewed as not amenable to scientific (third-person) investigation, does in fact have a public dimension. Moreover, the idea that such affective states seem to be so easily transmitted between people suggests that consciousness is a socially distributed phenomenon though not in the radical extended mind sense that Shapiro considers.

With the *second* grouping which comprises [Smith \(2007\)](#) and [Barnier, Harris, Sutton, and Wilson \(2007\)](#), we start looking at the implications of SC’s revision of the boundaries between the individual and the social: the focus is here upon psychology. Smith reviews social psychology’s newfound interest in the non-Cartesian themes of embodiment and distributed cognition. Smith is in no doubt of the profound impact that these themes should have on social psychology’s traditional concerns. Smith draws upon his own lab work to illustrate the importance of embodied cues to relational functioning. He also examines issues in distributed cognition, issues which inform social psychology’s traditional emphasis on group interaction.

[Barnier et al. \(2007\)](#) bring the framework of embedded, distributed, or extended cognition to bear on the psychology of memory. Their view is that this approach is entirely appropriate since memory has a social dimension in that encoding, storage, and retrieval frequently extends beyond the individual. Barnier et al. review the three research traditions of transactive memory, collaborative recall, and social contagion.

The *third* grouping examines the implications of the social cognitivist perspective upon our understanding of what are the conditions of our rich social interaction. These range from the mere possibility of recognising the other as a feeling/thinking being with all that this arguably implies about the sharing of emotions, through the constitution of social networks, to the complex phenomenon of language and the development of culture. This group comprises [Cole, Lecusay, and Rossen \(2007\)](#), [Gabora \(2007\)](#), [Gibbs and Cameron \(2007\)](#), [Rockwell \(2007\)](#), and [Rupert \(2007\)](#).

Rockwell examines the controversy between the theory–theory and simulation–theory models in accounting for our ability to become aware of others’ feelings and thoughts. Against the broadly Kantian view that there is a dichotomy between pictorial and conceptual representations, and building upon Paul Churchland’s proposal, Rockwell argues that the multi-dimensional spaces described by connectionist networks which perform many of the cognitive functions associated with the possession of abstract concepts, are best understood as multi-dimensional pictures. This suggests a key cognitive role is played by multi-dimensional picture-producing simulations. In fact Rockwell

further argues that many of the behavioural/linguistic responses that characterize one human being's understanding of and interaction with another, are best understood as exclusively involving simulations. *Pace* Alvin Goldman's recent work in this field, the output of such simulations need no longer be of a conceptual/linguistic nature, but rather itself a multi-dimensional vector which governs behaviour with another connectionist network. The interaction between a perceptual and a behavioural network is thus all that is required, Rockwell argues, to account for much of the richness of human interaction. With an individual thus simulating the other's processes, we can talk of a real "emotional contagion."

Turning to linguistic issues, Gibbs & Cameron describe some of the social-cognitive dynamics involved in the use and understanding involved in metaphoric language. They adopt a broad dynamical systems approach to outline how different social and cognitive processes simultaneously operate in complex, nonlinear ways to shape "metaphor performance". A dynamic approach gives a fine textured account of how various cognitive, linguistic, social and cultural forces simultaneously shape, along different time-scales, people's use and understanding of metaphoric discourse. Furthermore, a dynamical perspective suggests that the intention to speak metaphorically, as opposed to using some other form of language, results from a person's self-organizing tendency even before the intention to do so reaches awareness.

Tackling the very nature of language, Rupert contends that individualistic naturalistic theories of mental content can, and should, factor in social considerations. Rupert forgoes the standard Fregean sense and reference denotation and instead pursues a Russellian view of belief content as he sees it as more germane to his naturalistic intuitions. Rupert draws upon Fodor's understanding of the content of beliefs as the object or state of affairs which is causally responsible for the belief, while allowing for different belief states to arise depending upon the nature of the causal vehicle involved. The social dimension represents a problem for such a view insofar as the individuation of belief states across individuals requires the instantiation of the same causal vehicles in different people. To this problem, Rupert offers a solution that makes use of Susan Schneider's recent work on inter-personal Fregean cases, while trying to persuade us of the illusory nature of content-based explanation.

Introducing a longer-term temporal perspective into the debate than that of individual learning discussed in previous papers, Cole et al. draw upon Cultural-Historical Activity Theory (CHAT), the non-Cartesian tradition synonymous with Vygotsky, to analyze cognition. They view it as embedded in and manifested through systems of historically developing, culturally mediated activity. Culture and cognition are thus co-constituted. Cole et al. draw upon empirical research, an educational implementation of the postulates of CHAT.

The development of culture is at the heart of Gabora's paper. Gabora examines the cultural analogs of phenom-

ena observed in population genetics such as adaptation and drift. She argues that an appeal to Darwinian natural selection does not make room for socially transmitted traits, the epidemiological character being one of horizontal and perpetual modification. The reason is that the Darwinian natural model can't explain why cultural replication is allopoietic in character (systems that produce something other than themselves) and not autopoietic in character (systems that are self-organizing or self-replicating). To negotiate this, Gabora proposes that what evolves through culture is the *mind*; ideas and artifacts are merely reflections of its current evolved state.

In the *fourth* grouping, a SC perspective is brought to bear on the two star domains of knowledge and sociality – that of science and economics. It comprises three papers: Marsh and Onof (2007), Rolin (2007), and Ross (2007). Science, no less than any other practice, is a collective enterprise. Rolin examines the tension between the idea that collective knowledge does inhere in scientific communities and the view that this can be redescribed as nothing more portentous than research teams going about their business. Rolin mediates this tension by rejecting the latter contention but also by arguing that some existing accounts of collective knowledge do not actually explain why scientific communities would have an interest in collective knowledge. To redress this, Rolin offers a contextualist theory of epistemic justification to give epistemic credence to the collective knowledge view.

Ross rejects the misplaced view that microeconomics is reducible to psychology. Ross does not deny that economics has an important contribution to make to the understanding of social cognition. He wishes to preserve the integrity of economics as a discipline: traditionally conceived, economics has always and still provides deep insights into the nature of (social) cognition. Ross first offers a diagnosis for the source of this "psychologizing" of economics and then presents a positive anti-reductionist argument that runs the nature-nurture axis: that is, socialization is constrained by what brains can and cannot process.

Marsh & Onof's paper cuts across Ross' and Rolin's discussion in that they place both science and economics center-stage. For them, the concept of stigmergy offers the promise of a theoretical unification of the cognitive and the epistemological in matters of sociality. Stigmergy, the phenomenon of indirect communication mediated by modifications of the environment, seems to accommodate the third-party character of all knowledge. They also consider the possibility of implementing a stigmergic model for social epistemological applications.

The paper which closes the issue harks back to the opening section and provides an analysis for the anti-individualistic prospects as manifest by the DEEDS literature. Walmsley (2007) draws a distinction between two possible understandings of the DEEDS approach to cognition. On the one hand, the DEEDS approach may be interpreted as making a metaphysical claim about the nature and location of cognitive processes. On the other hand, the DEEDS

approach may be read as providing a methodological prescription about how we ought to conduct cognitive scientific research. Walmsley argues that the latter, methodological, reading shows that the DEEDS approach is pursuitworthy independently of an assessment of the truth of the metaphysical claim. Understood in this way, the DEEDS approach may avoid some of the objections that have been levelled against it.

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## References

- Adolphs, R. (2001). The neurobiology of social cognition. *Current Opinion in Neurobiology*, 11, 231–239.
- Barnier, A. J., Harris, C. B., Sutton, J., & Wilson, R. A. (2007). A conceptual and empirical framework for the social distribution of cognition: The case of memory. *Cognitive Systems Research*, in press, doi:10.1016/j.cogsys.2007.07.002.
- Burge, T. (1979). Individualism and the mental. In French, Uehling, & Wettstein (Eds.), *Midwest studies in philosophy IV*. Minneapolis: University of Minnesota Press.
- Cole, M., Lécusay, R., & Rossen, L. (2007). Cultural-historical activity theory and the zone of proximal development in the study of idioculture design and implementation. *Cognitive Systems Research*, in press, doi:10.1016/j.cogsys.2007.06.012.
- Gabora, L. (2007). The cultural evolution of socially situated cognition. *Cognitive Systems Research*, in press, doi:10.1016/j.cogsys.2007.05.004.
- Gibbs, R. W., & Cameron, L. (2007). The social-cognitive dynamics of metaphor performance. *Cognitive Systems Research*, in press, doi:10.1016/j.cogsys.2007.06.008.
- Kunda, Z. (1999). *Social cognition*. Cambridge, MA: MIT Press.
- Lieberman, M. D. (2005). Principles, processes, and puzzles of social cognition: An introduction for the special issue on social cognitive neuroscience. *NeuroImage*, 28, 745–756.
- Marsh, L., & Onof, C. (2007). Stigmergic epistemology, stigmergic cognition. *Cognitive Systems Research*, in press, doi:10.1016/j.cogsys.2007.06.009.
- Putnam, H. (1975). The meaning of “meaning”. *Philosophical papers, Mind, language, and reality* (Vol. II). Cambridge: Cambridge University Press.
- Robbins, P. (2007). Consciousness and the social mind. *Cognitive Systems Research*, in press, doi:10.1016/j.cogsys.2007.07.005.
- Rockwell, T. (2007). Dynamic empathy: A new formulation for the simulation theory of mind reading. *Cognitive Systems Research*, in press, doi:10.1016/j.cogsys.2007.07.004.
- Rolin, K. (2007). Science as collective knowledge. *Cognitive Systems Research*, in press, doi:10.1016/j.cogsys.2007.07.007.
- Ross, D. (2007). Economics, cognitive science and social cognition. *Cognitive Systems Research*, in press, doi:10.1016/j.cogsys.2007.06.010.
- Rupert, R. (2007). Language acquisition, concept acquisition, and intuitions about semantic properties: Defending the syntactic solution to Frege’s puzzle. *Cognitive Systems Research*.
- Saxe, R. (2006). Uniquely human social cognition. *Current Opinion in Neurobiology*, 16, 235–239.
- Shapiro, L. (2007). Functionalism and mental boundaries. *Cognitive Systems Research*, in press, doi:10.1016/j.cogsys.2007.07.008.
- Smith, E. R. (2007). Social relationships and groups: New insights on embodied and distributed cognition. *Cognitive Systems Research*, in press, doi:10.1016/j.cogsys.2007.06.011.
- Sun, R. (2001). *Individual action and collective function: From sociology to multi-agent learning. Special issue of Cognitive Systems Research* (Vol. 2) (1).
- Tummolini, L. & Castelfranchi, C. (2006). *Cognition, Joint Action and Collective Intentionality. Special issue of Cognitive Science Research* (Vol. 7) (2–3).
- Walmsley, J. (2007). Methodological situatedness; or, DEEDS worth doing and pursuing. *Cognitive Systems Research*, in press, doi:10.1016/j.cogsys.2007.07.006.
- Ziemke, T. (2002). *Situated and embodied cognition. Special issue of Cognitive Systems Research* (Vol. 3) (3).