

Enactive approaches to social cognition workshop. Battle, 2008.

Pre-workshop questions.

Fred Cummins

1- We talk about social cognition, social understanding, social interaction, social development. What makes them "social" in your opinion?

I'm not sure what understanding is, I have a notion what development is, I have no clue what cognition is, but 'social' works for me. Taking the phenomenology seriously, we recognize subjective experience as being generated by a nervous system, embedded in a body, immersed in an information rich environment. The 'information' in that environment, is of course only information by virtue of the perception/action capabilities of the organism, and its phylogenetic heritage. This account (and the related account of cognition within Maturana and Varela) demands that we show how we reconstruct a common world, emerging from solipsism into shared experience. Part of that escape comes from lawfulness in perception/action relations. Our separate encounters with the physical properties of a table are underwritten by this lawfulness. But the common understanding of what a table is beyond that (furniture, property, useful, classy) can only arrive if this is augmented by a history of collective construction through recurrent interactions among us. Being social is thus the basis for the construction of the human world. This construction is culture bound, and it is vitally important that we recognize how it varies, and thus how people's actual worlds of experience may vary.

2- Is there a difference of degree or a difference in kind between individual and social cognition? How do you see their relation?

Again, I feel that as this account becomes more refined, we will have less use for the grossly overloaded word 'cognition'. There is experience. Beyond that there is shared understanding.

3- If you had to identify a single major conceptual challenge and a single technical breakthrough for advancing our understanding of social cognition, what would they be?

Conceptual challenge: this understanding has to retain the reality of subjective experience, or lived experience, at its heart. The failure to do so has resulted in the sterility of mainstream psychology to date, despite William James's best efforts.

Technical breakthrough: Widespread recognition of the utility of dynamical systems as a formal framework for describing the relation among, well, everything! Dynamics is making progress, but dynamical thinking is not yet widespread beyond mathematics.

4- What do you understand by an "enactive" approach to (social) cognition and what do you think might be the advantages/problems of such an approach?

The enactive approach has given us a new way to relate lived experience to our picture of the world we inhabit. It puts us back in the picture. Given that so much of that world is shaped by the establishment of common understanding, I don't really understand how social cognition has not been at the heart of the enactive approach all along. It certainly was foreseen in the Tree of Knowledge.

But there are very many problems. Not least, we need to collectively establish a consistency in the use of terms, if this is to become a relevant way to approach human experience. I see our role here as foundational. I hope that others feel that too, so that we pay due heed to the need to collaborate and construct, rather than compete and denigrate. That fun can come later, when the foundational work has been done.

But if it is done correctly, I see the ability to tackle problems that we have gotten nowhere with yet. My particular interest is in developing a new theoretical approach to psychosis, which I believe falls out nicely if we do this correctly. Other applications include understanding sexuality, cultural organization/development/spread, and far beyond. Not just for psychologists:)

5- Different disciplines can fruitfully inform an enactive approach to social cognition (dynamical systems theory and models, developmental psychology, neuroscience, interaction studies, sociology, phenomenology, cognitive linguistics, ethics, "the arts", and others). Could you pick *one* that you consider not just important, but central and say why?

Dynamical Systems Theory. We are not just a talking shop, though we will be perceived as such for a while. Dynamics is the right language for discussing autonomy, emergence, self-organization, coupling, reciprocal interaction, etc. It gives us teeth.

Rachel Wood

1- We talk about social cognition, social understanding, social interaction, social development. What makes them "social" in your opinion?

Social for me requires the sharing of a context between 2 or more individuals, I also refer to the concept of participation which can mean any degree of involvement from a relatively distal notion of sense-making (i.e. interpreting the observed actions of another) to the proximal where there is direct interaction between agents.

2- Is there a difference of degree or a difference in kind between individual and social cognition? How do you see their relation?

I'm not so comfortable with the general idea that social and individual cognition should be dichotomised, obviously there is some difference otherwise the notion of *social *cognition is meaningless. Historically there has been a tendency, in psychology at least, to invoke specialist modules to account for social behaviour, thus social cognition is portrayed as an overlay to general cognition. I think the social milieu plays a more fundamental role in the development of general cognition, thus we start with the social domain and become increasingly general and abstract cognizers from that foundation.

3- If you had to identify a single major conceptual challenge and a single technical breakthrough for advancing our understanding of social cognition, what would they be?

The major conceptual challenge is to get a handle on processes which reside at the intersection of two or more actors i.e. when individuals form coupled systems however transitory, how do we adapt our individual focussed modes for analysis to address the bricolage of intersubjectivity. The technological breakthrough which has advanced our understanding is the advent of evolutionary robotics modelling which has enabled completely new conceptualisations of what it means to be social (for me at least).

4- What do you understand by an "enactive" approach to (social) cognition and what do you think might be the advantages/problems of such an approach?

The enactive approach emphasises the dynamic, time-locked mutuality of social behaviour. The advantages and disadvantages of such an approach stem from this, if we could explain social cognition in solely terms of brain modules and information structures possessed by individuals, that would actually be easier than having to account for processes which are jointly enacted by participants.

5- Different disciplines can fruitfully inform an enactive approach to social cognition (dynamical systems theory and models, developmental psychology, neuroscience, interaction studies, sociology, phenomenology, cognitive linguistics, ethics, "the arts", and others). Could you pick *one* that you consider not just important, but central and say why?

Developmental psychology can play a central role in an enactive approach to social cognition. In development we see how the social domain provides an enabling framework for cognition in general through processes of scaffolding and constraint. There is an interesting feedback relationship here, as infants build their capacities for social interaction through engagement with a world of other actors. We already know that profound deficits in general cognition arise from social deprivation in early life; this supports notions of the social milieu as both a primary developmental resource and driver. From an enactive perspective infancy provides a window on the

construction of intersubjectivity at multiple time scales from the brief span of an instance of interaction all the way through to the developmental time scale.

Stephen Cowley

1- We talk about social cognition, social understanding, social interaction, social development. What makes them "social" in your opinion?

In humans, the micro-dynamics of cognition and communication are shaped by collective patterns (in interindividual pragmatics). At root, this uses intrinsic motive formation that changes during life history. It gives direction to all these 'social' events. Strictly, of course, the adjective is redundant. If the processes were asocial, we would be quite different animals.

2- Is there a difference of degree or a difference in kind between individual and social cognition? How do you see their relation?

I see the relation as characterising to much of what makes us human: of course, we could look at 'social' cognition in bonobos, wolves or even fish. But these importantly different: they exploit principles that are quite far removed from finely tuned interindividual co-action.

3- If you had to identify a single major conceptual challenge and a single technical breakthrough for advancing our understanding of social cognition, what would they be?

How do we explain/model the directionality that shapes human co-action from birth: this is not mere building a consensual domain. It is inherently strategic!

4- What do you understand by an "enactive" approach to (social) cognition and what do you think might be the advantages/problems of such an approach?

I don't know. I suppose one would begin by defining how agency can have enough organizational closure to be self-sustaining during structural coupling with other agents. But that is narrow and, in itself, leads to trouble....There must be better answers. Good question!!!

5- Different disciplines can fruitfully inform an enactive approach to social cognition (dynamical systems theory and models, developmental psychology, neuroscience, interaction studies, sociology, phenomenology, cognitive linguistics, ethics, "the arts", and others). Could you pick *one* that you consider not just important, but central and say why?

Biology and, specifically, biosemiosis. To recognise the semanticity of action-perception, is to note the directedness of evolution, development, and interaction. It is no solution to tie this to first-person experience (a kind of semanticity). Indeed, I think that Marcello Barbieri is correct and that rudimentary semanticity arises in the protein synthesis of a cell; this too (at least some of the time) favours expansion into the adjacent possible.

Bill Sharpe

1- We talk about social cognition, social understanding, social interaction, social development. What makes them "social" in your opinion?

As Latour would have it, 'social' is not a stuff, it is an achievement. It is the achieved coordination between multiple agents (particularly of one species, but also amongst species) across space and time. It takes many forms, and there is no 'social' explanation, only social phenomena in need of explanation.

2- Is there a difference of degree or a difference in kind between individual and social cognition? How do you see their relation?

The difference is entirely in the involvement of multiple agents in the particular cognitive act - which does not require the presence of other agents at the time (I could not read a book unless I were part of a culture; an ant follows the trail left by other ants; I am a social being from the moment of conception). The social milieu is part of the given of cognition for every living thing right down to bacteria (especially bacterial), so I fail to find a difference of degree or kind, but there are many sorts of social coordination that will themselves differ in degree and kind.

3- If you had to identify a single major conceptual challenge and a single technical breakthrough for advancing our understanding of social cognition, what would they be?

Conceptual advance: Solving the mind/body (or body/body, aka Thompson) problem to our satisfaction, and in a way that unifies the approach across the living world (mind inheres in life).

Technical breakthrough: understanding the conceptual advance in terms of the architectures of natural and artificial cognitive systems.

4- What do you understand by an "enactive" approach to (social) cognition and what do you think might be the advantages/problems of such an approach?

I understand it as the co-dependent determination of self and phenomenal world in an ongoing evolutionary process across generations.

The key advantage I find is that it is like the relativity shift in physics in that it abandons any absolute frame of reference on the definition of the self, and refuses to assign any causal primacy in anything less than the whole of reality. This seems to be an essential foundational step in breaking out of broken world views that struggle to solve the conceptual challenge of #3. It holds out the promise of at last reconciling first person (experiential) and third person (what today we would call scientific) accounts of the universe. I haven't yet found the problems, but there are sure to be some - this isn't going to be the final answer!

5- Different disciplines can fruitfully inform an enactive approach to social cognition (dynamical systems theory and models, developmental psychology, neuroscience, interaction studies, sociology, phenomenology, cognitive linguistics, ethics, "the arts", and others). Could you pick *one* that you consider not just important, but central and say why?

No, if there were 'one' central discipline then we wouldn't need this approach. It is precisely the implicit epistemologies of individual disciplines that bring the non-existent realities into view that enaction is struggling to disperse. Phenomenology as a practice rather than a discipline probably comes the closest - it is the path that got me here via Merleau Ponty and Varela.

John Stewart

1- We talk about social cognition, social understanding, social interaction, social development. What makes them "social" in your opinion?

This requires a proper theoretical (ie not just common-sense) definition of "society". For me, this is specifically human, involving social norms as developed by Social Science from Durkheim onwards. It absolutely requires language (with its own characteristic norms....) Thus, society is MORE than just dyadic or triadic interactions... talk of "social insects" is technically a misnomer... etc. I could go on (and on), but we have to be short...

2- Is there a difference of degree or a difference in kind between individual and social cognition? How do you see their relation?

This question is a bit strange for me.... A "society" is not itself a cognitive entity (methodological individualism has got at least this bit right). However, the cognition of individuals who live and function in a (human) society is indeed characteristically different from that of non-social organisms - the sensitivity to social norms, functioning in language, etc pervades all aspects of life.

3- If you had to identify a single major conceptual challenge and a single technical breakthrough for advancing our understanding of social cognition, what would they be?

A proper scientific understanding of "social norms" (see above); more than just descriptive (although this is a necessary first step), but really understanding their genesis and functioning.

4- What do you understand by an "enactive" approach to (social) cognition and what do you think might be the advantages/problems of such an approach?

The social world, as indicated above, is already an "enaction": the members of a true human society "enact" their social world (starting with aborigines enacting their foundational myths; but of course going on through pre-history and then history...). Enaction, as a paradigm in cognitive science, is in my view obliged to take this dimension into account - essential for properly understanding characteristically human cognition, which without something like this can seem to our opponents a weakness (low-level vs "high-level" cognition).

5- Different disciplines can fruitfully inform an enactive approach to social cognition (dynamical systems theory and models, developmental psychology, neuroscience, interaction studies, sociology, phenomenology, cognitive linguistics, ethics, "the arts", and others). Could you pick *one* that you consider not just important, but central and say why?

If I have to choose *one* (obviously they can all contribute in synergy), I would go for SOCIOLOGY: this is THE discipline that centers on what could otherwise be left out....

David Leavens

1- We talk about social cognition, social understanding, social interaction, social development. What makes them "social" in your opinion?

Audience effects--tactics of social engagement accommodate to apparent perceptual and conceptual attributes of other animate beings.

2- Is there a difference of degree or a difference in kind between individual and social cognition? How do you see their relation?

I agree with Smith and Semin (1997), who wrote: "Communication fundamentally shapes and even constitutes cognition, making cognition truly social (p. 134). Independently, I recently claimed that "Because communication is distributed across boundaries of transduction and because networks of transduction exist at all levels of living systems, from cells to organisms and societies, and because cognition (the discrimination and use of information) is hence an inherently communicative act, therefore it is a category error to interpret communicative behaviour as an index to unseen cognitive processes. Because cognition implies communication (between neurons, between aggregates of neurons, between individuals), therefore it is also a category error to attribute cognitive processes to an individual element, because cognition is a manifestation of communicative processes; i.e, information is distributed across at least two transductive boundaries" (Leavens, Hopkins, & Bard, 2008, p. 3 [of final draft]). Thus, because all cognition is communicative in nature, therefore individual and social cognition represent descriptions of contextual characteristics, not processual features. This is based on my interpretation of Bateson's (1972), *The logical categories of learning and communication*, in G. Bateson (Ed.), *Steps to an Ecology of Mind* (pp. 279-308), New York: Ballantine Books.

3- If you had to identify a single major conceptual challenge and a single technical breakthrough for advancing our understanding of social cognition, what would they be?

One major challenge is to replace contemporary linear causal process models of cognition (with what? I do not know, yet). A technical breakthrough would be the development of a real-time, three-dimensional behavioural record of organisms in action.

4- What do you understand by an "enactive" approach to (social) cognition and what do you think might be the advantages/problems of such an approach?

Well, I am hoping to learn more about this during the workshop, but I vaguely take the term "enactive" to mean a particular non-representational approach to cognition that emphasises organisms embedded in context. Based on my research on apes and humans, which taught me that there is no essential chimpanzee nature or essential human nature, a potential advantage of enactive approaches seems to me to be that its practitioners are prepared to grapple with the immensely complex challenges that contingent (as opposed to absolute) reality poses for scientific description.

5- Different disciplines can fruitfully inform an enactive approach to social cognition (dynamical systems theory and models, developmental psychology, neuroscience, interaction studies, sociology, phenomenology, cognitive linguistics, ethics, "the arts", and others). Could you pick *one* that you consider not just important, but central and say why?

I would venture to suggest that psychology has the most to gain or lose from enactive approaches, given its historical, overweening concern with individual thought and reasoning.

Miriam Kyselo

1- We talk about social cognition, social understanding, social interaction, social development. What makes them "social" in your opinion?

Social might refer to phenomena that emerge upon the interaction of several individual systems. It might in turn refer to the impact of surrounding individuals or groups of individuals on the particular individual. It refers to the fact that human beings are always situated in an environment of other human beings and of for example already established rules of behavior. Social cognition for instance allows the individual to situate herself within the environment of other individuals or group of individuals. It allows to mark the difference between herself and the others. Which again is the basis for social understanding (empathy etc.). Social development might be the ongoing learning process of understanding why and how people behave and think the way they do, the way we interact with others...

2- Is there a difference of degree or a difference in kind between individual and social cognition? How do you see their relation?

There is a conceptual difference. Individual cognition, I think, initially depends on social cognition. The newborn will learn from her parents and the environment. As the individual develops, the influence is reciprocal. Social cognition will depend on individual cognition and vice versa.

3- If you had to identify a single major conceptual challenge and a single technical breakthrough for advancing our understanding of social cognition, what would they be?

I think Heidegger's *Dasein* and Schütz's *Structures of the Lived World (Strukturen der Lebenswelt)* are crucial. We are always born into an already existent social world. Also, Luhmann's system theory gives, in my opinion, a good take on communication and sensemaking.

I think that the Internet, and therein especially tools like Blogs and Facebook help understanding social cognition. The phenomena of identity (and self) development of individuals but also groups, as well as other social processes and interactions are made explicitly available to the observer.

4- What do you understand by an "enactive" approach to (social) cognition and what do you think might be the advantages/problems of such an approach?

An approach to (social) cognition that takes interactions with the (social) environment as being *constitutive* for the development and existence of cognition. It draws only conceptual borders between a single system and it's

environment.

All cognitive phenomena, of a single system or a group of systems, will depend on an ongoing loop of interactions between embodied agents. (Social) Feedback, control, and action are crucial concepts.

Advantages:

- resolves body-mind problem
- reconciles continental, analytical philosophy and cognitive sciences
- accounts for interaction with technology and its influence on cognition
- helps understanding (social) cognitive deficits and dysfunctions (e.g. autism)
- bears important ethical considerations, guide lines
- alters experimental praxis in cognitive science
- gives systematic and more exhaustive explanations of cognitive phenomena, parameter, dimensions to be explained

Problems:

- explanatory limits
- methodological: which tools and methods are appropriate
- conceptual clarification is required, basic assumptions, hypothesis

5- Different disciplines can fruitfully inform an enactive approach to social cognition (dynamical systems theory and models, developmental psychology, neuroscience, interaction studies, sociology, phenomenology, cognitive linguistics, ethics, "the arts", and others). Could you pick *one* that you consider not just important, but central and say why?

Phenomenology. You have a vast literature describing (social) cognition as it appears to be, from a subjective and intersubjective point of view. It is central because prior to describing the mechanisms and underlying processes of a phenomenon, i.e. (social) cognition you need to identify the phenomena. Phenomenology offers a catalogue or methods providing these. Also, I still think that the explanatory task of cognitive science is to account for *our, human* cognition. The first-person perspective is indispensable for this endeavour. (Neuro)phenomenology provides tools to get back to this basic interest.

Marieke Rohde

1- We talk about social cognition, social understanding, social interaction, social development. What makes them "social" in your opinion?

The fact that they crucially involve inter-individual or even cultural components.

2- Is there a difference of degree or a difference in kind between individual and social cognition? How do you see their relation?

Difficult - I think in humans and most species that develop socially the two cannot be strictly separated as either different kinds of things or degrees. I would rather speak about different emphases/application of one and the same cognition, i.e., whether behaviour/thinking is more about something social or more about something concerning primarily an individual and objects.

3- If you had to identify a single major conceptual challenge and a single technical breakthrough for advancing our understanding of social cognition, what would they be?

Technical challenge: Formalisation of enactive ideas about social and interaction dynamics (especially sensorimotor dynamics, and that holds for all enactive cognitive science) and experimental testing of derived hypotheses.

Conceptual challenge: secondary behind the technical challenge. but: Once the technical challenge is addressed it will be important to make a case how this approach plausibly explains something reductionist approaches cannot explain (as well).

4- What do you understand by an "enactive" approach to (social) cognition and what do you think might be the advantages/problems of such an approach?

Well, what Hanne (De Jaegher 2007) laid out in her phd - an approach that focuses on interaction process and dynamics and does not reduce the social to the sum of individual contributions. An approach that takes genuine meaning into consideration and that treats issues of the how individual and society/communication relate as part of the explanandum, not as a prior assumption/part of the explanans.

5- Different disciplines can fruitfully inform an enactive approach to social cognition (dynamical systems theory and models, developmental psychology, neuroscience, interaction studies, sociology, phenomenology, cognitive linguistics, ethics, "the arts", and others). Could you pick *one* that you consider not just important, but central and say why?

What about anthropology? Most of the above are equally important in my view, so, if I have to pick *one*, I pick a discipline that I consider underrated in general :).

Sanneke de Haan

1- We talk about social cognition, social understanding, social interaction, social development. What makes them "social" in your opinion?

"Social" requires more than just two or more people being somehow present; it refers to their being involved in one way or another, to their interaction.

2- Is there a difference of degree or a difference in kind between individual and social cognition? How do you see their relation?

I do think there is a difference in kind, because of a unique first-person-access to your 'inner states'. However, both these introspected states and your understanding of them are constantly formed by social cognition.

3- If you had to identify a single major conceptual challenge and a single technical breakthrough for advancing our understanding of social cognition, what would they be?

What does "resonating" mean? (Although analysis might not be the way to go.) A technical breakthrough... a mind-reading-machine for understanding both yourself and others (also safe to use on babies and animals)! No, I just don't know.

4- What do you understand by an "enactive" approach to (social) cognition and what do you think might be the advantages/problems of such an approach?

The enactive approach offers a richer, more holistic, and therefore more adequate understanding of the structural intertwinings of self, other, body, and world. Potential problems could be a dissolving of the inner and of the self-other difference, and a too activist account to appreciate the role of responsiveness and passivity.

5- Different disciplines can fruitfully inform an enactive approach to social cognition (dynamical systems theory and models, developmental psychology, neuroscience, interaction studies, sociology, phenomenology, cognitive linguistics, ethics, "the arts", and others). Could you pick *one* that you consider not just important, but central and say why?

No, i think it's inherent to the subject that it does not have a central core, or a convincing hierarchy.

Chris Goldspink

1- We talk about social cognition, social understanding, social interaction, social development. What makes them "social" in your opinion?

That they are the result of recurrent interaction between at least one other person or are the consequence of a prior history of interaction with other individuals or physical or non-physical artefacts.

2- Is there a difference of degree or a difference in kind between individual and social cognition? How do you see their relation?

This is framed as an ontological question and I think it needs to be reframed as an epistemic one - or rather two. Under what conditions would we regard the relationship between individual and social cognition as one of degree? Under what conditions would we regard the relationship as one of kind? Depending on the position adopted by the observer and the observer's purpose it may be either. That the individual and social appear to mutually define and interpenetrate suggests degree, while making the distinction that the 'individual' perspective involves paying attention to particular body-hoods and particular histories of experience while a social focus involves attending to the intersecting of domains of interaction between body-hoods suggests a difference of kind.

3- If you had to identify a single major conceptual challenge and a single technical breakthrough for advancing our understanding of social cognition, what would they be?

Conceptualising 'agency'. Being able to simulate the recursive construction of linguistic distinctions on linguistic distinctions to form higher order domains of 'meaning'.

4- What do you understand by an "enactive" approach to (social) cognition and what do you think might be the advantages/problems of such an approach?

The body matters as does our prior history of interactions with physical and social worlds - the range and type of emergent structures which humans can participate in generating is constrained by the specifics of our biology and our histories (including history of interaction with one another).

An advantage is that the enactive view appears to offer a solution to many of the long standing 'sticking points' in cognitive theory, Artificial intelligence, dichotomous views of structure and agency - it serves to move the debate on and also provide new ways to ground and validate.

The disadvantage is that it appears to be only part of the answer to understanding human social process.

5- Different disciplines can fruitfully inform an enactive approach to social cognition (dynamical systems theory and models, developmental psychology, neuroscience, interaction studies, sociology, phenomenology, cognitive linguistics, ethics, "the arts", and others). Could you pick *one* that you consider not just important, but central and say why?

NO. Enactivism runs counter to the assumptions that informed existing discipline boundaries - it requires a cross-disciplinary approach.

Pierre Steiner

1- We talk about social cognition, social understanding, social interaction, social development. What makes them "social" in your opinion?

Negative bit: I do not think this is something basically related to dyadic interactions, empathy, collective, interpersonal or intersubjective relations. Those are obviously crucial components of "social" phenomena and especially of their emergence, but it seems doubtful to me to start from them to define what social phenomena are basically.

Positive bit: social phenomena involve performances produced by agents, where these agents are sensitive to some order of “oughts” and “oughts not” in producing these performances. That is, they are members of a larger system simultaneously producing and made of (not necessarily explicit) normativity. This normativity is constitutive of the shared meaningfulness (and possibly values) of the performances these agents produce. The idea of thirdness (Peirce) is here a good illustration: social interactions, even between two persons or in one person, involve some sensitivity to some order of generality that transcend the “here and now”, “you and I” or “means/ends” dimensions of the individual or dyadic (inter)action.

2- Is there a difference of degree or a difference in kind between individual and social cognition? How do you see their relation?

A difference of degree. Still, concerning at least human cognition, the basic degree seems to me not to be individual cognition but social cognition.

3- If you had to identify a single major conceptual challenge and a single technical breakthrough for advancing our understanding of social cognition, what would they be?

Conceptual challenge: a better definition of what we really want to understand (the differences between “social” and “collective”, “intersubjective”, “joint action”,...), and an epistemological consideration on its prospects for a theory of cognition

Technical challenge: an explanation of the genesis of genuine social interactions and of social norms (and of our sensitivity to them) without adopting classical and problematic solutions (individualism vs. holism, mindreading, simulation, computation, meta-meta representations, dyadic interactions,...)

4- What do you understand by an "enactive" approach to (social) cognition and what do you think might be the advantages/problems of such an approach?

Advantages: a) being rooted in a theory of the living; b) strong and methodological attention paid to first-person approach; c) focus on the question of genesis and emergence; d) aware of the reflexivity of the “social” question: we, trying to understand what social cognition is; e) critical distance from classical accounts of individual cognition (to be confirmed in the case of social cognition).

Problems: sometimes and possibly, a) a focus on a narrow kind of emergence: from individual to collective interactions; b) reducing the basic (and starting) forms of social interactions to (dyadic) intersubjectivity, and perhaps assuming that social interactions are just complex dyadic, intersubjective or collective interactions; c) not enough attention paid to other theories of what the “social” is (phenomenology of the social world, pragmatism, sociology...), but also to the related questions of “culture” and “institutions” (are they always coming with social processes, and conversely?).

5- Different disciplines can fruitfully inform an enactive approach to social cognition (dynamical systems theory and models, developmental psychology, neuroscience, interaction studies, sociology, phenomenology, cognitive linguistics, ethics, "the arts", and others). Could you pick *one* that you consider not just important, but central and say why?

Philosophy of technics. Social processes and their emergence always involve the constitutive mediation of technical artefacts, as shared supports of meaningfulness, memory, and normativity.

Hanne De Jaegher

1- We talk about social cognition, social understanding, social interaction, social development. What makes them "social" in your opinion?

Something is social when it influences the interactors – over and above the influence that one interactor has on another – i.e. when things happen that cannot be attributed to either interactor specifically. Taking the notion of ‘social’ seriously entails working out what this means and what the implications are of such ideas.

2- Is there a difference of degree or a difference in kind between individual and social cognition? How do you see their relation?

I do not know whether there is such a difference, at least in the sense of a dichotomy, I only know that we speak of individual and social cognition as if they are different in degree or in kind. What would happen if we considered them as continuous?

If we consider social and individual cognition to be intimately connected, and we employ the notion of sense-making for cognition, then a natural continuum arises from individual sense-making to participatory sense-making and back again. If sense-making is mediated by movement and self-movement, the central concept we need in order to understand the relation between individual and participatory sense-making is coordination. In social encounters there is the possibility to coordinate with. In non-social interactions, there is only coordinating to.

3- If you had to identify a single major conceptual challenge and a single technical breakthrough for advancing our understanding of social cognition, what would they be?

The conceptual challenge is to think how something can happen inter-subjectively, and I mean this very literally. Also: if representations are the units of investigation of traditional research (though are they really? How are they measured?), then what would be the units of investigation in an enactive approach to social cognition? (One possible answer: meanings that arise in interaction.)

Technological breakthrough: something like a marker fluid that could be injected into an interacting dyad (including thoughts, moods, muscles, hormones, emotions, brains of participants, the air between them, the objects they engage with, everything) and that would light up everything that changes during the interaction process, with colour changes to indicate different sorts of changes (location, intensity) and a method for recording all this and replaying it as a film.

Then another breakthrough would have to happen, which would be to find a way to make sense of such a measurement (what are the units? And what is their significance in the whole?). I don't know – I'm not such a technological thinker I guess.

4- What do you understand by an "enactive" approach to (social) cognition and what do you think might be the advantages/problems of such an approach?

An enactive approach to social cognition asks the question where meaning comes from, grounds meaning in life, and conceives of social cognition primarily as an interactional phenomenon. We are only beginning to think about the implications of all this. Looking to life for grounding meaning has the advantage that it avoids having to figure out how artifacts can behave meaningfully without having to postulate a designer or allocentric controller.

I think, for now, that problems of an enactive approach mostly relate to how to get it off the ground:

- we need to develop the language to speak about these things (though I also think that we should not try too hard to find or define new words, but to use the ones we have as much as we can – there is a lot out there already, e.g. in dynamical systems theory and in interaction studies),

- we need to also find places in the research landscape to do this work (practical worry: how to get funding for it when the current mood, especially with funders, is to play it safe and go for endless extensions to the theory-of-mind?)

- how to open up this research to a wider circle. Does it have a more universal appeal, or is it and will it stay a bit excentric? Then what is its value?

This last question also relates to something I find very exciting about this line of work: maybe it can contribute to or is already part of a culture of change and a change of culture that may be going on at a much more

encompassing level than our academic one, i.e. in politics and at the level of society... If the last century was the century of the self, maybe this one will be the century of intersubjectivity?

5- Different disciplines can fruitfully inform an enactive approach to social cognition (dynamical systems theory and models, developmental psychology, neuroscience, interaction studies, sociology, phenomenology, cognitive linguistics, ethics, "the arts", and others). Could you pick *one* that you consider not just important, but central and say why?

Interaction studies in the service of a constructive phenomenology of our social skills – the latter conveniently opening the door for lots of other disciplines to sneak in as well (I think we really need an inter- or transdisciplinary approach). For instance: we need a discipline that can help us get a grip on coordination between persons in interaction, and on coordination between levels (interactors and interaction) without falling into the trap of conceiving of it as an on-off phenomenon, but rather as something fluctuating and non-absolute: dynamical systems theory. But, because I think coordination in participatory sense-making encompasses more than temporal coordination, we also need interaction studies, (developmental) psychology, etc. to investigate coordination in the form of imitation, anticipation etc. And so on.

Not central perhaps, but an area where the lived and experiential aspects of interpersonal encounters strongly and intuitively come to the fore is some care research (e.g. in a lecture by Steve Torrance on Tom Kitwood on dementia care). Affective aspects are given their due here too.

Ezequiel Di Paolo

1- We talk about social cognition, social understanding, social interaction, social development. What makes them "social" in your opinion?

This is differently understood by different people. For instance, most of "social" cognition research today is concerned with how we cognise *about* social situations not with how we (might) cognise as a social skill. But typically no definition of what counts as social is provided and so such distinctions remain mute. I think a definition of the social must take into account the presence of others as part of a joint process whereby their autonomy is crucial in order to make sense of such a process. Mere physical coupling is necessary but not sufficient for this (I could treat others as objects). In a social situation, others make sense to me in so far as *my* making sense is not purely *my own* activity but that of others as well, and also that of the very process of engagement. There is an autonomy of the social and an autonomy of others in addition to my own autonomy.

2- Is there a difference of degree or a difference in kind between individual and social cognition? How do you see their relation?

If we're talking in systemic terms (looking at the properties of contemporaneous processes) I see a difference in kind. While my sensemaking as an individual involves my active engagement with a world that I attempt to constitute (by making stable those segments of this world that fulfil a role in my specific act of coping with it, e.g., a tool, an object, a space), once this context is given, the success or failure of my cognitive attempts can be traced back to my own activity in this context (*my* skill or lack of it in those circumstances). In a social situation, the act of making sense is shared. I may start an act, but its completion will only be fulfilled by the other's closure of that act (e.g., the act of giving). In this case, I may fix the context and yet the success or failure of my sensemaking activity is not only traceable to my own skills, nor even only to the combination of my skills and those of the others, but in addition to the very particular pattern of engagement between us.

If, by contrast, we talk historically, there is in the human case (perhaps in general) no purely individual cognition. There very notion of individual becomes problematic.

3- If you had to identify a single major conceptual challenge and a single technical breakthrough for advancing our understanding of social cognition, what would they be?

Conceptual challenge: Understanding the social roots of (pretend) play in enactive terms. How sensorimotor skills and bodily values take on novel and socially-mediated forms of transient identity whereby cognitive

activity is “lifted” from the immediate demands of the here-and-now while remaining deeply ingrained in actual movements and interaction. How then are those novel skills re-inscribed in our bodies so that what we do when we play shapes the kind of agents that we are.

Technical breakthrough: Ways of measuring patterns of interaction and estimating their relation to individual activities, external factors and the history of the patterns themselves.

4- What do you understand by an "enactive" approach to (social) cognition and what do you think might be the advantages/problems of such an approach?

A naturalistic, but non-reductionist approach to cognition that puts forwards questions that are not typically asked: What is cognition, what is behaviour, where does normativity come from, how do the constitutive and relational aspects of a cogniser relate to each other, what is self-movement, what is the social, how does the mind shape the body. Five related ideas characterise the enactive approach most fruitfully: autonomy, emergence, embodiment, experience and sensemaking.

Its advantages are that of asking the difficult questions, and that of providing a possible positive method for approaching these questions. Its problems are the flipside of these advantages: if we ask the questions that are not typically asked, who's going to listen? Are we not renouncing traditional, but legitimate, problems? Who's going to fund this effort? Will the “concrete” results that this approach might yield be not even seen as results by more mainstream researchers? A clever communication strategy is one of the biggest challenges for this approach.

5- Different disciplines can fruitfully inform an enactive approach to social cognition (dynamical systems theory and models, developmental psychology, neuroscience, interaction studies, sociology, phenomenology, cognitive linguistics, ethics, "the arts", and others). Could you pick *one* that you consider not just important, but central and say why?

A proper development of dynamical systems theory that may facilitate a study of interactions in natural situations. I think we could afford to “lose” any other single discipline and end up with an incomplete picture of social cognition. But without a proper scientific tool and scientific language in which to frame such a picture, the picture would not be incomplete but simply senseless. The computational metaphor of the mind has produced a picture of cognition as the affair of individuals. We know this is not accurate, and our challenge is to be specific as to how and when this picture fails. So we need a language that is neutral in this respect in order to then be able to ask precisely such questions in scientific terms (hypotheses, experiments, theories).

Marek McGann

1- We talk about social cognition, social understanding, social interaction, social development. What makes them "social" in your opinion?

All cognition is a result of interaction with an agent's environment. When that environment includes other agents rather than "bare" physical processes it is social.

2- Is there a difference of degree or a difference in kind between individual and social cognition? How do you see their relation?

In human beings, I think it is largely a difference in degree, given the pervasive manner in which individual cognition is structured by cultural and social practices. Even when alone we are immersed in an environment replete with external agency.

I have an inkling, though, that the relationship between individual cognition and social cognition may not be static, that the autonomy of individual cognition might increase with practise and that while there is always a relation of dependency of the individual on the social, that relation may be as basic as the relation of ambulatory movement on gravity - something that acts as a basic pre-requisite but which also underspecifies the phenomenon in question.

3- If you had to identify a single major conceptual challenge and a single technical breakthrough for advancing our understanding of social cognition, what would they be?

The major conceptual challenge I see is in providing a systematic account of action such that the ways in which actions and goal-directed activity are modulated and altered by social interaction can be observed and illustrated.

The key technical breakthrough I would look for (which, in my ignorance, may already be available), is the development of a set of dynamical systems tools for specifying and measuring the interrelation between agent's activities at different levels (for example, the ways in which the dynamics of immediate embodied activity interacts with socially maintained practices such as holding a conversation, wider personal level activities like developing a romantic relationship and further, longer timescale actions such as maintaining a marriage or career, or developing a scientific theory).

4- What do you understand by an "enactive" approach to (social) cognition and what do you think might be the advantages/problems of such an approach?

I understand the enactive approach as holding that life and mind are continuous, and that cognition (in the general sense of "mental activity") is the product of an interaction between an autonomous agent and its environment.

While I acknowledge the essential nature of embodiment in this approach, I think a domination of our thinking by that concept is problematic, and think that a broader concept of action (as opposed to just embodied action as physical movement) needs to be developed.

The advantages of an enactive approach include the acknowledgement of basic concepts like meaning and experience as something other than just curious epiphenomena to physical processes and an making fundamental the concept of active agency rather than passive reactivity in minded systems.

The disadvantages of an enactive approach are the difficulties which surround any scientific discussion of consciousness and experience (the concepts of testability and accountability need to be considered carefully and applied in a principled manner that is nevertheless a little different to "normal" science), and that the systems- rather than objects-based nature of enactive explanation seem to be something the human beings are poor at in general. It makes persuading researchers in other domains and educating students difficult and time-consuming.

5- Different disciplines can fruitfully inform an enactive approach to social cognition (dynamical systems theory and models, developmental psychology, neuroscience, interaction studies, sociology, phenomenology, cognitive linguistics, ethics, "the arts", and others). Could you pick *one* that you consider not just important, but central and say why?

Dynamical systems theory and models, because it provides a set of tools that can be deployed to allow more systematic and communicable observations of systems-level activity, and show the continuity across scales of activity from "low level" biological processes to "higher level" cultural ones.

In terms of both codifying theoretical concepts and providing a means of persuading researchers working in other domains, the methods of dynamical systems theory and modelling are likely to be essential.

Susan Stuart

1- We talk about social cognition, social understanding, social interaction, social development. What makes them "social" in your opinion?

There being one or more other organisms with whom there can be an interaction. The organisms don't have to be conspecifics but if they are, there is an enhanced chance of complexity, in terms of the syntax and semantics, of their communication.

2- Is there a difference of degree or a difference in kind between individual and social cognition? How do you see their relation?

There's a difference in kind. Individual cognition would be impossible without social cognition.

3- If you had to identify a single major conceptual challenge and a single technical breakthrough for advancing our understanding of social cognition, what would they be?

The fundamental role of the conscious enactive body. The single technical breakthrough might be neuroscientific in kind, but I'd really need to think a whole lot more about this because it would probably depend on the particular area of social cognition being considered.

4- What do you understand by an "enactive" approach to (social) cognition and what do you think might be the advantages/problems of such an approach?

In some ways I see it as slightly tautological, but that's only because there seems to be no other intelligent way to approach social cognition. Neither theory nor representationalism provide anything remotely satisfying the intricacy of pragmatic embodied social engagement.

5- Different disciplines can fruitfully inform an enactive approach to social cognition (dynamical systems theory and models, developmental psychology, neuroscience, interaction studies, sociology, phenomenology, cognitive linguistics, ethics, "the arts", and others). Could you pick *one* that you consider not just important, but central and say why?

This is too hard, can I have neurophenomenology? The form and structure of brain activity corresponding to first-person accounts of conscious experience may help us discover a great deal about social phenomena like, for example, shared beliefs in faith-based structures. (I'd rather spend more than a few minutes thinking about this!)

Giovanna Colombetti

1- We talk about social cognition, social understanding, social interaction, social development. What makes them "social" in your opinion?

Involve intersubjectivity.

2- Is there a difference of degree or a difference in kind between individual and social cognition? How do you see their relation?

Don't know about "kind" (what does it mean anyway?) Not sure about individual cognition either. We study "individual cognition", i guess, when we look at individual subjects' behaviour / brain in a laboratory setting that does not require interacting with other people. Yet all individuals' cognitive capacities and modes of understanding could not have developed outside a context of intersubjectivity / social relations.

3- If you had to identify a single major conceptual challenge and a single technical breakthrough for advancing our understanding of social cognition, what would they be?

How do human judgments and values (e.g. social values) relate to organismic values and sense-making? How can we move from a theory of organismic sense-making towards human evaluations and social values?

4- What do you understand by an "enactive" approach to (social) cognition and what do you think might be the advantages/problems of such an approach?

The enactive approach sees intersubjectivity as constitutive of cognition. Perhaps one problem is how to explain _failures_ of "couplings" between individuals from an enactive standpoint.

5- Different disciplines can fruitfully inform an enactive approach to social cognition (dynamical systems theory and models, developmental psychology, neuroscience, interaction studies, sociology, phenomenology, cognitive linguistics, ethics, "the arts", and others). Could you pick *one* that you consider not just important, but central and say why?

One only?? (i thought we were all thinking in terms of co-constitution...) In this case, perhaps i'd say phenomenology. I find it most inspiring for thinking about the place of the body and the world (including other people) in the mind, and for developing accounts of subjectivity that can do justice to the complex nature of our experience.

Evan Thompson

1. We talk about social cognition, social understanding, social interaction, social development. What makes them "social" in your opinion?

In the broadest sense, a social phenomenon is one constituted by the ongoing behavioural coordination of multiple individuals. This coordination brings forth/enacts social systems that reciprocally reshape their members in a circular fashion.

2. Is there a difference of degree or a difference in kind between individual and social cognition? How do you see their relation?

I am inclined to say that for social beings, all cognition is in some sense social. (Working out the "in some sense" is the tricky part!).

3. If you had to identify a single major conceptual challenge and a single technical breakthrough for advancing our understanding of social cognition, what would they be?

One major conceptual challenge is to articulate clearly the relationship among the minimal felt selfhood of the living/lived body, intersubjective cognition and experience, and social coordination dynamics. (I've tried to do a little bit of this work in *Mind in Life*, but much more work needs to be done.)

I cannot single out one technical breakthrough. I can think of multiple lines of research with interesting findings – e.g., common neural systems for perception, action, and action recognition; development of multiple levels of social understanding in children; coupled brain dynamics across interacting adult humans, to mention just a few.

4. What do you understand by an "enactive" approach to (social) cognition and what do you think might be the advantages/problems of such an approach?

In the sense in which I use the term "enactive," an enactive approach is grounded on the notions of autonomy and sense-making. The advantage of this approach is that it can study how social systems arise from coordination dynamics among multiple individuals while reconstituting those individuals into higher-order collectives. One major challenge for this approach is to bridge from perception/action to language and abstract conceptual thinking.

5. Different disciplines can fruitfully inform an enactive approach to social cognition (dynamical systems theory and models, developmental psychology, neuroscience, interaction studies, sociology, phenomenology, cognitive linguistics, ethics, "the arts", and others). Could you pick *one* that you consider not just important, but central and say why?

Developmental psychology integrated with evolutionary-developmental biology (Piaget's original conception of developmental psychology, if not the specifics of his theories). If nothing in biology can be understood without evolution, nothing in psychology can be understood without development.

Claire Petitmengin

1. We talk about social cognition, social understanding, social interaction, social development. What makes them "social" in your opinion?

2. Is there a difference of degree or a difference in kind between individual and social cognition? How do you see their relation?

3. If you had to identify a single major conceptual challenge and a single technical breakthrough for advancing our understanding of social cognition, what would they be?

Conceptual challenge: bracketing our presuppositions on linguistic communication and empathy.

Technical breakthrough: refine the psycho-phenomenological methods enabling us to become aware of the micro-dynamics of our lived experience and describe it.

4. What do you understand by an "enactive" approach to (social) cognition and what do you think might be the advantages/problems of such an approach?

The first goal of an "enactive" approach to cognition would be to verify if cognition is the representation of a pre-given world by a pre-given mind, or rather the co-emergence of mind and world. The goal of an enactive approach to social cognition would therefore be to verify if this process of co-emergence also takes place in our social interactions: for example, does the process of expression and understanding consist of transmitting abstract contents, or is it a process of co-emergence of bodily felt meanings?

5. Different disciplines can fruitfully inform an enactive approach to social cognition (dynamical systems theory and models, developmental psychology, neuroscience, interaction studies, sociology, phenomenology, cognitive linguistics, ethics, "the arts", and others). Could you pick *one* that you consider not just important, but central and say why?

In my opinion the main question - for pedagogical, ethical and existential reasons - is the following: could the process of enactment or co-emergence of mind and world, inside and outside, the self and the other, be verified in the first person? Could this process be a consciously lived experience? Therefore I consider phenomenology central for studying this process, in cognition as well as in social cognition.

Tom Froese

1- We talk about social cognition, social understanding, social interaction, social development. What makes them "social" in your opinion?

They involve domains of interaction that are (at least partially) co-constituted between two or more subjects.

2- Is there a difference of degree or a difference in kind between individual and social cognition? How do you see their relation?

Perhaps both? There is a difference in degree in the sense that individual and social cognition are derived from some of the same or at least similar principles (e.g. the ability to interact meaningfully), and there is also a

difference in kind because the reciprocity of social interaction adds a new quality of sense-making that is lacking in the individual case.

3- If you had to identify a single major conceptual challenge and a single technical breakthrough for advancing our understanding of social cognition, what would they be?

How should we conceive of open intersubjectivity, i.e. our capacity to experience other subjects as others in their own right, and what technology would be useful in this context? Does language and technology not already pre-suppose such intersubjectivity?

4- What do you understand by an "enactive" approach to (social) cognition and what do you think might be the advantages/problems of such an approach?

I think that the biggest advantage of the enactive approach is that it enables us to talk about the sense-making capabilities of individual living systems and it also recognizes the importance of a relational understanding of (social) cognition. The problem is to come up with a scientific story that links the individual perspective with the social domain in a coherent (non-reductive) manner.

5- Different disciplines can fruitfully inform an enactive approach to social cognition (dynamical systems theory and models, developmental psychology, neuroscience, interaction studies, sociology, phenomenology, cognitive linguistics, ethics, "the arts", and others). Could you pick *one* that you consider not just important, but central and say why?

All of these disciplines are important, but I think phenomenology is the most important one. First, if we did not ourselves experience a meaningful perspective on a world that is shared with others, why would we ever try to understand it scientifically? Second, it provides us with some methods of refining what it is that we are trying to explain anyway (e.g. do I really mind-read others when I interact with them?). Third, it entails practice and involvement: if we want to understand how we understand others, then we cannot do this from the third-person alone - we also need to become more aware of our own social existence.

Rob Clowes

1- We talk about social cognition, social understanding, social interaction, social development. What makes them "social" in your opinion?

Social is plainly a problem term used in many different ways. It is especially problematic for theories of cognition which have traditionally tended toward methodological individualism and more recently taken up a sort of social minimalism.

Social in the minimal sense means something like more than one agent, or organism, or entity in interaction. This minimal sense is primarily the sense in which many modellers would think about minimal sociality; a dyad and anything above, is already a (proto)-social interaction, if actions of one agent modifies another, or perhaps (more enactive) if there is some co-regulation involved. Many Enactivists would typically claim that much cognition which was traditionally conceived of as individual is actually explicitly social.

But then there is a more maximal sense which involves being part of the human world. Wolf-children for instance may be social in the minimal sense but not the in the more full sense; they may be social in the sense of social animals much of whose life is conditioned by interaction but not social in the sense of interacting with or more properly, being shaped by the human world. Much human social cognition is only weakly or very indirectly socially interactive. In some ways even solitary human activities are more fully social than the interactions of the wolf-child. To see this, consider the minimality constraint as a way of demarcating social cognitions.

While at the limit this may be a constraint on being-in-the-human-world much fully social activity involves no direct human interaction at all. Take the scholar working alone in his or her library. A day may pass in silence, reading books, taking notes and collecting thoughts but none of this need take place with any direct interaction

with other people; yet it is in a very strong sense socially conditioned. The Scholar's work is addressed – at best – to the entire history of human thought and it is impossible that it could be imagined without this history. The lived experience of this solitary activity for the scholar is in one sense solitary and in another social. Or take another, the machinist working at a lathe. Parts of already worked mechanism are delivered to his work-bench which are then brought to the machine and turned and customised by the worker. To the casual observer this may appear a rather solitary activity, and it may appear so even to the machinist himself, but it is conditioned upon and by the host of socially invented technologies, processes, material, work-plans and motives of the human world. Ultimately the whole project is oriented towards producing artefacts of social rather than individual use.

In many ways work is the prototype of a social activity because, against the minimal conception, it implies maximal involvement of the individual in the total life-world of human beings. In these examples we find almost prototypically solitary experiences are, in myriad ways socially conditioned and socially directed; the tools, principles, motivations, scruples and life of the scholar and the machinist are determined by the nature of the social world in which his or her activities are embedded. A paradox here is that this social character is not necessarily reflected in the lived experience of the worker. Lived experience then is no necessary guide to the actual social character or otherwise of an activity. The worker may experience much work as lacking volition and spontaneity, as in fact alienated. Indeed this will typically be the case, even where the activity cannot possibly be understood without consideration of its social determinants. Thus there is basic problem trying to capture the social character of human cognition from the dominant perspective of lived experience. We need further to understand the objective structure, place and purpose of this life-world.

Further problems come when one considers that the more maximal human sense of social 'emerges' from the more minimal sense; at least in any straightforward way. The human life-world pre-exists the individual. If anything is emergent it is the individual not the social.

2- Is there a difference of degree or a difference in kind between individual and social cognition? How do you see their relation?

Taking on board the foregoing reflection on the nature of the human social world it is rather difficult to say that a set of cognitions are social and some others are individual. The human life-world which is not emergent from the individual or even the interacting group will tend to wrench "natural" social and individual cognitive processes from one context and shape and deploy them elsewhere; even produce entirely new cognitive processes which are not at all individual. These processes can then come to characterise the intimate modes by which the individual comes to act, interact and reflect upon the world.

There is probably little in what human beings do which is truly individual. This further tends to separate the character of human cognition from animal cognition and makes it highly problematic to use the latter to measure the former.

3- If you had to identify a single major conceptual challenge and a single technical breakthrough for advancing our understanding of social cognition, what would they be?

To understand the interrelation between technology, forms of social organisation and conscious reflection in human life. How and what becomes opaque and or transparent to human agents under different form of life; the ever shifting relationship between consciousness and unconsciousness here.

4- What do you understand by an "enactive" approach to (social) cognition and what do you think might be the advantages/problems of such an approach?

The enactive approach tends to counterpose itself to classical cognitivism. Classical cognitivism adopts methodological individualism as a core methodological precept which the enactive approach rightly critiques. However the enactive approach tends to replace this with overly minimalistic and undifferentiated notion of social cognition which it sees as being core to all cognition. The enactive approach – although especially work in enactive perception – tends to work with a very minimal concept of the social or none at all. In many ways this is an improvement on cognitivism but it is still too antithetical in its outlook. The social is still probably the main theoretical and practical weakness of enactivism.

5- Different disciplines can fruitfully inform an enactive approach to social cognition (dynamical systems theory and models, developmental psychology, neuroscience, interaction studies, sociology, phenomenology, cognitive linguistics, ethics, "the arts", and others). Could you pick *one* that you consider not just important, but central and say why?

Idealistically speaking probably sociology, but much sociological theory is itself rather weak having capitulated to post-modernism and is ill-positioned to give what is required.

Nikki Moran

1. We talk about social cognition, social understanding, social interaction, social development. What makes them 'social'?

These are all phenomena that require the consideration of more than one individual; they all relate to acts of communication, participation and shared understanding.

2. Is there a difference of degree or in kind between individual and social cognition? How do you see their relation?

I don't see that the individual exists in consciousness without reference to others. So I'm led simplistically to the conclusion of a difference in degree... But I have wondered whether it's in a space created by the difference between the two that the capacity for acts of cultural creativity lies. Art must make reference to (or have context in) shared, cultural knowledge. However - culturally specific notions of the individual genius notwithstanding - art is generated through individual acts of creativity.

3. If you had to identify a single major conceptual challenge and a single technical breakthrough for advancing or understanding of social cognition, what would they be?

A major conceptual challenge might be to get around linguistic dominance in our understanding of human communication. Humans in everyday encounters are able to co-operate in real-time with or without verbal language. This leads to a vaguely-imagined technical breakthrough, which would be better means to access and interpret movement during the immediate timeframe in which real encounters and interactions take place.

4. What do you understand by an 'enactive' approach to (social) cognition and what do you think might be the advantages/problems of such an approach?

The enactive approach promises a focus on participatory, communicative human acts that alternative individualistic interpretations of perception and cognition are not well-equipped to tackle. Problems may be in finding methodologies to access, empirically, the emergent nature of socially-generated meanings. In social sciences, methods and tools are typically geared towards the wider 'macro' level where social meaning might be examined, or in 'micro' levels where the patterns and structure of individual behaviour might be explored.

5. Different disciplines can fruitfully inform an enactive approach to social cognition (dynamical systems theory and models, developmental psychology, neuroscience, interaction studies, sociology, phenomenology, cognitive linguistics, ethics, 'the arts', and others). Could you pick one that you consider not just important, but central, and say why?

Music might typically be considered a domain of 'the arts'. In fact, music is a special sort of collaborative human activity, socially meaningful in a manner that relates to its dependence on physical acts whose duration, and the place they occupy in time, are important. Before language develops, the pre-verbal communication between mother and infant can be compared to improvised musical forms of interaction. For these reasons, both this subject area and the discipline of music psychology (diverse in itself) seem to me to be vital to the understanding of social cognition.

Steve Torrance

1- We talk about social cognition, social understanding, social interaction, social development. What makes them "social" in your opinion?

2- Is there a difference of degree or a difference in kind between individual and social cognition? How do you see their relation?

Addressing questions 1 & 2: Two interesting things about cognitive science and social cognition: (a) During its history the cognitive sciences have been almost entirely 'individual-oriented'; (b) once you start looking for the 'social' you find it practically everywhere. (Think of sociality in non-human animals, including insects, bacteria even; sociality in neonates – even perhaps pre-natal proto-sociality...?)

To define the social it's not sufficient to talk about interaction between two or more agents. What counts as an interaction? –for instance, do the agents have to be physically in each others' presence? Can I interact with someone absent or dead? To take an example at random, if I am sitting alone reading Dostoevsky am I engaging in a social interaction (with the dead author, perhaps with previous generations of readers, critics, the Russian people, maybe even with the fictional characters in the book?)? Maybe, maybe not – and different things might be said of the different kinds of candidate interactees there. The term 'social' covers a cluster of disparate kinds of property, with many different facets: multiple-agency; one-to-one; small group; large group; culture; language; economy; politics; etc.

3- If you had to identify a single major conceptual challenge and a single technical breakthrough for advancing our understanding of social cognition, what would they be?

Conceptual challenge – giving a clear and non-vacuous characterization of the social (see above).

Technical breakthrough: the development of artificial social agents is one area which is likely to provide important insights into the social – both by shedding light on current conceptions and in advancing novel conceptions. It's an area with its own momentum. There is likely to be a future explosion in artificial 'social' agents with increasingly rich properties.

4- What do you understand by an "enactive" approach to (social) cognition and what do you think might be the advantages/problems of such an approach?

I would situate the 'enactive' in terms of a set of key texts and authors, and in terms of a loose intellectual allegiance to some main ideas expressed in those texts. This is very vague, but I don't know if you can get any closer to an adequate understanding. There seem to be as many definitions of the 'enactive' as there are texts offering such definitions – even the major authors in the field seem to offer many different characterizations in different published output. So any attempt to say what 'the enactive' is will reflect personal preoccupations – will be persuasive or aspirational rather than descriptive.

This is a problem as is a danger that over-use of the term will create a false sense of unity. Like the politics of Obama right now, the label 'enactive' promises a new dynamism, and gives a rallying-call to those who want change (in this case, to research directions in the cognitive sciences).

5- Different disciplines can fruitfully inform an enactive approach to social cognition (dynamical systems theory and models, developmental psychology, neuroscience, interaction studies, sociology, phenomenology, cognitive linguistics, ethics, "the arts", and others). Could you pick *one* that you consider not just important, but central and say why?

It's difficult to pick out a single discipline in what is (as many others have pointed out) an essentially multi-disciplinary area. Instead I will emphasize a particular perspective which is worth singling out, not as 'the' most important, but simply because otherwise it might be overlooked; the ethical domain.

The social and the ethical are strongly overlapping areas: our social categories are ethically soaked. When we engage in interpreting, explaining, predicting, etc., ourselves in relation to others, or others in relation to ourselves, we are engaging in normative thinking – e.g. about what is ‘normal’, ‘proper’, ‘healthy’, etc. We identify, differentiate, classify, diagnose, in terms of assumed, semi-conscious moral categories.

This can be illustrated in many ways. One example comes from Ibsen's play Hedda Gabler . When Hedda shoots herself, the predatory Judge Brack says: “Good God! People don’t do such things!” (and the play ends). What is or isn’t expectable is closely connected with what is or isn’t ‘done’.

To be reflectively scientific about the social requires that the moral and the factual be far more closely inter-associated than is usually thought. Enactive approaches should help us explore how the two domains co-relate.

Xabier Barandiaran

1- We talk about social cognition, social understanding, social interaction, social development. What makes them "social" in your opinion?

Social cognition is not just a cognitive process that involves more than a single cognitive agent. Social cognition requires some degree of commitment of the very identity of an agent within a multi-agent process: the structure of a social cognitive act must depend recursively on the agents involved so as to require that each participant be open to reorganize its behaviour in the social context. As a result the social transforms or expands the very notion of agency. A social agent is not a source of behaviour that is asymmetrically controlling its coping with an environment that is passively interpreted from within. Within the social an agent becomes an actor in a flexible environment that becomes an inter-agential structured domain.

2- Is there a difference of degree or a difference in kind between individual and social cognition? How do you see their relation?

There is a difference of kind, for the social transforms the very notion of agency and environment. Socialization might be graded, but at some point the recursive nature a necessary openness to the social makes it irreversible and qualitatively different. Some types of cognitive development, and the resulting capacities, are not accessible without a social context.

3- If you had to identify a single major conceptual challenge and a single technical breakthrough for advancing our understanding of social cognition, what would they be?

Two intertwined challenges: a) to show, at least conceptually but operationally, how the identity of an agent (the organization of its behaviour) is shaped within a domain of social interactions in ways not accessible outside such a realm; b) to show how a new level of "collective-agency" emerges and yet partners can detach from it to carry on certain tasks while incorporating it, i.e. how can a social agent be irreversibly transformed in the way it copes with its world even when it acts individually.

4- What do you understand by an "enactive" approach to (social) cognition and what do you think might be the advantages/problems of such an approach?

By "enactive approach" I understand the emphasis on embodied behavioural coupling, the selective shaping of the environment by an agent and the priority of understanding and modelling cognition in a post-representational manner, assuming the challenge of generating meaning relationally and holistically without presupposing it as encapsulated in tokens. For social cognition the "enactive" approach involves the task of making explicit what makes communication or sociality possible in the first place, what is the role played by embodied behavioural coordination and the emergence of meaning through interaction processes between agents. The major advantage is that questions can be asked about the origin and dynamic configuration of inter-agent meaning or coordinated behaviour without having to assume that information tokens are exchanged between agents. The difficulty lies in generating higher order explanations not involving an exhaustive dynamic modelling, i.e. on reconstructing a conceptual framework that can grasp social cognition without committing to an informational talk that hides the very essence of sociality.

5- Different disciplines can fruitfully inform an enactive approach to social cognition (dynamical systems theory and models, developmental psychology, neuroscience, interaction studies, sociology, phenomenology, cognitive linguistics, ethics, "the arts", and others). Could you pick *one* that you consider not just important, but central and say why?

A dynamic modelling of development in a social context seems to me the right framework to solve some of the most challenging question that the "social" opens up for cognitive science.

Maxine Sheets-Johnstone

1- We talk about social cognition, social understanding, social interaction, social development. What makes them "social" in your opinion?

If you will excuse the neologism, in different but not unrelated ways, they all add up to a complexification of life.

2- Is there a difference of degree or a difference in kind between individual and social cognition? How do you see their relation?

In kind, and this for two reasons:

- a) alone and together are experientially different (and so is the experience of being alone together as per Winnicott's exposition of same)
- b) basic complexification as per above

3- If you had to identify a single major conceptual challenge and a single technical breakthrough for advancing our understanding of social cognition, what would they be?

Conceptual clarity: related to the challenge of languaging experience and the taken-for-granted and deceptive practice of naming. (I don't have any technological expertise, so can't answer that part, but being strongly concerned with methodology, I would emphasize methodological breakthroughs!)

4- What do you understand by an "enactive" approach to (social) cognition and what do you think might be the advantages/problems of such an approach?

Conceptually and experientially inaccurate. Only from an objective (and from what I term an adultist) perspective do "beings" "perform actions" "in the world." Enaction falls short of a basic approach to, and basic (ontogenetical and phylogenetical) understandings of, animate life, which, by its nature, articulates in different forms and throughout a subject-world relationship.

5- Different disciplines can fruitfully inform an enactive approach to social cognition (dynamical systems theory and models, developmental psychology, neuroscience, interaction studies, sociology, phenomenology, cognitive linguistics, ethics, "the arts", and others). Could you pick *one* that you consider not just important, but central and say why?

Phenomenology and coordination dynamics because they acknowledge to begin with and attempt to fathom the ground floor of life, i.e., experience, on the basis of which all quests for knowledge are cognitively grounded and all cognitive investigators derive their affective impulse to explore.

Manuela Jungmann

1- We talk about social cognition, social understanding, social interaction, social development. What makes them "social" in your opinion?

The social aspect related to humans is first of all grounded in situated and shared actions. Humans engage in a web of actions that is characterized by quality and expression. What I mean by quality is the level and range of

intention that motivates action. The expressive side is the manifested expression of action in the world, which is linked to environment and the production and use of cultural artefacts. However both of these descriptions are not separately distinguishable, they are interdependent and underpinned by the continuous process of change.

The social aspect stems from this fundamental position of human activity and centres on the construction and recognition of types of relationships amongst humans. An important contribution to what it means to be social is the prediction of behaviour, and the ability to relate to another's state as well as his or her intentions. The meaning of social extends further in two ways; the understandings of social groups, how others are associated to relationships with others, and the use of communicative strategies to learn, compete and cooperate with other humans. A major link between human activity and relationships is the element of time which recursively influences the above-mentioned process of change and creates cultural history.

2- Is there a difference of degree or a difference in kind between individual and social cognition? How do you see their relation?

There is a difference in degree between individual and social cognition. Individual cognition is linked to social situations via cultural values. Cultural values are the mutually established meaning of activity which is codified in various forms of communication e.g. language, art- so that it can be referenced by individuals of a culture. Human activity and relationships, as well as the resulting cultural values are subject to process, where individual cognition is a contributing factor to ongoing change.

3- If you had to identify a single major conceptual challenge and a single technical breakthrough for advancing our understanding of social cognition, what would they be?

The conceptual challenge would be an understanding of how to quantify social cognition in all the complexity of real world situations and a technical breakthrough would be the ability to measure it.

4- What do you understand by an "enactive" approach to (social) cognition and what do you think might be the advantages/problems of such an approach?

A central concept of enactive cognitive science is the environment (Umwelt) in which the agent is embedded. Umwelt and agent are mutually dependent, manifesting the lived in world in a co-dependent fashion. An enactive approach to the study of social cognition needs to incorporate the actual context in which social cognition takes place. This presents the problem of how to cope with the complexities of real world living, and the advantage of possibly overcoming the problem of approximation which is prevalent in a more reductionist and laboratory-based approach of the study to social cognition.

5- Different disciplines can fruitfully inform an enactive approach to social cognition (dynamical systems theory and models, developmental psychology, neuroscience, interaction studies, sociology, phenomenology, cognitive linguistics, ethics, "the arts", and others). Could you pick *one* that you consider not just important, but central and say why?

I think that the contemporary arts are a perfect candidate to fruitfully inform an enactive approach because contemporary art is the singular expression of a culture that links the various momentary trends together into one understanding and communicates them in unprecedented ways. Hence the contemporary arts can communicate the current evolutionary state of social cognition.

Charles Lenay

1- We talk about social cognition, social understanding, social interaction, social development. What makes them "social" in your opinion?

I am not sure that one can say that there is a social "cognition", but it is certain that there are social facts which constitute our common world (systems of norms, values, desires, languages, ethnic differentiations and histories, technical systems, etc.). These social facts are carried out only in the system of interactions with others and in a technical and linguistic medium historically built. They result from an essentially collective dynamics and cannot be explained by the meeting of already definite individual consciousness (intentionalities). On the contrary, the social organization is the condition for the phenomenological constitution of individual lived experience, whether it is in development or in the present activity.

2- Is there a difference of degree or a difference in kind between individual and social cognition? How do you see their relation?

There is an individual cognition only thanks to a social organization which precedes it and makes it possible. The social construction of individual cognition is carried out during the development and this social organization is the support of individual activity in the technical environment and language.

3- If you had to identify a single major conceptual challenge and a single technical breakthrough for advancing our understanding of social cognition, what would they be?

The crucial problem is to think the collective construction of a social organization by individuals who are themselves produced by this organization. It is the question of the psychic and collective co-individuation (Gilbert Simondon). It would be necessary to give an account of essentially collective operation, escaping the consciousness from each individual who takes part in it, ... and which however can then be seized by these individuals. It is also the question of the collective constitution of a common world of objectivity, signs and values.

4- What do you understand by an "enactive" approach to (social) cognition and what do you think might be the advantages/problems of such an approach?

In an enactive approach one seeks to account for the phenomenological constitution of the contents of the experience, and not to seek internal representations of an external reality. Thus, the interest of an enactive approach is to propose, for each contents of the conscience, a method of construction of these contents, in particular in the embodied sensorimotor coupling and its technical mediation.

5- Different disciplines can fruitfully inform an enactive approach to social cognition (dynamical systems theory and models, developmental psychology, neuroscience, interaction studies, sociology, phenomenology, cognitive linguistics, ethics, "the arts", and others). Could you pick *one* that you consider not just important, but central and say why?

I think that it is essential to develop a science of the technical mediations of the coupling between living beings and their Umwelt. Indeed, it is only when we can vary technically this coupling that we can understand his possible dynamics, the way of which it allows the phenomenological constitution of space, objects and their properties, social institutions, etc. This science is neither psychology, nor sociology.

Vasu Reddy

1- We talk about social cognition, social understanding, social interaction, social development. What makes them "social" in your opinion?

I would see the 'social' as equivalent to the relational. Of course this implies broadening the definition of the social to include all relation - whether with the floor we stand on or the ball we bounce or the person whose smile we respond to. Although this broadening blurs many distinctions, for instance between our social

cognition and our physical cognition, I think the distinctions are worth blurring at this stage. I think it is relation that is primary in our awareness of all things - whether social or non-social, and that it may be useful not to have an a priori exclusion of the non-social until we understand more about these processes. Perhaps Buber's I-Thou relation to the tree is influencing this bias!

2- Is there a difference of degree or a difference in kind between individual and social cognition? How do you see their relation?

This is a funny question. At first thought my answer is of course it is a matter of degree rather than kind. But I think probably the question is more complex than that. Cognition is always both individual and social (in the sense of emerging and existing in relation to other things -people). Perhaps this is the crux of the matter.

3- If you had to identify a single major conceptual challenge and a single technical breakthrough for advancing our understanding of social cognition, what would they be?

I think the major conceptual challenge that is confronting me is something like this relation between the individual and the social in cognition (as in question above). I would put it this way: having emphasised the absolute primacy of engagement in the awareness of other persons, I think it is the relation - perhaps alternating, perhaps simultaneous - between engagement and dis-engagement that is fundamentally important in our awareness of and actions in the world. I think even babies dis-engage at times - and watch or 'contemplate', and even babies dis-engage within intense engagement enough to create humorous episodes and tease or respond with laughter. It is how we as individuals manage the two things - beign inside an engagement and at the same time step briefly outside it to reflect or comment or laugh - that is for me the next conceptual challenge.

Technological breakthrough? Hmm. Perhaps interactive fMRI or interactive EEG (but these already exist in some form and won't give any perfect answers) so - no. Perhaps this: a camera which sees with our eyes and selects with our motivations and feels with our feelings and responds with our bodies....? A human in fact?!

4- What do you understand by an "enactive" approach to (social) cognition and what do you think might be the advantages/problems of such an approach?

I see enactive as meaning an adualism of action and awareness. So, awareness of the social is inseparable from social action and social action always involves social awareness. The active must be not only conceptually inseparable from the cognitive, but must be developmentally and existentially inseparable too. Of course the problem with all such recognition of the fuzziness and limitedness of our concepts, is that the more we rub out the boundaries, the harder it becomes to say anything at all.

5- Different disciplines can fruitfully inform an enactive approach to social cognition (dynamical systems theory and models, developmental psychology, neuroscience, interaction studies, sociology, phenomenology, cognitive linguistics, ethics, "the arts", and others). Could you pick *one* that you consider not just important, but central and say why?

This is a hard one. And perhaps it is againt the spirit of 'enactiveness' to draw more boundaries, but I'll have a go. Not being a philosopher, I would say phenomenology. Because it seems to acknowledge that the primary commitment in science is to the phenomenon. I think this is the most important in any science - so i will give it my vote!
