Epistemology and Active Externalism

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1 Introduction

Recently, there has been a growing interest in topics at the intersection of epistemology and externalist philosophy of mind in the form of *active externalism*. Active externalism, contrary to Putnam and Burge's content (or *passive*) externalism, concerns the aspects of the environment that determine the content and the flow of cognition, not by acting as the background which cognition takes place against or is merely embedded in, but instead by driving and restraining the on-going thoughts and reasoning processes. There are several formulations of active externalism, but the view can be fruitfully categorised in the following three main varieties: (i) The hypothesis of *extended cognition*, according to which cognitive processes extend to the environment beyond the organism; (ii) the hypothesis of the *extended mind*, according to which mental states, such as beliefs and desires are extended beyond the organism and finally, (iii) the hypothesis of *distributed cognition*, according to which cognitive processes are distributed between several individuals along with their epistemic artifacts. It

should be noted, however, that even though these three types of active externalism are supposed to be distinct and can be motivated on the basis of independent argumentative lines, they are not incompatible with each other; there is in fact significant overlap between them. Likewise within the literature concerning the debate over active externalism, there is no consensus regarding how the view is supposed to be contrasted with the less provocative hypothesis of *embedded* cognition, according to which cognition may rely heavily on the agent's surrounding environment, but is clearly restricted within one's organismic boundaries. This unfortunate lack of clear theoretical distinctions is unsurprisingly inherited by the nascent (though burgeoning) literature at the intersection of *epistemology* and externalist philosophy of mind. Accordingly, even though there have been a few attempts to provide a topography of the relevant theoretical landscape so as to clarify what are the possible ways in which (for instance) knowledge and epistemic justification can be conceived of as extended or distributed, the present entry should be considered as a first attempt to categorize the existing and quickly growing literature in as an informative way as possible so as to facilitate future research on the topic. To this end, existing literature has been organised in the following categories: (1) 'General overviews' of the literature on the intersection of philosophy of mind and epistemology; (2) 'Textbooks' dedicated to the topic, broadly construed (3) 'Anthologies' dedicated to the topic; (4) 'Embedded cognition and epistemology' (5) 'Extended Cognition and Epistemology' (6) 'Extended Mind and Epistemology' (7) 'Distributed Cognition and Epistemology' (8), 'Collaborative Knowledge and Scientific Knowledge'; and finally, (9) 'Related Literature', which contains miscellaneous literature that is expected to have an important input in future related literature.

2 General Overviews

While most of the literature at the intersection of epistemology and active externalism explores specific topics of connection between these two areas, there are two survey-style pieces which provide a wider perspective on the growing body of work relating epistemology to active externalism. Palermos & Pritchard (2013) is one such treatment, which explores (in particular) some of the more general themes at the fore of work connecting active externalism and social epistemology. The most comprehensive and substantial survey piece to date is Carter et al. (2014), which is a 40-plus page, state-of-the-art overview of the terrain. In addition, building on some of the foreground laid out in Carter et al., (Carter & Palermos, forthcoming*a*) explore in greater details the compatibility of epistemic internalism and content externalism, and (Carter & Palermos, forthcoming*b*), provides a detailed exploration of the compatibility between epistemic internalism and active externalism.

Carter, J.A., Kallestrup, J., Palermos, S.O., Pritchard, D. (2014). 'Varieties of Externalism', *Philosophical Issues*, 24, 63-109.

An extended state of the art survey piece charting terrain at the intersection of epistemology and active externalism in the philosophy of mind.

Palermos, S. O., & Pritchard, D. (2013). 'Extended Knowledge and Social Epistemology', *Social Epistemology Review and Reply Collective*, *2*(8), 105-120.

> Examines how *extended knowledge*, the result of combining active externalism from contemporary philosophy of mind with contemporary epistemology, can offer an alternative conception of the future of social epistemology.

Carter, J., A., & Palermos, S., O. (forthcoming*a*). 'Epistemic Internalism, Content Externalism and the Subjective/Objective Justification Distinction'. *American Philosophical Quarterly.*

> Examines two prominent arguments against the compatibility of epistemic internalism and content externalism and argues that both arguments fail by equivocating on the notion of epistemic justification involved in their premises; this can become particularly obvious once the independently motivated distinction between subjective and objective justification is introduced.

Carter, J., A., & Palermos, S., O. (forthcoming*b*). 'Active Externalism and Epistemic Internalism', *Erkenntnis.* DOI 10.1007/s10670-014-9670-5

> Argues that, despite initial intuitions to the contrary, active externalism is compatible to epistemic internalism, and that only when the latter is explicitly paired to epistemic individualism does genuine incompatibility arise.

3 Textbooks

There are, to date, no textbooks proper on this relatively new topic. There are, however, several monographs that engage exclusively with philosophical issues integral to applications of active externalism to epistemology. Clark (2008) draws from recent interdisciplinary work to depict some coalitions of biological and non-biological resources as the extended cognitive circuitry of individual minds. In doing so, this monograph fleshes out, in more sophistication, the kind of proposal Clark & Chalmers proposed in their classic paper defending an extended mind. Menary (2007) is a monograph that offers a systematised argument for the view that, in short, 'internal' and 'external' aspects of cognition are integrated into a whole.

Clark, A. (2008). *Supersizing the Mind: Embodiment, Action, and Cognitive Extension: Embodiment, Action, and Cognitive Extension. Oxford University Press.*

  The most detailed defence of active forms of externalism to date.

Menary, R. (2007). *Cognitive Integration: Mind and Cognition Unbounded.*

  Argues for a 'hybrid' conception of cognition, on which internal and external processes and vehicles complement one another in the completion of cognitive tasks.

4   Anthologies

There are already five collections of papers that specifically concern the epistemological connections of (various forms of) active externalism. The earliest such collection of papers is a 2012 special issue of *Philosophical Explorations*, (Clark et al. 2012) , entitled 'Extended Cognition and Epistemology'. While this collection focuses on the epistemological ramifications of specifically extended cognition, the 2014 *Philosophical Issues* special issue on *Extended Knowledge* (Carter et al. 2014), as well as the forthcoming 2015 *American Philosophical Quarterly* special issue *Varieties of Externalism: Epistemic, Content, Vehicle* (Carter et al. 2015), feature papers that connect epistemological issues with (along with extended cognition), embedded cognition, distributed cognition and the extended mind. Along with these special journal issues, there is also an edited volume featuring original contributions on extended knowledge, forthcoming in 2015 from Oxford University Press. The 2015 volume, *Extended Epistemology,* features a range of papers that engage with the issue of how knowledge might be conceived of as extended.

Extended Cognition and Epistemology (edited by Clark, A., Pritchard, D. & Vaesen, K.). Special issue of *Philosophical Explorations*, Volume 15, Issue 2, 2012.

  The first collection of papers connecting any variety of active externalism to epistemology; offers papers both optimistic and pessimistic about the epistemological ramifications of extended cognitive processes.

Extended Knowledge (edited by J.A. Carter, J. Kallestrup, S.O. Palermos and D. Pritchard). Special issue of *Philosophical Issues*, 2014.

  Features a variety of papers dedicated on the intersection of active externalism, the hypothesis of embedded cognition, epistemology and closely related issues.

Extended Epistemology edited volume, Oxford University Press, (edited by J.A. Carter, J. Kallestrup, S.O. Palermos and D. Pritchard), 2015.

> Collection of papers from distinguished and early-career philosophers on the topic of extended knowledge, broadly.

Varieties of Externalism: Epistemic, Content, Vehicle (edited by J.A. Carter, J. Kallestrup, S.O. Palermos and D. Pritchard). Special issue of *American Philosophical Quarterly*, 2015.

> Features six papers connecting varieties of externalism in epistemology and the philosophy of mind.

5 Embedded Cognition and Knowledge

As noted in the introduction, within the literature regarding the debate over active externalism, there is little consensus as to how the view should be contrasted with the less provocative hypothesis of embedded cognition, and this is occasionally reflected within the literature at the intersection of epistemology and philosophy of mind. Indicatively, the exchange between Vaesen 2011, Vaesen 2013 and Kelp 2013a and Kelp 2013b concerns the former's attempt to challenge virtue reliabilism on the basis of what he calls 'mundane cases of extended cognition' and the latter's attempt to defend virtue reliabilism against the relevant arguments, but it should be made clear that the said 'mundane cases of extended cognition' are perhaps best characterised as cases of embedded cognition. Independently of the debate between Vaesen and Kelp, Gerken 2014 attempts to elucidate this crucial distinction with an eye specifically on epistemology.

Gerken, M. (2014). 'Outsourced Cognition', *Philosophical Issues, 24,* 127–158).

> Argues that 'outsourced cognition' (a form of embedded cognition) should be prefered over extended cognition; such a view, according to Gerken, is well placed to elucidate several problems concerning what may be considered an extended epistemology of testimony.

Kelp, C. (2013a).'Extended Cognition and Robust Virtue Epistemology'. *Erkenntnis.* 78 (4): 963-970.

> Replies to Vaesen's (2011) arguments against virtue epistemology on the basis of 'mundane cases of extended cognition'.

Kelp, C. (2013b). 'Extended Cognition and Robust Virtue Epistemology: Response to Vasen'. *Erkenntnis* 79(3): 729-732

> Response to Vaesen's (2013) attempt to support his intitial arguments against virtue reliabilism on the basis of 'mundane extended cognition'.

Vaesen, K. (2011). 'Knowledge Without Credit, Exhibit 4: Extended Cognition.' *Synthese* 181: (3), 515-529.

> Vaesen's initial attempt to argue again virtue reliabilism on the basis of what he calls 'mundane cases of extended cognition'.

Vaesen, K. (2013). 'Critical Discussion: Virtue Epistemology and Extended Cognition: A Reply to Kelp and Greco'. *Erkenntnis* 78 (4): 963-970.

> Vaesen's response to Kelp's (2011) defense of virtue reliabilism against the relevant arguments.

6 Extended Cognition and Epistemology

Thus far, the literature on the epistemological ramifications of active externalism has been framed primarily in terms of the *extended cognition thesis* on the basis of two general approaches. The first general approach focuses on the most obvious interface between active externalism and mainstream epistemology, which is to draw connections between extended cognitive processes and the kinds of cognitive abilities adverted to by virtue epistemologists. The second general approach is less systematic but attempts to introduce the idea of cognitive extension within mainstream epistemology in a multitude of new and interesting ways that do not make any specific epistemological commitments.

6.1 Extended Cognition and Virtue Epistemology

The first such paper to appear is Pritchard (2010), which connects the conditions that must be satisfied for a cognitive processes to count as a knowledge-generative cognitive ability, with the conditions that must be satisfied for an external artifact to be integrated into a cognitive process one employs, as per the hypothesis of extended cognition. Palermos (2011, 2014, forthcoming) develops this programme further, and focuses on cognitive integration conditions, both from the perspective of virtue reliabilism within externalist epistemology and the perspective of extended cognition within externalist philosophy of mind and cognitive science. Jarvis (2014), likewise addresses cognitive integration by drawing attention to how a subject's environment can play *epistemic* roles that are indicative of *cognitive* roles. Clark has recently highlighted some possible shortcomings in the existing approaches, which, he suggests, can be overcome

by invoking considerations related to predictive coding. In addition, Menary (2012) argues that epistemic cognitive characters extend not via external artifacts but rather via publicly acquired practices of creating and manipulating information and Hetherington (2012) argues that in general, when epistemic externalism is properly understood, it can meaningfully provide for the possibility of extended knowers whose epistemic cognitive capacities are not restricted with their organismic boundaries.

Clark, A. (forthcoming). What Extended Me Knows. *Synthese. 10.1007/s11229-015-0719-z*

> Argues that current attempts to reconcile virtue epistemology with the hypothesis of extended cognition seem to face certain problems that might be satisfactorily resolved by introducing consideration pertaining to predictive coding.

Jarvis, B. (2014). 'Evaluating the Extended Mind', *Philosophical Issues, 24,* 209-229.

> This paper defends a modest version of the extended cognition thesis, showing that features of a subject's environment can have *epistemic* roles that are indicative of cognitive roles

Palermos, S. O. (2011). 'Belief-Forming Processes, Extended'. *Review of Philosophy and Psychology.* 2 (4), pp. 741-765.

> Argues that virtue reliabilism and the extended cognition hypothesis share some intriguing similarities that can provide for a principled account of the way in which knowledge-conducive cognitive characters may extend beyond natural cognitive capacities by incorporating epistemic artifacts.

Palermos, S. O. (2014). 'Knowledge and Cognitive Integration', *Synthese*, *191*(8), 1931-1951.

> Combines elements of virtue reliabilism with extended cognition to argue that so long as the agent's belief-forming process has been integrated in his cognitive character, the agent can be justified in holding the resulting beliefs merely by lacking any undefeated psychological defeaters.

Palermos, S. O. (forthcoming). Active Externalism, Virtue Reliabilism and Scientific Knowledge. *Synthese. 10.1007/s11229-015-0695-3.*

Attempts to account for several aspects of scientific knowledge in mainstream epistemological terms by combining virtue reliabilism with both the extended and the distributed cognition hypotheses.

Hetherington, S. (2012). 'The Extended Knower'. *Philosophical Explorations,* 15 (2): 207-218.

Argues that an improved understanding of the implications of epistemic externalism can give rise to the possibility of extended knowers, as motivated by the hypothesis of extended cognition.

Menary, R. (2012). 'Cognitive Practices and Cognitive Character'. *Philosophical Explorations,* 15 (2): 147-164.

Argues that epistemic cognitive characters extend not on the basis of the integration of epistemic artifacts, such as notebooks, but on the basis of acquired practices of creating and manipulating information that is stored in a publicly accessible environment.

Pritchard, D. (2010). 'Cognitive Ability and the Extended Cognition Thesis', *Synthese 175*(1): 133-151.

Argues that the conception of cognitive ability that is plausibly required for knowledge can be rendered consistent with the extended cognition thesis.

6.2   Extended Cognition and General Mainstream Epistemology

One natural strand of research that has emerged from interfacing extended cognition with mainstream thinking about epistemology, concerns new puzzles--puzzles (for traditional epistemology) that seem to materialise only once belief-forming processes are conceived as extended. Carter (2013) poses several such puzzles, specifically by showing how extended cognition makes for some new philosophical problems connected to ordinary thinking about epistemic luck. Carter & Kallestrup (2014) likewise, shows how memorial extended cognition cases pose puzzles for mainstream thinking in the epistemology of memory. Furthermore, some papers have explored applications of HEC with specific programs within epistemology. Carter & Pritchard (2014) for example, argue that extended cognitive processes can be generative of Burgean-style extended entitlements. Brogaard (2014) and Proust (2014) connect HEC with procedural knowledge and knowledge of action, and with metacognition, respectively, while Carter & Palermos (2014) envision, *via* extended cognition as well as the

extended mind thesis, anti-individualistic forms of epistemic internalism., Two more general philosophical issues are pursued in Kelp (2014) and Vaesen (2014). Kelp insists that accommodating (by being, at least, compatible with) HEC can be regarded as a desideratum for any plausible theory of knowledge. Whilst Kelp's contribution, as well as the others discussed in this section, engage with issues that could fairly be described as situated within mainstream epistemology (broadly construed), Vaesen (2014) insists that the rationale motivating extended cognition would be comparatively better accommodated within the kind of epistemological framework developed by John Dewey.

Brogaard, B. (2014). 'A Partial Defence of Extended Knowledge', *Philosophical Issues,* 24, pp. 39-62.

> This paper defends HEC with respect to procedural knowledge and knowledge of action.

Carter, J. A. (2013). 'Extended Cognition and Epistemic Luck', *Synthese*, *190* (18), 4201-4214.

> This paper considers the extent to which extended cognition cases generate new problems for mainstream thinking about epistemic luck.

Carter, J.A. & Kallestrup, J. (2014). 'Extended Cognition and Propositional Memory', *Philosophy and Phenomenological Research*, forthcoming.

> This paper raises some puzzles that extended memory cases pose for mainstream thinking about propositional memory and attempts to resolve them.

Carter, J.A. & Palermos, S.O. (2014). 'Active Externalism and Epistemic Internalism' *Erkenntnis*, forthcoming.

> This paper argues that two varieties of epistemic internalism--mentalism and accessibilism--can be rendered compatible with both the extended mind and extended cognition theses.

Kelp, C. (2014). 'Epistemology Extended', *Philosophical Issues, 24,* pp. 230-252.

> This paper argues against the plausibility of theories of knowledge whose presuppositions entail the falsity of HEC and further elaborates a positive proposal for best accommodating HEC.

Pritchard, D. & Carter, J.A. 'Extended Entitlement', in *Epistemic Entitlement*, (eds.) P. Graham & N. Pedersen, (Oxford UP, *forthcoming*).

> Argues that that extended memory cases, properly understood, involve a kind of 'extended entitlement', where the entitlement in question is of the same kind as that enjoyed by our non-extended memorial beliefs.

Proust, J. (2012). 'Epistemic Action, Extended Knowledge and Metacognition', *Philosophical Issues, 24,* 364–392.

> An analysis of epistemic actions, basic and extended, is proposed as offering an appropriate framework for crediting an agent with knowledge.

Vaesen, K. (2014). 'Dewey on Extended Cognition and Epistemology', *Philosophical Issues, 24,* 426–438.

> Argues that a Deweyan epistemological framework better accommodates extended cognition than does the principal machinery used by mainstream analytic epistemology.

7 Extended Mind and Epistemology

Literature connecting the extended mind thesis to epistemology has largely clustered around two guiding themes: (i) the potential *explosion* of knowledge that seems like a *prima facie* epistemological upshot of the extended mind thesis; and (ii) ways that EMT stands to challenge orthodox ways of thinking about epistemic states and epistemic agents. Bjerring & Pedersen (2014), Lynch (2014) and Ludwig (forthcoming) have engaged with the knowledge explosion issue. The latter, more general, issue has been pursued in the papers Smithies (2015), Toon (2014), Wifkorss (2014) and DeCruz & deSmedt (2013). Smithies (2015) argues that EMT is incompatible with access internalism. Wikforss (2014) by contrast, argues that the kind of extended knowledge that would be motivated by EMT would be compatible with epistemic internalism as well as well as with varieties of epistemic externalism with which it would appear to fit more naturally. Toon (2014) and DeCruz & deSmedt consider new applications of EMT for epistemological debates; according to Toon (2014) EMT offers an avenue for defending a realist line against constructive empiricist views of instruments, while DeCruz & deSmedt (2012) connect EMT with epistemological (as well as metaphysical) issues to do with mathematical symbols and operations.

Bjerring, J. & Pedersen, N. (2014). 'All the (Many, Many) Things We Know: Extended Knowledge', *Philosophical Issues, 24,* 24–38.

Explores the potential bearing of the extended mind thesis on epistemology, with a focus on the implications for the concepts of belief and knowledge.

Lynch, M. (2014). 'Neuromedia, Extended Knowledge and Understanding,' *Philosophical Issues, 24,* 299-313.

Appeals to a 'neuromedia' thought experiment to explore two questions: (i) to what extent does such technology put pressure on the idea that we might have more than one conception of knowledge; (ii) what is the value of states that fit these conceptions (or types) of knowledge?

Smithies, D. (2015). 'Access Internalism and the Extended Mind', forthcoming in *Extended Knowledge Perspectives from Epistemology and Philosophy of Mind*, Oxford University Press, (edited by J.A. Carter, J. Kallestrup, S.O. Palermos and D. Pritchard)

Argues that the extended mind thesis is incompatible with access internalism, and on this basis, makes an epistemological case against the extended mind thesis.

Toon, A. (2014). 'Empiricism for Cyborgs', *Philosophical Issues, 24,* 409–425.

Argues that the extended mind thesis offers a way to make sense of realists' talk of instruments as extensions to the senses and that it provides the realist with a new argument against the constructive empiricist view of instruments.

Wikforss, Å. (2014). 'Extended Belief and Extended Knowledge', *Philosophical Issues, 24,* 460–481.

Appeals to the connection relationship between the extended mind and extended knowers to argue that extended knowledge does not presuppose epistemic externalism, nor does it presuppose virtue epistemology.

Ludwig, D. (forthcoming). 'Extended Cognition and the Explosion of Knowledge'. *Philosophical Psychology.* DOI: 10.1080/09515089.2013.867319

Argues that that the extended mind thesis leads to an explosion of knowledge that is caused by online resources such as Wikipedia and Google, which, on externalist accounts of cognition, must be conceived of as extended cognitive processes.

De Cruz, H. & De Smedt, J. (2013). 'Mathematical Symbols as Epistemic Actions.' *Synthese.* 190: 3-19

> Argues, on the basis of the extended mind thesis, that mathematical symbols allow us to offload mathematical operations to the external environment and that mathematical symbols are constitutive of the mathematical concepts themselves.

8 Distributed Cognition and Epistemology

Although still in its infancy, the intersection of mainstream epistemology and the *hypothesis of distributed cognition* has already gained some attention. Michaelian (2014) has put forward a version of distributed reliabilism and Green (2014) argues for an extended credit theory of knowledge in order to accommodate knowledge produced on the basis of distributed cognition

Michaelian, K. (2014). 'JFGI: From Distributed Cognition to Distributed Reliabilism', *Philosophical Issues, 24,* 314–346.

> Explores the prospects for a distributed reliabilist epistemology.

Green, A. (2014) 'Evaluating distributed cognition.' *Synthese.* 191: 79-95.

> Argues for an extended credit theory of knowledge in order to accommodate knowledge produced on the basis of distributed cognition.

9 Collaborative Knowledge and Scientific Knowledge

Even though not directly related to mainstream epistemology (save Palermos forthcoming), there is an impressive number of publications dealing with the interesting question of whether much of scientific knowledge should be understood in terms of distributed cognition. For example, both Nersessian (2006) and Thagaard (1993, 1994) argue that social approaches to science can be most fruitfully spelled out in terms of distributed cognition, and Giere (2007) concurs with such an approach, though warns that this should not be further taken to imply the existence of collective cognitive states such a distributed cognitive knowing. Solomon (1994) suggests that scientific rationality (with respect to theory choice) should be better understood as having its origins not in the individuals scientists but in the scientists' epistemic community, and Kerr & Gelfert (2014) argue that the concept of scientific evidence can be better understood

in terms of the idea of 'extendedness'. Finally, in a more mainstream epistemological tone, de Ridder (2014) argues that scientific knowledge can count as collective knowledge when satisfaction of the justification condition requires the presence of a collective entity.

Kerr, E. & Gelfert, A. (2014). 'The "Extendedness" of Scientific Evidence', *Philosophical Issues, 24,* 253–281.

> Argues that when the idea of 'extendedness' is applied to a core concept in epistemology and the philosophy of science – namely, scientific evidence – things appear to be on a much surer footing.

de Ridder, J. (2014). 'Epistemic Dependence and Collective Scientific Knowledge.' *Synthese.* 191: 37-53.

> Argues that scientific knowledge is collective knowledge in the sense that satisfaction of the justification condition on knowledge requires a collective.

Nersessian, N. (2006). 'The Cognitive-Cultural Systems of the Research Laboratory.' *Organization Studies.* 27 (1): 125-145.

> Argues for the integration of socio-cultural and cognitivist approaches to understanding scientific knowledge, on the basis of ethnographic studies and the hypothesis of distributed cognition.

Giere, R. (2007). 'Distributed Cognition without distributed knowing'. *Social Epistemology* 21(3): 313–320

> Argues that even though much of scientific activity can be profitably understood in terms of distributed cognition, this should not be taken to imply further distributed cognitive states such as distributed knowing.

Palermos, S. O. (forthcoming). Active Externalism, Virtue Reliabilism and Scientific Knowledge. *Synthese. 10.1007/s11229-015-0695-3.*

> Attempts to account for several aspects of scientific knowledge in mainstream epistemological terms by combining virtue reliabilism with both the extended and the distributed cognition hypotheses.

Solomon, M. (1994). 'Social Empiricism'. *Noûs* 28(3): 325-343.

Provides an account of scientific rationality that has its origins not in the individual scientists but in the scientists' epistemic community.

Thagard, P. (1993). 'Societies of Mind: Science as Distributed Computing'. *Studies in the History and Philosophy of Mind* 24(1): 49-67.

Attempts to integrate the cognitive and the social by comparing scientific communities to systems of intelligent computers.

Thagard, P. (1994). 'Mind, Society, and the Growth of Knowledge'. *Philosophy of Science.* 61(4): 629-645.

Argues for a combined approach to philosophy of science that focuses on both social and cognitive factors, suggesting that there may not be a clear distinction between the two.

10   Related Literature

Finally, there is a wealth of literature that—even though it is not directly related to active externalism in any of the three forms identified in the introductory section—nonetheless raises interesting and important issues with respect to the possible ways in which knowledge or its subparts may stretch beyond organismic cognitive capacities or even shared by groups of individuals. Tuomela (2004) and Gilbert (2007), for example, have pioneered an approach to collective epistemology in terms of collective intentions and beliefs. In a similar spirit, O'Madigain (2014) complements the approach by arguing for the existence of group concepts and Tollefsen (2006) explores whether collective intentions can solve the problem of groupthink, while Carter (2014) studies peer-disagreement between groups and defends a (non-summativist) group conception of conciliationism. In addition to this 'collective intentions' approach to social epistemology, Goldberg (2014) has argued for the social nature of epistemic entitlement at least in the epistemology of testimony and Bird (2010) has argued that entire scientific communitites may be the subjects of knowledge. Lackey (2014), however, has contested Bird's view by proposing that we should instead take such entities to be merely in a position to know.

Bird, A. (2010). 'Social Knowing: The Social Sense of Scientific Knowledge'. *Philosophical Perspectives*, 24 (1): 23-56.

Argues that there is a social or collective sense of scientific knowledge that does not supervene on what individuals know or even intend but which is instead motivated on the basis of a strong analogy between the functional role of individual and social knowing.

O'Madigain, C. (2014). 'Can Groups Have Concepts? A Semantics for Collective Intentionality', *Philosophical Issues, 24,* pp. 347-363.

> Draws on Lewis's conventional semantics to propose an account of group concepts, and argues that the same considerations put forward for the irreducibility of group beliefs to the beliefs of individuals can be marshaled in support of an account of group concepts.

Goldberg, S. (2014). 'Interpersonal Epistemic Entitlements', *Philosophical Issues, 24,* 159-183.

> Argues that the nature of our epistemic entitlement to rely on certain belief-forming processes, is not restricted to *one's own* belief-forming processes and that this opens the way for a non-standard version of anti-reductionism in the epistemology of testimony.

Carter, J.A. (2014). 'Group Peer Disagreement', *Ratio*, (doi: 10.1111/rati.12077).

> Recasts peer disagreement debate from individual level to the group level and further defends a (non-summativist) group conception of conciliationism.

Kusch, M. (2002). *Knowledge by Agreement.* Oxford, Oxford University Press.

> Argues that knowledge is primarily the possession of groups rather than individuals.

Lackey, J. (2014). 'Socially Extended Knowledge', *Philosophical Issues, 24,* 282-298.

> Argues that the work done by ascribing social knowledge to collective entities can instead be done by describing such entities as being in a position to know.

Gilbert, M. P. (2007). 'Collective Epistemology'. doi:10.3366/epi.2004.1.2.95

> Puts forward the authors approach to collective cognitive states as in such statements as we believe he is lying.

Tollefsen, D. P. (2006). 'Group Deliberation, Social Cohesion, and Scientific Teamwork: Is There Room for Dissent?', *Episteme* 3: 37-51.

Explores whether dissent can be achieved within groups, despite the likelihood of the epistemic defect of groupthink, and proposes a possible by solution on the basis of the approach of collective intentionality.

Tuomela, R. (2004). 'Group Knowledge Analyzed', *Episteme,* 1 (2): 109-127.

Focuses on collective mental (belief) states, in order to argue for group knowledge much in the sense of traditional epistemology.