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*Published in:*  
International Journal of Organization Theory and Behavior

*DOI:*  
10.1108/IJOTB-07-2020-0122

*Publication date:*  
2021

*Document version:*  
Accepted manuscript

*Citation for published version (APA):*  
Gahrn-Andersen, R. (2021). Conceptualizing Change in Organizational Cognition. *International Journal of Organization Theory and Behavior*, 24(3), 213-228. <https://doi.org/10.1108/IJOTB-07-2020-0122>

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# Conceptualizing Change in Organizational Cognition

## Structured abstract

**Purpose:** Secchi and Cowley (2016; 2018) propose a Radical approach to Organizational Cognition (ROC) as a way of studying cognitive processes in organizations. What distinguishes ROC from the established research on Organizational Cognition is that it remains faithful to radical, anti-representationalist principles of contemporary cognitive science. However, it is imperative for proponents of ROC to legitimize their approach by considering how it differs from the established research approach of Distributed Cognition (DCog). DCog is a potential contender to ROC in that it not only counters classical approaches to cognition but also provides valuable insights into cognition in organizational settings.

**Approach:** The paper adopts a conceptual/theoretical approach that expands Secchi and Cowley's introduction of ROC.

**Findings:** The paper shows that DCog research presupposes a task-specification requirement which presupposes that cognitive tasks are well-defined. Consequently, DCog research neglects cases of organizational becoming where tasks cannot be clearly demarcated for the researcher or well-known to the organization. This is the case with the introduction of novel tasks or technical devices. Moreover, the paper elaborates on ROC's 3M model by linking it with insights from the literature on organizational change. Thus, it explores how organizing can be explored as an emergent phenomenon that involves micro, meso and macro domain dynamics which are shaped by synoptic and performative changes.

**Originality:** The present paper explores new grounds for ROC by not only expanding on its core model but also showing its potential for informing organizational theory and radical cognitive science research.

**Keywords:** Radical Organizational Cognition, Synoptic and Performative Change, Distributed Cognition, 4E Cognition.

## **1. Introduction: Revitalizing Organizational Cognition through radicalization**

Since the 1970s, scholars have made numerous attempts at bringing the cognitive sciences to the organizational realm (see, for instance, Newell and Simon, 1972; Weick, 1979; Gavetti and Levinthal, 2000). Yet, as Secchi and Adamsen (2017) observe, *Organizational Cognition* (OC) research plays only a marginal role in present-day organizational theory meaning that it has yet to be established as a coherent and unified strand of research. In fact, little consensus exists concerning the scope of OC, the methods it uses and the ontology it presupposes. In a recent attempt at revitalizing OC research, Secchi and Cowley (2018) make the case that it should be considered as an independent field of study. Drawing on principles from what Chemero (2009) introduces as the *Radically Embodied Cognition* (REC) thesis, Secchi and Cowley explicitly aim at developing a radical theory of organizational cognition (p. 1). Proponents of REC (e.g. Chemero, 2009; Hutto and Myin, 2013) challenge traditional approaches to cognitive science and philosophy of mind that reduce cognition to information processing inside individual brains – for examples of the classical view, see Fodor (1975) and Searle (1992). REC's radicality is expressed in its three defining claims: 1) that representationalism and computationalism are 'mistaken' and that RECers should therefore 2) rely on certain explanatory tools including dynamical systems theory which 3) do not involve reference to mental representations (cf. Chemero, 2009, p. 29). In this connection, RECers often identify their object of study by evoking the '4E cognition'-label (cf. Rowlands, 2010). '4E' denotes that cognition is fundamentally extra-cranial in the sense that it plays out through embodied encounters which are embedded in socio-material settings while extending into the world through enactive processes. Secchi and Cowley's radicalized version of OC – or as I prefer calling it: *ROC* – integrates REC and 4E insights as it targets the brain-centrism and representationalism of traditional OC research. Following Secchi and Cowley (2018), such dogmas have led to the neglect of cognitive activities that extend beyond the brain and involve elements such as cultural artefacts and resources, the embodiment of agents as well as their

situated embeddedness (p. 4). On a ROC view, macro phenomena (e.g. culture and organizations) are therefore not just mere input mechanisms to the brain. By contrast, they form part of a bigger system – an ecology – which exists in an interdependency relation to not just a brain but an embodied, cognizing subject with a distinctive agency.

When it comes to exploring cognitive processes in social practices and organizations the use of concepts stemming from 4E cognition and REC research predates Secchi and Cowley's (2016; 2018) contributions (see, for instance, Ball and Litchfield, 2013; Steffensen, 2013; Neumann, 2014). Nevertheless, Secchi and Cowley's work marks an important turning point in that they explicitly seek to revitalize OC research by radicalizing it thus effectively transforming OC into ROC. Indeed, Secchi and Cowley's (2018) stated ambition is one of serious theory-development. In order to gain legitimacy, however, those favoring ROC must show themselves capable of advancing REC's radical theoretical agenda and that they are not simply employing 'radical' as a catchy label. I take this to be one of the main purposes of this special issue. Yet, Secchi and Cowley's move begs for a critical delineation of ROC's object of study while accounting for how ROC differs from competing research strands.

One issue that begs clarification is the relation between ROC and Distributed Cognition (DCog) research. DCog is a well-established perspective in contemporary cognitive science that is influential as a systematic research approach to cognitive phenomena in a broad range of organizational practices (see, Hutchins, 1995a; Scaife and Rogers, 1996; Baber, 2010). It is thus problematic that Secchi and Cowley downplay the differences between DCog and ROC by employing the term '*distributed* e-cognition' to designate ROC (cf. p. 3). Given its merits, DCog comprises a highly potent alternative to ROC in that it offers a coherent framework for exploring various aspects of organizational cognition while its proponents, similar to Secchi and Cowley, recognize that cognitive processes can be extra-cranial and world-involving. However, the anti-representationalist commitments of DCog have already been questioned by supporters of the REC thesis. For instance, Hutto and colleagues argue that DCog amounts to

‘a pragmatic stance’ in the sense that its proponents including Edwin Hutchins and John Sutton abstain from making ontological claims about reality and, as a consequence, fail to sufficiently distance themselves from the representationalism that is at the heart of classical cognitive science (cf. Hutto et al. 2014, p. 4). It follows that in order to grant ROC legitimacy, its supporters must clarify how their position differs from DCog. Doing so is important for the following reasons:

- it feeds into Secchi and Cowley’s (2016; 2018) agenda of developing ROC as a standalone theoretical approach by showing that it differs from another theoretical strand (DCog) which also flirts with radical cognitive science.
- it aims to bring internal coherence to ROC thus enhancing its compatibility with REC-research and the radical cognitive sciences more generally. This is important for potential cross-fertilization between the two fields. Moreover, it is also in the interest of the latter given how RECCers have so far abstained from considering cognitive phenomena in organizations despite expressing an interest in “extensive practices and processes” (Hutto and Myin 2017, p. 253).
- it substantiates the relation between ROC and organizational theory. This comes as a byproduct of the paper’s focus on the added value of ROC over DCog since ROC is currently only consisting of a model (see, Secchi and Cowley, 2016; 2018) and a case study on impact factor (Secchi and Cowley, 2018). So, with the purpose of bringing out important ROC nuances and insights I find it imperative to draw on theories and examples from organizational theory.

The paper consists of two parts: I begin the first part of the paper by considering the limitations of DCog research (**section 2**) and then continue, in **section 3**, to stress ROC’s compatibility with organizational theory research and, more specifically, perspectives on

organizational change. The first part thus serves a twofold purpose: First, it clarifies how ROC differs from DCog. Second, it shows how Secchi and Cowley (2018) in their introduction of ROC are unstructured in their thematization of organizational change. On this basis, I submit that ROC can benefit from integrating insights from organizational theory to inform and sharpen its take on organizational change. This brings me to the second part of the paper (**section 4**) that substantiates the criticism of DCog by considering an example of organizational cognition that lacks tasks-specification and, thus, falls outside of DCog's scope. Specifically, I base my analysis on an extension of Secchi and Cowley's 3M model which includes a focus on synoptic and performative change which are key notions in the literature on organizational change.

## **2. Distributed Cognition and its limitations**

Proponents of DCog are sympathetic to the REC agenda in the sense that they take human cognition to be more than just neurons firing and mental representations inside the heads of individuals. They explore cognitive processes in organizations while recognizing that cognition "extends the reach of what is considered cognitive beyond the individual to encompass interactions between people and with resources and materials in the environment" (Hollan *et al.*, 2000, p. 175). Specifically, DCog investigates how cognition is distributed in space – and to some extent time – while involving not just the minds of individuals but also material artefacts that mediate externalized representations of the world (such as, for instance, charts, maps, screens, indicators etcetera). Such representations are shown to be supportive of collaborative dynamics like that of landing an airplane (Hutchins, 1995b) or managing the workflow in building construction. In the case of the latter, Perry (2013) reports how a team of engineers carefully follows established procedures as a senior engineer prepares an initial design brief containing basic specifications of a construction work. The design brief typically contains nothing but scarce notes and sketches. Following conversations amongst team-

members, the senior engineer works out the brief and presents it to the design coordination who, following a brief discussion, produces a more detailed set of specifications that allows for a temporary undertaking of the construction project. In this connection, the detailed specifications include information about the conditions of the building site as well as the human and non-human resources needed for getting the work started (see, Perry, 2013, p. 157). Perry's example is symptomatic in that it shows how DCog research is characterized by detailed and in-depth explorations of various work-environments and how these environments are constituted by human-human coordination and the skillful use of technical and material artifacts. DCog was catalyzed by Hutchins' (1991) groundbreaking work on the workflow and team dynamics onboard a US Navy vessel. His work includes the description and analysis of different practices and routines carried out by the ship's crew. DCog research has subsequently provided valuable insights into organizational and cognitive dynamics of different professional workplace-settings. For this reason, the perspective remains of indispensable value when it comes to providing in-depth analyses of the functional relations that play out in practices consisting of a high degree of routine-based procedures, norms and competencies, adequate knowledge of tasks and available technological affordances, a clear division of labor as well as detailed specifications of roles and responsibilities.

Because of its focus on functional relations, one can argue that DCog has certain limitations which render it less attractive as a framework for exploring certain kinds of organizational cognition. For whether investigating distributed cognition in airline cockpits (Hutchins, 1995b), dance quartets (Kirsh, 2011) or teams of highly-skilled engineers (Perry, 2013), the DCog literature tends to focus on cognitive processes that unfold inside established and well-functioning social practices. This does not mean that DCog research fails to consider coordination revolving around socio-cognitive abnormalities such as, for instance, a potential ship collision (Hutchins, 1995a) or grave misunderstandings when diagnosing a patient (Pedersen, 2012). But it does entail that even disruptive elements are considered in relation to

an established and functioning social order. This is underlined by the task-oriented focus of DCog which comprises a crucial functionalist element. Crucially, DCog research takes the distributed cognitive system “composed of individuals and the artifacts they use to accomplish a task as its unit of analysis” (cf. Liu et al., 2008, p. 1174). In this connection, the perspective centers on how cognition is distributed around goal-oriented information processing tasks (cf. Magnus, 2007, p. 298). In fact, as Cheon notes, it only makes sense for DCog researchers to consider the distributed nature of cognition by adopting a task-specific focus. This focus comes to the fore in a twofold manner: First, DCog research typically presupposes a ‘task-specification *requirement*’. This requirement prescribes that cognitive tasks pertaining to a given activity (or process) must be clearly delineated before the researcher can even begin to consider the activity in question as cognitively distributed (see also, Magnus, 2007, p. 302). Second, there is ‘task-specification *relativity*’ which reflects that the defining of tasks is crucial for considering whether a cognitive process is distributed or not (Cheon, 2014, p. 27). The twofold instantiation of DCog’s task-specific focus shows that DCog’ers end up ascribing to a functionalistic perspective and, consequently, restrict their focus to include those cognitive processes that support the successful accomplishment of particular tasks. The highly functionalist nature of DCog is underlined by the requirements explicated by Cheon, namely that DCog is useful for exploring cognitive activity that underpins the accomplishment of tasks which need to be ‘satisfactorily specified’ in the outset (ibid.). I take this to indicate that cognitive tasks would necessarily have to be determined by not only the DCog researcher who considers the distributed cognitive system in question but also by the members of the organization (or practice) who are undertaking the actual tasks. In other words, it presupposes a degree of stability in order for organizational members to be aware of the tasks they are responsible for.

DCog research has a limited scope in the outset in that it presupposes that cognitive tasks are pre-defined and well-known. For rather than asking how new tasks emerge, are defined and

(re)negotiated, proponents of DCog presuppose that tasks have a stable nature and that they are commonly understood by members of the organization.<sup>1</sup> For this reason, DCog research is predominantly concerned with uncovering how distributed cognition occurs within highly specialized and routine-based work-environments where members deal with well-understood and known tasks. Thus, even uniquely situated and particularized cognitive processes and events such as those pertaining to crime scene investigation are task-specific in DCog's sense. This is because they are highly specialized and therefore rely on a fine-tuned set of skills that the police investigators bring into play. Thus, as Baber (2010) shows, each task appeals to "discrete specialisms (each with a defined skill set)" (p. 425-426). So, although the contexts typically vary fundamentally from crime scene to crime scene – in the sense that no two

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<sup>1</sup> Hutchins' (1995a, p. 4-6) example of a potential ship collision is interesting because it shows the breath and richness of DCog research while also underlining its basic principles. The situation described by Hutchins is not routine in that it involves an unusual conjunction of events: a loss of power and an imminent collision. The USS Palau's steam whistle is not working due to a loss of power thus making it imperative for Palau's navigator to find a means for warning an approaching sailboat that a collision is imminent. The navigator instructs the keeper of the deck log to warn the sailboat by means of a manual foghorn. Initially, the keeper is instructed to fetch the foghorn and sound it at the bow of Palau. However, the keeper is not fast enough to reach the bow in time, so he is instead told to sound the foghorn in the middle of the flight deck. Although unprecedented, one can provide reasons for saying that Hutchins' example falls within DCog's focus: First, the keeper of the deck log is given clear instructions of the task he is expected to carry out. So, although his task changes underway due to the rapid unfolding of events, it nevertheless remains clear since he is able to complete his task without hesitation or doubt. Second, the goal of the cognitive system is well-known to Palau's crew: a ship collision can be avoided by sounding five warning blasts which "indicate disagreements with the actions taken by the other vessel" (Hutchins, 1995a, p. 4).

burglaries are the same given that they occur in different locations, at different times etc. – it is nevertheless possible for the investigation to unfold as a distributed cognitive system because of the initial specification of the different tasks involved.

The fact that DCog research explores cognition in relation to well-defined tasks and goal-orientation can be traced to its focus on cognition in specialized and routine-based professional organizations. It is not surprising that DCog's strength lies in its core focus on distributed cognitive processes that unfold inside work-environments such as, for instance, the tightly coupled coordination of a ship's navigation crew (Hutchins, 1995a) or a team of pilots in a commercial airliner (Hutchins, 1995b). But the tradeoff is clear: DCog's focus on task-performance under relatively fixed conditions (i.e. tasks, procedures, rules, skills, knowledge etc.) entails a neglect of organizational cognition when it is unstructured and situations where tasks and techniques are not known in advance. For this reason, the DCog literature has little to say about organizational cognition that, for instance, revolves around the introduction of technologies which are so innovative that their implications are yet to be experienced and understood by organizational members. Although organizational members are typically well-aware of the tasks involved in their work, innovative technologies might be disruptive in that they may fundamentally alter the nature of the work itself. Indeed, such technologies have the potential of inhibiting established organizational procedures, routines and patterns by introducing a high degree of ambiguity in the tasks involved. There is an example of this in Barley's (1986) analysis of how the radiology departments of two US hospitals dealt with the introduction of CT scanners. Weick (2001) sums up the basic consequence of the new scanners by emphasizing that their introduction largely relied on routine-based ways of acquiring signification, legitimation and domination in the two departments. Indeed, radiologists and technicians alike drew on their professional experience and expertise which in both cases were dependent on institutionalized norms and, thus, relative to how decision-making processes traditionally had unfolded in the two departments. This allowed them to reconstruct and

negotiate their roles around the scanners as novel pieces of technology (cf. Weick, 2001, p. 159). Yet, in the process of implementing the CT scanners, technicians and radiologists alike had to alter existing organizational structures and invent new routines in their work. More specifically, the hospital staff had to engage in novel processes of *structuration* and *sensemaking* thus underlining that the implementation of CT scanners did not happen in a smooth and unproblematic manner. Indeed, as Weick notes, the staff experienced increased ambiguity and uncertainty. There were several reasons for this: First, the staff had no prior “experience with CT scanning or could interpret a scanner’s images” (Barley, 1986, p. 88) and, second, the introduction of the scanners meant that radiologists and technicians had not only to manage novel tasks but also to engage in new collaborations given that they had never worked together before (cf. Weick, 2001, p. 89). In being concerned with the organizing that unfolds in relation to tasks, routines and procedures, DCog offers no conceptual framework for coming to terms with the dynamics involved in implementing the CT scanners. In fact, following Cheon’s definition above, these cases fall outside of DCog’s scope since the tasks were not well-defined in the outset.

One could easily be misled into thinking that the current paper disfavors and disregards DCog. However, this is not the case. Instead, I explicitly encourage proponents of ROC to consider DCog as a useful pragmatic perspective for understanding organizational cognition practices that are tightly coupled (cf. above). Surely, ROCers would have to exert caution when adopting DCog-insights given that DCog is not committed to the REC agenda (cf. the critique by Hutto and colleagues). Nevertheless, in that DCog is a pragmatic stance that explores the unfolding of cognitive processes without reverting to theoretical dogmas, there are no underlying theoretical principles and commitments that per definition renders DCog incompatible with ROC. This is a crucial point. It substantiates the fact that the current paper allows for the reconciliation of REC with REC-friendly aspects of DCog through ROC. Thus, my account should be considered as a constructive one rather than simply dismissive of DCog.

That said, however, DCog has limitations. Cheon's definition of DCog as having a task-oriented focus indicates a blind spot in DCog research which, in fact, could be filled out by ROC. Having considered some of the differences between DCog and ROC, I include the following table comparing ROC, DCog and OC.

**[Insert Table 1 here]**

The comparison is by no means exhaustive as it merely functions as an overview based on the exposition in this section and the previous one.

To briefly sum up, DCog's task-centered focus makes it a potential negative target for ROC given its downplaying of cognition in organizations dominated by uncertainty, equivocality and change. I will now move on by considering ROC as viable alternative to DCog.

### **3. Two Kinds of Organizational Change**

When considering cognition in organizational settings, it is important to avoid buying into the Durkheimian assumption that the social macro (i.e. normative constraints including norms and rules) influences and shapes micro relations (i.e. the cognition of individuals) in a unidirectional manner. As a theoretical approach, ROC recognizes this by placing emphasis on how the micro intersect with the macro in the intermediate meso domain thus granting importance to organizational *becoming*. In fact, Secchi and Cowley hold that organizational scholars tend to explore cognitive processes in organizations by adopting the micro-macro distinction found in classical organizational theory and sociology (see, Taylor and van Every, 2000; Turner and Boynes, 2006). Consequently, organizational processes are either considered in relation to *the macro domain* (i.e. organizational structures, routines and culture) or *the micro domain* (i.e. individual minds) of organizational reality. Thus, organizational scholars

tend to neglect how these two domains intersect and interrelate. Secchi and Cowley's point is that much can be gained from abandoning this strategy by considering the intermediate *meso domain* (i.e. the group level) as the site of emergent socio-cognitive processes. The meso domain comprises an interim domain that co-constitutes the micro and the macro and, therefore, affects their relation. Crucially, in emphasizing the importance of meso phenomena, Secchi and Cowley propose a shift away from the classical macro-micro distinction to a macro-*meso*-micro distinction. At this point it would be mistaken to assume that the meso can exist without micro and macro phenomena. As such, the meso is relatively constituted and, therefore, dependent on the existence of both micro and macro relations. Moreover, it is important to stress that Secchi and Cowley's focus on the meso domain does not entail an exclusive focus on unfolding group-relations. Rather, as Secchi and Cowley observe, the meso domain is also implicated as individuals in solitude perform actions, decide on how to solve a problem or initiate communication with others. Thus, ROC is concerned with how intelligent behavior more broadly construed unfold through social organizing as it is not restricted to include routine-based behavior but also accidental actions (cf. Secchi and Cowley, 2016, p. 5). The meso domain is irreducible to stable relations. This is clear from Secchi and Cowley's emphasis on the fact that organizational change is central to ROC. Thus, in their case-study on academic peer review a case is made for considering organizational dynamics as *multi-scalar*. In so doing, they identify qualitatively and quantitatively different kinds of change in peer review practices including *epistemic change*, *scientific change*, *change in eco-systems* as well as the changes pertaining to the embodied activities of organizational members and other stakeholders. These different kinds of change belong to different ontological domains of the organizing i.e. they belong to the micro, meso or macro domain. As stressed by Neumann (2014), it is the diachronic nature of human social phenomena that allows for social interactions to be meaningful (p. 71). On this view, different temporal layers – or in Secchi and Cowley's terms 'scales' - condition interactional outcomes in their 'historical thickness'. Such

layers include various macro phenomena including organizations, cultural memory, social norms and mass movements (p. 75). All of these are ultimately manifested in real-time interaction.

However, Secchi and Cowley abstain from systematically considering how these changes relate to ROC's three organizational domains. Also, by focusing on different timescales, they do not compare ROC's take on organizational becoming with existing views in the literature and, specifically, what Tsoukas and Chia (2002) conceptualize as synoptic and performative change. According to Tsoukas and Chia, the mainstream literature on organizational change adopts a so-called *synoptic view* when conceptualizing change in organizational contexts. This view grounds, for instance, Lewin's (1950) classical *unfreezing- moving-refreezing*-model and is based on the implicit assumption that change is "an accomplished event whose key features and variations, and causal antecedents and consequences need to be explored and described" (p. 570). In fact, the organizational literature has been quite successful in describing this kind of overtly intended and observable change (see Olson, 1990; Mintzberg and Westley, 1992; Ford and Ford, 1994). Yet, these accounts steer blind of the ongoing and subtle changes that enable change of the synoptic variant. Subtle change – or what Tsoukas and Chia call *performative change* – takes place in relation to situated human agency and unfolds over time (p. 572). Paraphrasing Gregory Bateson, Tsoukas and Chia exemplify performative change in relation to an acrobat who walks a high wire in a seemingly steadily fashion (cf. Tsoukas and Chia, 2002, p. 572). On a synoptic view, the change involved amounts to how the acrobat manages to 'maintain her balance' while performing the walk. By contrast, a performative view of change recognizes the micro-processes in the balancing act including on the level of the acrobat's body parts and the fact that the acrobat is constantly adjusting her bodily posture and movements to avoid losing balance. Moreover, it also recognizes the becoming of the agency of the acrobat in the sense that her agency unfolds as she is actually performing the act. Thus, whereas synoptic views impose a high degree of stability onto existing structures,

routines, people and actions, the performative view acknowledges that change happens right before our eyes without us necessarily experiencing it. As Tsoukas and Chia point out, a performative view explores change in “its fluidity, pervasiveness, open-endedness, and indivisibility.” (p. 570). Although Tsoukas and Chia bring relevant insights to the fore concerning different kinds of organizational change, it is unclear how their conceptualization of organizational change – or *becoming* – relates to ROC and, thus, the different domains (i.e. the micro, the meso and the macro) that organizational cognition unfolds in. In the following, I therefore aim at showing that Secchi and Cowley’s (2016; 2018) 3M model can be supplemented by a framework for exploring organizational cognition that is centered around synoptic and performative change.

#### **4. The Becoming of Organizational Cognition**

In order to show ROC’s compatibility with Tsoukas and Chia’s distinction, I propose the framework in Table 2 as means for exploring performative and synoptic changes across different organizational domains.

**[Insert Table 2 here]**

The framework represents how the two kinds of change introduced above (i.e. synoptic and performative change) relate to micro, meso and macro domains of human social organizing as identified by ROC. By presenting this framework, my aim is to provide a conceptual structure to ROC research on organizational becoming that poses as an alternative to the (so far) unstructured multi-scalar view of Secchi and Cowley (2016). I now provide a detailed account on the content of this framework in relation to an empirical example which fails to satisfy DCog’s task-specification requirement.

#### 4. 1. *The Micro Domain*

Below follows an exert from Ford and Ford's (1995) transcription of a senior-level management meeting in a hospital. The overall purpose of the meeting is to discuss the possibility of implementing a quality improvement program at the hospital. The meeting is an example of organizational becoming or change in that its outcome is neither determined nor agreed upon in advance. In other words, it is irreducible to a tightly or loosely coupled routine-based process. So, although it concludes with consensus that is in accordance with the CEO's aims, this could nevertheless not have been taken for granted in the beginning of the meeting. Ford and Ford's example is more extensive, but I find the following exert suitable for my current purposes. While the categories on the left mark the different phases of the conversation, the statements from participants are represented on the right:

Initiative	CEO: I want us to implement a quality-improvement program.
Understanding	Director of Administration: What's this all about?
	CEO: Several things. First, we are getting far too many complaints from our patients. Second, the current climate for reform makes quality essential, and, third, I am convinced we can deliver better care.
	Director of Nursing: I'm not sure we need to improve quality. We have a well-trained staff and they do a good job. The average performance ratings of the nurses are up, and any changes would just give them more work to do.
	CEO: The staff may be doing a better job as individual workers but not as a team. There must be some reason for the complaints.
	CEO: Okay, so we are all agreed that we should undertake a

quality-improvement program. Now, how will we know if the program works?

Director of Administration: What if we used the number of formal complaints received to tell? We received over 100 complaints last month, both written and verbal. That translates into about 3 complaints per thousand patients.

(Condition of satisfaction)

Director of Nursing: OK, so if the number of complaints is less than 1 per thousand per month by the end of this calendar year, we will say the program worked.

(Ford and Ford 1995, p. 547)

Before turning to the kinds of change involved in the meeting, I briefly clarify how the meeting falls outside of DCog's scope. Surely, meetings very often comprise routine activities. Put in DCog terms, this is because they involve well-defined tasks and goal-oriented behavior (cf. Lui et al., 2008). Take, for instance, Perry's (2013) example of the meeting between a senior engineer and design coordinator in the context of building construction. The goal of this particular meeting is known in advance in the sense that Perry describes how the two participants work towards transforming a design brief into detailed specifications. In this process, each participant performs well-known tasks. Yet, far from all meetings are routine and the depicted hospital meeting is an example of a meeting with no prior task-specification and no clear goal-orientation. This is shown in the transcript with the Director of Administration's initial "What's this all about?" and the Director of Nursing's "I'm not sure we need to improve quality"-statement. Put differently, the goal of the meeting and the cognitive tasks involved are not defined in the outset thus indicating that DCog's grounding 'task-specification requirement' cannot be fulfilled (cf. section 2). Having argued that the

meeting has no clearly defined tasks, I turn to the changes of the micro domain.

Performative changes in this particular domain are not shown in the exert.<sup>2</sup> The reason for this is that Ford and Ford represent the conversation on the level of speech acts. Consequently, the transcript does not represent the verbal, behavioral or cognitive dynamics that constitute the utterings which underlie different speech acts. Had they approached the conversation by means of *Conversation Analysis* (see, Schegloff, 2007), however, they would have observed a range of performative changes in the utterings of the participants such as overlapping speech, changes in pitch, emphasis, prolongation of sound, abrupted words and inhalation/exhalation. Instead, the transcript represents the conversation on the level of completed words and sentences which is synonymous with synoptic change. For instance, the Director of Administration's uttering "What's this all about?" is clearly a completed meaningful sentence – or simply, a question – that is communicated with a particular intent and audience in mind. Also, the indication of understanding/agreement (i.e. the word "Okay")

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<sup>2</sup> As one anonymous referee remarks, the example does not depict the embodied dynamics of the meeting. I am well-aware of this limitation. However, I do not consider it to be a problem given the paper's thematical focus on 1) the limitations of DCog and 2) the connection between ROC and theories on organizational change. Thus, the paper does not thematize aspects related to embodiment as such. Yet, the paper does make a preliminary advancement on the topic as it indicates the possible resonance between REC's take on basic cognition and Tsoukas and Chia's example with the acrobat. Tsoukas and Chia refer to the acrobat walking a high wire in order to show how performative change unfolds in the organizational micro domain. They describe the acrobat as constantly maintaining her balance by adjusting her movements. This description accords with REC's take on basic embodied cognition. On a REC-view, basic mentality involves information based on covariance relations (cf. Hutto and Myin, 2013). In the said example, the acrobat covaries her movements to her position on the wire and does not rely on mental representations since the activity unfolds strictly involving 'on-line' cognition.

is also a completed act because it is an exclamation that functions as a pivot in the conversation. In fact, the Director of Nursing utters “OK” to signal that his/her condition of satisfaction has been met and that the conversation can move forward. Consequently, this allows for another phase shift to occur which is not contained in the exert above.

#### *4. 2. The Meso Domain*

On the view of ROC, the actual organizing takes place in this domain which involves aspects such as the different tasks that organizational members are to accomplish. Tasks typically include a myriad of completed acts amongst members of a collective thus making it evident why these usually pertain to the meso domain.

The hospital meeting itself is a completed act and, thus, constitutes a synoptic change in the organization. It begins with the CEO’s intend of securing support for the implementation of the new quality improvement program. By the end of the meeting, both Directors are in support of the new program thus emphasizing that the first part of the meeting concludes successfully and that they can move on to discuss how the hospital should actually implement the new program. The meeting’s three participants will all most probably all look back on the meeting as a synoptic event that concluded with a decision which sets the (so far undetermined) future course for events and tasks specifically related to improving the quality of the hospital and increasing patient satisfaction.

With regards to the performative changes that constitute the meeting, one would need to take a closer look at the interpersonal dynamics and how they actually unfolded during the conversation. Ford and Ford present the following summary that in my view captures the synoptic processes involved in not just this meeting but any meeting that form part of organizational decision- making processes:

an intentional change arises from conversations in the organization at some point

following a claim, a declaration, and associated requests and promises. These initiative conversations are like the identification stage of organization decision making, in which opportunities, problems, and crises are recognized and evoke action [...] or as the beginning point in issue selling [...], in which managers attempt to get other managers to pay attention to what they are saying. (Ford and Ford, 1995, p. 548)

The dynamical interrelation of claims, declarations, requests and promises comprises one kind of performative element that pertains to the meso domain. Consequently, the meso domain differs from that of the micro in that it includes not just the completed meaningful acts themselves, but more crucially, the way unique singular meaningful acts are *compounded* over the course of time. To put it differently, the meso domain's performative dimension is the ongoing flow of the meeting and the manner in which singular meaningful acts interrelate throughout. As underlined by the quote, decision-making typically involves different thematizations that have the potential of affecting interpersonal dynamics and conversational outcomes. It is in this sense that the compounding of acts elicits the themes of the conversation. The meeting shows how the cognitive work involved in the social organizing is irreducible to singular actions of its participants but rather constituted through their interrelated activities that allow for the meeting to move forward. In fact, in moving forward, the meeting comes to be gradually more meaningful to each participant. As such, the example substantiates Cowley and Madsen's (2014) claim that socio-cognitive activities involve temporal scaling as they form part of "life games, communicative interactions, and social development" (p. 182).

In the case of this particular meeting, the compounded meaningful acts are presented as a *loosely coupled activity* that is regulated by the overall theme of the quality improvement program. The meeting is not just loosely coupled but also unpredictable in that its outcomes

are not specified in advance. Rather, as shown, the different phases of the meeting are shaped by the conversation itself. Thus, the transition from the *Understanding* phase to the *Condition of satisfaction* phase occurs in the flow of the meeting and could potentially have happened either sooner or later than it eventually did. Also, the coupled nature of the conversation is underlined by how it performatively progresses as a regular conversation where each participant is supportive of its purpose in the sense that there are no interruptions, changes in theme, emotional outbursts etc. Moreover, the performative dynamics of the meso domain are conditioned by the fact that each participant has an organizational role that is tacitly recognized by the others as well as constitutive of the progress of the conversation. For instance, when the CEO initiates the meeting by stating “I want us to implement a quality-improvement program” it is tacitly presupposed that he/she is in the position to state wishes/demands relating to the daily management of the hospital. This is something that none of the other two participants are able to since they are responsible for specific areas and departments. Similarly, it is implicitly presupposed that the Director of Nursing represents the nurses; just like the Director of Administration is expected to have an overview of the amount of complaints the hospital receives and how the administrative staff deals with the complaints. However, a *decoupled* element does come to the fore as the Director of Nursing initially states “I’m not sure we need to improve quality”. Clearly, this causes a slight disturbance to the conversation in that it explicitly requests the CEO to motivate why he/she thinks that the new quality improvement program is needed. Thus, the statement comprises a dysfunctional element in that it casts doubt on the CEO’s stated preference (“I want us to implement a quality-improvement program”) as well as his/her decision-making capacity.

Further, the exert also gives shows other meso domain phenomena in the hospital that are not constitute of the meeting but nevertheless are presupposed by it. Take, for example, the mentioning of the performance rating scheme. This scheme is not an event like the meeting but an entity that is used for assessing the efficiency and quality of the work of the nurses. As

such, the rating scheme pertains to the meso domain in that it cuts across the different tasks each nurse has and applies to the group of nurses in general. Thus, it is easy to imagine how, for example, a bad rating might affect performative group dynamics by causing overt disagreements between the group of nurses and, consequently, give rise to synoptic processes including layoffs and reorganizing of the nursing staff.

#### 4. 3. *The Macro Domain*

Here we find the site of the organization's normative structures and constraints. The decision by the hospital management to implement the quality improvement program is a synoptic change in the macro domain because it will have an impact on future organizational micro and meso processes including the need for arranging meetings with nurses and administration staff to communicate the implementation of the program. As shown by Abolafia's (2010) work on the sensemaking in policy-making groups, a new policy (i.e. a synoptic change) is typically based on a myriad of performative processes that are narratively constructed as well as sensitive to group dynamics. From the perspective of ROC, I have already explored the performative micro and meso processes that underlie the decision-making process but it is still necessary to consider how the performative changes occur in the macro domain. Here, Ford and Ford's uncovering of *key performative elements* is helpful in that they identify the four phases of this particular meeting (i.e. *initiative*, *understanding*, *performance* and *closure*) (Ford and Ford, 1995, p. 547). These phases pertain to the macro domain as performative elements because they are linked to the meeting culture of this particular hospital and how this culture affects the overall structure of the meeting and the outcome of decision-making processes. In fact, the meeting is structured like this: The CEO is initially willing to go from the *Initiative* phase ("I want us to implement a quality-improvement program") to the *Understanding* phase where the condition of satisfaction is to be negotiated ("OK, so if the number of complaints is

less than...”) before getting to the more practical side of the implementation, namely the *Performance* phase (which is eluded from the transcript above). The way the conversation is structured suggests that the hospital has a democratic meeting culture and that the CEO feels the need of negotiating an understanding prior to discussing a course of action and finalizing the decision. This is potentially risky since the phase of *Understanding* allows for claims to be “made, evidence and testimony given, hypotheses examined, beliefs and feelings explored, and contentions maintained” (Ford and Ford, 1995, p. 548). Clearly, it opens up room for doubts, disagreement and potential criticism (cf. “I’m not sure we need to improve quality”). Had the management style been autocratic and not democratic, the CEO could easily have decided to skip the *Understanding* phase thus making it evident how macro structures impinge on and structure the ongoing organizing happening in the meso domain. To sum up, the four phases of the conversation exemplify how a synoptic change in the macro domain (i.e. the decision to implement a quality improvement program) is constituted by a range of performative processes that are normatively conditioned and structured and which occur in the flow of the meeting.<sup>3</sup> In that they pertain to the normative realm, these phases depend on macro factors such as the

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<sup>3</sup> I would like to thank an anonymous reviewer for pointing out that performative change does not only characterize loosely coupled interactions or systems in flux. By contrast, routine activity and performative change can easily occur simultaneously. In such instances, performative changes in the micro domain give rise to emergent properties that are irreducible to the “properties of the system’s part” and therefore fundamentally unpredictable (cf. Stephan 1999, p. 49 and 51). The important point to keep in mind here is that the emergent properties (qua being irreducible) do not prefigure in the system itself (i.e. the organization, group, culture or whatever social collective one takes to comprise the ‘macro domain’ under consideration) nor as properties of the system’s parts. To put it differently, although an emergent property might arise in conjunction with routines, habits, expertise etcetera, it does not arise from them.

particular hospital's meeting culture and the CEO's managerial style.

#### **4. Conclusion**

Considering that OC research has traditionally been based on the assumption that cognition involves brain-bound information-processing (cf. Secchi and Adamsen, 2017), Secchi and Cowley's 'radical' revitalization (in the form of ROC) indicates a new direction for research on cognition in organizations.

As a theory, however, ROC is still very much in the making. For as I argue in the beginning of this paper, it is problematic that Secchi and Cowley uses the 'distributed e-cognition'-label as an identifier of ROC. The labeling suggests that ROC coincides with, on the one hand, DCog research and, on the other, 4E Cognition approaches which are dedicated to the REC-thesis. In the light of REC-based critiques of DCog research, however, it is obvious that one cannot simply conflate the two approaches without ignoring an unsurmountable difference between them. The consequence is clear: the 'distributed e-cognition' label is unviable and ROCers would initially have to choose side between DCog and REC. On the view presented here, there is not much of a choice, really: ROC would have to embrace REC. This move is sensible for the following reasons: 1) It safeguards ROC's self-proclaimed radicality over against DCog and OC-approaches, 2) it makes it clear to organizational scholars and cognitive scientists that ROC is not an extension of DCog and, finally, 3) it allows for serious theory development under the ROC-label. In this connection, the ROC-REC relation is one of potential cross-fertilization: While REC provides crucial insights into so-called basic, non-representational cognition that can be of use for exploring micro domain dynamics in the organizational realm, ROC allows REC-style 'extensive', or 'scaffolded' minds to extend into organizations (cf. Sterelny 2010; Hutto and Myin 2017).

The paper has also sought to foster ROC's stated but undeveloped focus on organizational change by showing that it provides another reason for choosing ROC over

DCog. DCog is limited by its ‘task-specification requirement’ which prescribes that DCog focuses on well-defined tasks in goal-oriented behavior. With this limitation in mind, the paper offers organizational scholars and cognitive science researchers a pragmatic motivation (and reason) for siding with ROC over DCog. Moreover, in linking up ROC’s 3M model with theories on organizational change, the paper substantiates ROC’s change-based focus while stressing its compatibility with both synoptic and performative theories in organizational theory. Specifically, the paper expands Tsoukas and Chia’s (2002) focus on micro domain processes by making the case that synoptic and performative change also pertain to meso and macro relations. Thus, the proposed framework is intended as one possible way for ROCers, RECers and organizational scholars more generally to conceptualize different kinds of change across various organizational domains. As such, showing compatibility with existing research in organizational theory should be a key concern to proponents of ROC in that it would increase the relevance of their approach to organizational scholars.

In terms of implications for future research, I also find it imperative to note the following: The paper’s criticism of DCog research might lead one into thinking that ROCers should better steer clear of DCog and focus on building their theory in the absence of DCog influence. I find such a move to be unwarranted given that DCog is based on pragmatic principles and therefore abstain from positing ontological claims that contradict REC’s anti-representationalist commitments. In that DCog has proven to be a useful perspective on how cognition distributes in settings characterized by certainties of tasks and goal, it makes sense for researchers in favor of ROC to work towards integrating DCog insights that do not violate ROC’s commitments to REC. Effectively, ROC would then have to do what REC has already done by locating a space for mental content in a non-representationalist framework (cf. Hutto and Myin 2013). This opens up the possibility of making relevant aspects of DCog research part of ROC.

## Acknowledgements

I am grateful to two reviewers of this journal for their valuable comments and suggestions on earlier versions of this paper. Furthermore, I would like to thank Davide Secchi for having invited me to contribute to this Special Issue.

An earlier version of this paper was presented at the 2019 European Academy of Management (EURAM) Conference (see, Gahrn-Andersen, 2019).

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