Emergence, networks, and zeitgeists: Developing the theory of justification in organizations with an agent-based model

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Abstract

This study uses an agent-based model to contribute towards the theory of justification in organizations. It contends that we need a precise definition of what justification produces on the collective level, which then feeds into organizational decision making. Without it, we may be hard-pressed to articulate the meaning of justification for organizational practice. The study suggests that justification produces information about how actors collectively evaluate a crisis of coordinated action and that such information defines the *ex post* or outcome-based intelligence of organizational decisions. The production mechanism is one of emergence from the intersubjective to the collective level, with the process being moderated by the characteristics of the communication network, the variety of views represented in the process, and the presence of artifacts and feedback loops. Mechanism and moderators are implemented in an agent-based model and explored through multiple simulations, which yield empirically testable propositions. This multi-level approach captures justification as a natural process of uncertainty reduction and, simultaneously, a manageable object of stakeholders' strategies in conditions of evaluative pluralism.

Introduction

Justification, theorized in French pragmatic sociology and often referred to as "economies of worth" (Boltanski & Thévenot, 2006 [1991]), has been linked to the achievement of coordination (Dodier & Camus, 1998; Girard & Stark, 2003; Gkeredakis, 2014; Oldenhof et al., 2014; Reinecke, 2010), institutional construction and repair (Demers & Gond, 2020; McInerney, 2008; Ramirez, 2013), legitimacy (Anesa et al., 2023; Patriotta et al., 2011; Reinecke et al., 2017; Richards et al., 2017), and political control (Daudigeos et al., 2021; Nyberg et al., 2017) in conditions of evaluative or normative pluralism.

However, these links must be understood approximately as follows: Justification lies on the path to those outcomes, but only goes so far. As Boltanski and Thévenot describe it (2006, pp. 350–353), downstream of justification we find the crystallization of conventional judgments about the appropriateness of coordinated collective action, the production of decisions, and their implementation. It takes this entire process to fully realize the outcomes in question. All that justification reaches is an early intermediate stage.

We lack a precise definition of that stage, without which we are hard-pressed to say what are the proximate finality of justification and its operational contribution to the downstream stages. We should address the following questions: What does justification produce? What properties of the product are important? What mechanism creates the properties? What conditions moderate the mechanism?

This study begins by putting forward some informed guesses based on a focused reading of justification theory and the organizational research that uses it. Briefly: The product of justification is information on a collective level of analysis which lies between the level of interactions and that of organizations. The relevant properties of such information are concentration and differentiation. They are the result of a mechanism of emergence. The mechanism is moderated by environmental factors including the structure of communication networks, representation (somewhat in the political sense), and the presence of material, symbolic, or representation artifacts. The next step is to turn these informed guesses into the code of an agent-based model, a type of simulation suitable for the study of emergence. The third step is to experiment with the model by setting different moderating conditions.

The last step is to speculate about what the model and its results suggest for organizational practice and where to go from there in research and theory development. The study conceptualizes how evaluative judgments on the appropriateness of organizational action travel across levels of increasing generality. This multi-level reading of justification captures it in a dual light: as a natural way for decision makers to construct consensus and reduce uncertainty; and as a process of strategic relevance which stakeholders can manage to bring about decisions that will prove to be *ex post* intelligent—in the sense of producing the outcomes which stakeholders deem desirable (March, 1994).

Conceptual background

Justification happens when all is not well for coordinated action or, in other words, when a "crisis" is afoot (Boltanski & Thévenot, 2006, pp. 350–353): In someone's eyes, coordination appears to not be working and therefore it behooves people to stop what they are doing together and reflect about it. Crises are not always life-and-death situations: They can occur over mundane organizational issues, including those cases when the problem is not that coordination is not working now, but that we must decide how it is going to work in the future—for example, for new strategies, policies, or processes.

A crisis requires actors to (re)constitute a shared "sense of reality" (Boltanski & Thévenot, 2006, p. 350) about the problems, ends, and means of coordinated action. For the purpose, people enter what Boltanski and Thévenot call an "inquiry" about the situation. During the inquiry, they engage in justification by exchanging and defending different interpretations of the issue at hand and of the appropriate ways of dealing with it. Inquiry is often inconclusive: Yet another perspective could always be brought to bear; yet other facts worthy of examination could be presented (Boltanski & Thévenot, 2006, p. 353). To close out the inquiry at some point and move on to the formulation of a "coherent decision" (Boltanski & Thévenot, 2006, p. 351), a judgment of a "conventional character" (Boltanski & Thévenot, 2006, p. 353) is required: An issue that is only partially clarified and ordered is shoehorned into a somewhat arbitrary—but institutionally acceptable—definition.

This description implies a few distinct analytical levels. What actors each think about the issue at hand is a fact on the level of individual cognition and psychology. The

debates during an inquiry are facts on the intersubjective level. And the conventionally shaped judgment leading to a formal decision is a fact on the organizational level. The operational product of justification lies between the intersubjective and the organizational levels, on what may be called the collective level: It is information about the overall state of the actors' views or, differently put, about the current state of the shared sense of reality. Such information is practically relevant because it defines the realm of the possible, as far as producing a judgment by the application of some convention—say, for a very simple example, a majority vote rule—goes: In this sense, it is not so much the content or meaning of the different views that matters, as their distributional properties, such as concentration and differentiation.

A focused reading of justification theory and of the organizational research that uses it yields the concepts, assumptions, and logics that explain the movement of justification from the individual to the interactional and the collective level—and are translated into the agent-based model. Information circulates through levels in the form of the actors' "reports" about the issue at hand (Boltanski & Thévenot, 2006, p. 139). On the cognitive level, such reports are structured by a common set of normative representations, or "common worlds" (Boltanski & Thévenot, 2006, p. 140), and, once they are stripped of their discursive wrapping, they can be reduced to encodings—that is, synthetic evaluations (Boltanski & Thévenot, 2006)—of the issue. On the intersubjective level, reports can be disputed—in terms of their pragmatic relevance—and modified—a form of learning—through behaviors such as "contentions", "tests", "clashes", and "compromises" (Boltanski & Thévenot, 2006). The passage from the intersubjective to the collective level on which reports aggregate is through a mechanism of emergence— "the arising of novel and coherent structures, patterns, and properties through the interaction of multiple distributed elements [*in*] the absence of an orchestrator or centralized coordinator" (Wilensky & Rand, 2015, p. 6)—for which organizational research on justification offers diffuse, if circumstantial, evidence (see, e.g., Anesa et al., 2023; Dahan, 2015; Dodier & Camus, 1998; Gkeredakis, 2014; Miranda et al., 2015). Organizational stakeholders can affect the environment of behaviors—and thus the emergent results of justification—in terms of the arrangements for communication among actors, the representation of different constituencies, and the presence of material,

symbolic, and representational artifacts (see, e.g., Barbe & Hussler, 2019; Barros & Michaud, 2020; Bullinger et al., 2023; Chenhall et al., 2013; Dionne et al., 2019; Georgiou, 2018; Girard & Stark, 2003; Gond et al., 2016; Huault & Rainelli-Weiss, 2011; Mailhot & Langley, 2017; McInerney, 2008; Mercier-Roy & Mailhot, 2019; Moreira, 2005; Oldenhof et al., 2014; Reinecke, 2010).

Methods

The agent-based model simulates a debate at a time of crisis among agents called *disputants*. Each disputant is endowed with knowledge, in the form of a six-dimensional report on an issue (practically, a six-digit string). Each also has randomly set properties that abstract and pack away multiple psychological and practical aspects of real-life individuals, such as motivation, affect, and resources. Depending on such properties, disputants probabilistically exchange, dispute, and modify their reports through minimal versions of contentions, tests, clashes, and compromises. The scope of disputes is limited by the affordances for communication offered by networks with different properties of density, clustering, and centralization. It is also defined by the variety of views represented in the situation: Disputants belong to a varying number of constituencies, the members of each of which start out with the same report. A type of agent called a *device* can be introduced to simulate the effect of artifacts: It has its own report—because real-life artifacts embody certain evaluative dimensions (Boltanski & Thévenot, 2006)—which weighs on the outcome of disputes and does not change. Another type of agent called a *zeitgeist* (“spirit of the times”) can be activated to create a feedback loop—a frequent characteristic in self-regulating systems—between the collective and the intersubjective level: It broadcasts to disputants the current majority report or, in other words, the burgeoning consensus in the collective. (An example of the model’s interface is in the Appendix.)

The model is used for experiments. Each experiment is set up with a given configuration of network type, breadth of representation, and presence of a device or a zeitgeist. In each experiment, simulations are run multiple times; the model’s probabilistic variables are reset for each run. The observer tracks simulations through metrics of disputant activity and of report concentration and differentiation. Metrics are plotted over time and averaged across runs. The resulting curves can then be compared across experiments.

Preliminary results

Simulations show that, irrespective of settings, the behaviors of disputants lead to convergence among reports, albeit imperfectly: After an initial ‘creative explosion,’ differentiation diminishes, and concentration increases until a steady state is reached. In other words, reports become both fewer and more like each other. This is consistent with the theory: Justification is expected to yield accord and (re)establish a shared “sense of reality,” if only up to a point.

In terms of the effects of different communication networks, the tendency towards convergence is stronger with dense or highly centralized networks. By contrast, the effects of breadth of representation on convergence are quite limited. However, broader representation is associated with greater drift, o change over time, in the reports of individual disputants; in other words, greater initial diversity increases the amount of activity and learning that disputants put into justification to reach a degree of convergence. In summary, network characteristics and representation appear to matter for justification, and to matter in predictable ways. This chimes, in a general sense, with extant research. The model pushes further, however, by suggesting specific and empirically testable propositions about the moderating effects at play.

The presence of devices also appears to affect simulated disputes in ways that are generally consistent with extant research. A sufficiently weighty device can impose its own report on disputants, so to speak, at the expense of learning: The presence of one is associated with less change in individual reports and less convergence. As for collective–intersubjective feedback loops, again broadly consistent with extant research, they appear to favor convergence if conformity to the collective consensus is weakly enforced (a real-life example may be voluntary compliance), but they have effects much like those of devices—that is, less learning and less convergence—when conformity is strongly enforced (such as in organizations furnished with a hegemonic internal culture).

Contribution

The present multi-level model suggests that what justification means for organizational actors depends on their locus and perspective. On one hand, the model captures the fact that actors immersed in disputes—if they are serious about dealing with a crisis and resuming coordinated collective action (Boltanski and

Thévenot, 2006)—will move naturally and, so to speak, inevitably towards accord, however imperfect. In this light, justification may be seen as a process that produces "better"—essentially, more broadly legitimate—reasons for coordinately acting in certain ways, sets the mutual expectations of actors, and reduces uncertainty. On the other hand, the model captures some ways in which managing the environment of disputes can reinforce or hamper this natural tendency. This is important for those observers who have a stake in the issue at hand (and who, in an organized context of representation and delegation, may or may not also be actors in disputes) and are concerned with the substantive intelligence of decisions. For March (1994, p. 224) "[a]n action is defined as intelligent if, after all the results are in (including possible changes in preferences and identities), it has satisfied the wishes of relevant parties. In this view, intelligence is an *ex post* concept." On this definition, a stakeholder may treat justification's natural tendency towards convergence and uncertainty reduction as an opportunity or a problem depending on their intents and circumstances: Justification may consolidate or dilute away their viewpoint as "relevant parties," and it may clear the way for irreversible organizational commitments they may or may not like. Managing the environment of disputes to produce different configurations of concentration and differentiation may thus be seen as a means for achieving more subjectively favorable definitions of decision intelligence.

This points to the strategic function of evaluative pluralism and justification (Denis et al., 2007; Gond et al., 2023) and suggests opportunities for expanding theory and research around the use of tactical levers such as communication structures and representation. In this regard, it may be especially productive to flesh out those aspects that the model, to highlight the basic mechanics of managed justification, purposely oversimplifies or abstracts away: the structures and dynamics of social networks, and the psychology and resources of actors.

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Appendix

An example of the agent-based model's interface

A screenshot of the agent-based model's interface, implemented in the *NetLogo* development and execution environment, midway through a run. Widgets on the left set parameters and experimental variables. Top and center, a preferential attachment network of 50 disputants is shown in the square box. The colors of the disputants change as their reports change; the more similar two reports, the more similar the two disputants' colors. A zeitgeist hovers in the top right corner of the box, broadcasting the majority report. Activity metrics and outcomes are monitored and plotted on the right.