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Thought experiments and philosophy in organizational research

Thought Experiments and Philosophy in Organizational Research

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Abstract

Organization theory seems to be caught between a rock and a hard place: on the one hand, there are arguments that the field is too preoccupied with theory, leaving its work abstract and practically irrelevant. On the other hand, there are arguments that the field is overly empirical and too methods-driven, which hampers the creation of ideas that resonate with constituencies beyond the organization studies community. How to resolve this apparent conundrum? In this essay we argue that neither more theorizing nor more forensic data-driven work might address the problem; rather, and perhaps surprisingly, we propose that a philosophical stance might offer a remedy. The aim of this essay is (1) to explore thought experiments as a genuine philosophical method that is designed to develop promising ideas and concepts and (2) to reflect on how such conceptual work can help shape organization theory to be conceptually more stimulating and practically more relevant. We argue that this particular kind of conceptual work has been and should continue to be one of the hallmarks of organization theory. Thus thought experiments represent a valuable methodological extension of our toolkit as they provide crucial devices triggering transformations in thought and practice.

Keywords

concepts, ideas, method, organization theory, philosophy, thought experiment

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One must experiment with ideas!

Georg Christoph Lichtenberg, *The Waste Books*
(1793/1990)

Introduction

In recent years, organization theory has been facing mounting criticism. For instance, senior figures such as Stephen Barley argue that 'organizational theory is facing a kind of existential crisis' (Barley, 2016, p. 2). He laments that organization theory has focused on developing 'novel new theory' which 'has become an empty exercise'. Indeed, much of the theorizing in the so-called top journals resembles 'catalogues of spare parts for a machine they never build' (Beninger, 1986, p. 105; quoting George Miller). Several critical voices argue that organization theory has lost its object (du Gay, 2015) and with it, its relevance (Carter & Spence, 2019). Hence organization theory seems practically irrelevant and increasingly its place in the business school is questioned: 'Where do we fit in the business-school world?', Barley (2016, p. 3) asks rhetorically. Adding insult to injury, he argues that organization theory is mute with regard to emerging alternatives to traditional businesses, such as the 'sharing economy, networks of smaller firms, cooperatives, and the gig economy' (Barley, 2016, p. 3).

It seems that organization theory is caught between a rock and a hard place; on the one hand, there are arguments that the field is too preoccupied with theory, which makes it too slow to adjust to new phenomena. On the other hand, there are arguments that the field is overly empirical and too methods-driven, which hampers the creation of ideas that resonate with constituencies beyond the organization studies community. In response to this criticism, scholars have developed a series of proposals including a focus on 'grand challenges' (Eisenhardt, Graebner, & Sonenshein, 2016; Ferraro, Etzion, & Gehman, 2015; George, Howard-Grenville, Joshi, & Tihanyi, 2016; Mintzberg, Etzion, & Mantere, 2018) and tackling broader societal

issues such as inequality (e.g. Amis, Mair, & Munir, 2020).

The 'dehydration' of organization theory can be traced back to a general lack of appreciation for the imaginative and processual aspect of theorizing. When a theoretical contribution tends to be conceived of as a 'thing', built out of constructs, propositions and models (Bacharach, 1989; Eisenhardt, 1989; Whetten, 1989), the processes of reasoning and imagination that led to those outcomes are left at the roadside after the arguments have been accepted (Ketokivi, Mantere, & Cornelissen, 2017). Karl Weick (1995; see also Alvesson & Sandberg, 2011) expressed this sentiment in the words 'what theory is *not*, theorizing *is*'.

In this paper we propose that a philosophical stance could address some of these issues. We examine thought experiments, perhaps the most characteristic method of philosophical inquiry, as a means to develop 'thick concepts' (Ryle, 2009; Abend, 2019) with the potential to reinvigorate organization theory. Our essay suggests that thought experiments are practical ways to develop new ideas. Thus, thought experiments represent a valuable methodological extension of our toolkit as they can provide crucial devices triggering transformations in thought and practice while opening and retaining the pathways of reasoning that generated them. The aim of this paper is to explore thought experiments as a genuine philosophical method for organizational research and reflect on how such conceptual work can help shape organization theory to be conceptually more stimulating and practically more relevant.

How to do Philosophy in Organization Theory: Thought Experiments

Thought experiments have a long tradition; Plato's famous cave in which we humans are trapped represented a thought experiment that was designed to convey the truth about truth. Equally, scientists have drawn on thought experiments to set up their claims or upset those

of others. But only since the inaugural conference at the University of Pittsburgh on *Thought Experiments in Science and Philosophy* in 1986, engagement with the nature and function of thought experiments began to grow rapidly (Horowitz & Massey, 1991; Sorensen, 1998). This interest sparked a rediscovery of earlier contributions to thought experiments by prominent scientists such as Mach, Bohr, Einstein, Heisenberg and Kuhn. As Mach already argued at the dawn of the 19th century, thought experiments 'led to enormous changes in our thinking and to an opening up of most important new paths of inquiry' (Mach, 1897/1976, p. 138). Indeed, since thought experiments were first mentioned in 1811 by Danish natural scientist and philosopher Hand Christian Ørsted, many disciplines have made use of them to advance their knowledge (see Brown, 2011; Kühne, 2005;Sorensen, 1998).

Based on Gendler (1998, 2010) we define thought experiments as judgements about what would be the case if what is being played out in an imagined scenario were real. Perhaps the most famous thought experiment was undertaken by Galilei who challenged Aristoteles' claim that heavy objects fall faster than light ones. He set up the following thought experiment: according to Aristoteles, a light musket ball falls more slowly than a heavy cannon ball. Now imagine you link them together and throw them out of the window: what happens? The musket ball falls more slowly, and hence should act as a drag on the cannon ball, slowing it down. However, as they are joined together, they form a heavier object, hence they should fall faster. Obviously, something isn't quite right here – and that must be the assumption that bodies with different weights fall with different speeds (see Brown, 2011).

In natural sciences, thought experiment rose to prominence through Einstein's train and platform thought experiment; Schrödinger's cat with which he demonstrated that the uncertainty principle cannot be limited to micro-level phenomena; Heisenberg and his gamma ray microscope. To add a further example, Darwin's *Origin of Species* relies heavily on thought experiments with which Darwin explored his 'theory's capabilities' (Lennox, 1991, p. 241); he used a series of 'imaginary illustrations' (as he put it) to make his point about the origin of species and to suggest the explanatory potential of his theory.[1]

In moral philosophy and political theory, ethicists such as John Rawls devised thought experiments that had massive impact as well; his 'veil of ignorance' is a thought experiment that exposes key questions concerning justice – a thought experiment that economist and Nobel Laureate Tirole has picked up again recently (2017, p. 2). Many ethical debates – such as the trolley analogy[2] – are based on thought experiments, as are more general philosophical debates (from Wittgenstein's beetle in a box to Nagel's bat).[3] In political science and history, Tetlock and Belkin's *Counterfactual Thought Experiments in World Politics* (1996) demonstrated the productive role of thought experiments for the social sciences. Economics in particular is deeply engaged in thought experiments. Adam Smith lay the foundation for the *Wealth of Nations* in his pin factory example – which was set up not as empirical data but as a thought experiment which outlines how an economic system based on the division of labour contributes to productivity and wealth. Smith's reference to the invisible hand is another example of his principled imagination. Ever since Smith, thought experiments have remained an important part of economics; from Keynes's famous beauty contest to illuminate the paradox of stock market prediction to various Robinson Crusoe island experiments, game theory (e.g. the prisoner's dilemma) and beyond. Economic theory has a long tradition of deploying thought experiments to further its theorizing.

In organization theory, thought experiments seem important yet they are rarely theorized (Cornelissen & Durand, 2014; Folger & Turillo, 1999). Exceptions include the writings of Weick (1989, p. 519) who claimed that when 'theorists build theory, they design, conduct, and interpret imaginary experiments'. Or take the example in Simon's (1991) much cited paper *Organizations and Markets*. In the section on 'Ubiquity of

Organization' Simon makes his central argument with the following thought experiment:

> A mythical visitor from Mars, not having been apprised of the centrality of markets and contracts, might find the new institutional economics rather astonishing. Suppose that it (the visitor, I'll avoid the question of its sex) approaches the Earth from space, equipped with a telescope that reveals social structures. The firms reveal themselves, say, as solid green areas with faint interior contours marking out divisions and departments. Market transactions show as red lines connecting firms, forming a network in the spaces between them. Within firms (and perhaps even between them) the approaching visitor also sees pale blue lines, the lines of authority connecting bosses with various levels of workers. As our visitor looked more carefully at the scene beneath, it might see one of the green masses divide, as a firm divested itself of one of its divisions. Or it might see one green object gobble up another. At this distance, the departing golden parachutes would probably not be visible.

> No matter whether our visitor approached the United States or the Soviet Union, urban China or the European Community, the greater part of the space below it would be within the green areas, for almost all of the inhabitants would be employees, hence inside the firm boundaries. Organizations would be the dominant feature of the landscape. A message sent back home, describing the scene, would speak of 'large green areas interconnected by red lines.' It would not likely speak of 'a network of red lines connecting green spots.' [. . .]. When our visitor came to know that the green masses were organizations and the red lines connecting them were market transactions, it might be surprised to hear the structure called a market economy. 'Wouldn't "organizational economy" be the more appropriate term?' it might ask. The choice of name may matter a great deal. The name can affect the order in which we describe its institutions, and the order of description can affect the theory. In particular, it may strongly affect our choice of the variables that are important enough to be included in a first-order theory of the phenomena. How does the economy look when it is viewed as an organizational economy, with market relations among organizations? (Simon, 1991, pp. 27–8)

Simon's example is significant because it highlights how thought experiments work, how they function and where their limitations lie. A thought experiment such as Simon's is situated between 'empirical facts' and 'philosophical speculation' (Mach, 1897/1976). By definition, it is not geared towards discovering new information about empirical reality; the thought experiment happens in the head of the researcher (or perhaps within the walls of a seminar room) – but it does not include new data collection. Thus Kuhn (1964) asked the decisive question: given its closure towards the empirical world, how can we learn something – anything, really – new about the world through thought experiments? If Simon's visitor from Mars does not reveal anything empirically grounded about the world we live in, what can it possibly teach us? This is the 'central puzzle' (Gendler, 2010) of the thought experimental situation.

The creative and critical functions of thought experiments

Putting the puzzle together, we may well start with the edges and define what a thought experiment is not. It is by no means a replacement for empirical research; nor is it an experiment that could be conducted in reality but it is either too expensive, too complex or morally too controversial to be actually done. Nor is a thought experiment simply a domestic affair in which scientists prepare an inventory of their conceptual apparatus and check for any contradictions or redundancies in their vocabulary. Thought experiments, we argue, are more than just the manipulation of thought: thought experiments teach us about our ideas *and* the world. How can that be the case?

Kuhn argues that thought experiments 'give the scientist access to information which is simultaneously at hand and yet somehow inaccessible to him' (Kuhn, 1964, p. 261). Indeed, we know about the ingredients in Simon's thought experiment – we know about firms, markets, employment, hierarchy and capitalism's liberal claims. But as Simon's thought experiment suggests, somehow we have not

fully grasped the meaning of these ideas and how they shape our assumptions and theories about the world. What Simon points out is an anomaly – something strange or odd, something that exists right in front of our eyes, yet we have a difficult time making sense of it; or, in Simon's case, we would have a difficult time explaining it to an outsider. Kuhn argues that it is in these moments of anomaly or 'crisis' where the thought experiment is most useful:

> A crisis induced by the failure of expectation and followed by a revolution is at the heart of the thought-experimental situation we have been examining. Conversely, thought experiment is one of the essential analytical tools which are employed during crisis and which then help to promote basic conceptual reform. (Kuhn, 1964, p. 263)

For Kuhn this is the epistemological place for the thought experiment: it dwells on existing knowledge of the world but through exposing it to the experimental situation, estranges the familiar and makes visible tensions, contradictions and anomalies that are the fuel for new theorizing:

> [. . .] the analytical thought experimentation that bulks so large in the writings of Galileo, Einstein, Bohr, and others is perfectly calculated to expose the old paradigm to existing knowledge in ways that isolate the root of crisis with a clarity unattainable in the laboratory. (Kuhn, 1962/2012, p. 88)

Based on this characterization we can distil two specific functions of the thought experiment – a creative function and a critical function. The creative function describes the capacity of thought experiments to generate, demonstrate and communicate new ideas. Ørsted (in Kühne, 2005, p. 135) argued for the 'generative' nature of thought experiments which is expressed in open-ended scenarios that are designed to make people reflect. Take for instance the above-mentioned thought experiment by Rawls in which he assumes a 'veil of ignorance'; his thought experiment does not

suggest an answer nor does it provide specific information about how to answer it; rather, it problematizes an issue and 'throws new light but no new information' on the scenario at hand (to paraphrase Ryle, 2009). Simon's experiment works in the same way; it opens up space for reflection and invites debate about current theorizing. His example demonstrates the heuristic function of thought experiments. As Hempel (1952, in Kühne, 2005, p. 325) argued, thought experiments serve such a heuristic function in that they 'suggest' one or more hypotheses that need further testing. This function stresses that thought experiments are – like experiments in a laboratory – tools for search and discovery; they are set up to explore possibilities, not calculate probabilities. Here we see how a thought experiment is a device to explore a 'theory's capabilities' as argued above (with Darwin as example). This function also stresses the communicative aspect of thought experiments: Lakatos (1976) argued that, in Greek, the term 'thought experiment' (*deiknymi)* means 'to make visible'.

Following this meaning, thought experiments are demonstrations of an idea that aim to mobilize others and make them question the status quo. The Einstein–Bohr debate about quantum mechanics is a good example. Through thought experiments the two scientists developed a narrative that the public could engage with. Another example is the notion of 'Anthropocene', where a future geologist, perhaps an alien, perceives the short life-span of post-agricultural *Homo sapiens* as a geological epoch comparable to the mass extinctions such as the one that caused the death of the dinosaurs (see Hoffman & Jennings, 2018). Thus, thought experiments are 'devices of framing and persuasion' (Gendler, 2010) that embody an aesthetic quality which helps the communication of often complex scientific debates (*Ichikawa & Jarvis, 2009*). Thought experiments are designed to show something, to reveal something that is of interest yet has been neglected or simply overlooked. One can easily grasp the potential implications for organization

theory; if thought experiments generate, demonstrate and communicate new ideas, then organization theory would be well served to develop thought experiments. It would provide valuable heuristic insights and allow communication of its core ideas to a non-expert audience. Such work should not replace more traditional scholarly work, but rather be complementary to it.

The second, critical function is equally important. This function stresses the capacity of thought experiments to problematize existing theories by showing their limitations, unforeseen implications or taken-for-granted assumptions. Popper (1959) developed this critical function of the thought experiment (or as he says: imaginary experiment) as a tool to investigate whether theories account for all their implications and consider possible unintended consequences in depth. The thought experiment is a critical testing of assumptions, much like the checking of theoretical 'monsters' that Lakatos (1976) talked about. Thought experiments have a specific 'justificatory force' because they call upon the experimenter to 'constructively participate', as Gendler put it (2010, pp. 38–41); this force is based on a thought experiment's 'capacity to make available in a theoretical way those tacit practical commitments that enable us to negotiate the physical world' (Gendler, 2010, p. 40). Inherent in this critical function is a thought experimenter's aim to prove (or disprove) a specific point. Here thought experiments are set up to facilitate a decision that closes a specific debate. An example is Galileo who wanted to close the chapter on Aristotelian physics and move on to a new one (that he could write; see above). This critical role of the thought experiment is also about communication but with the intention to defend or attack an existing idea. Again, this critical capacity should be much welcome in organization theory as it complements other modes of critical inquiry; thought experiments make available tacit practical commitments, invite third parties to 'constructively participate' (Gendler, 2010) and seek to take a stance, or even make a decision, on a given issue.

Metaphor, analogy and fiction as building blocks for thought experiments

Cooper (2005, p. 20) notes that 'a thought experimenter manipulates her world view in accord with the "what if" questions posed by a thought experiment. When all necessary manipulations are carried through the result is either a consistent model, or contradiction.' A thought experiment thus involves the representation of a 'world', or in other words, a plausible state of affairs; it is an experiment with things known. In Simon's thought experiment we do not encounter flying saucers or money trees – only a Martian, and even including such an unknown creature, the set-up of the experiment sounds pretty familiar.

This begs the question: What is such a 'world' and what is the condition for the 'what if' to be thought-experimental, and not merely fictional? Cooper likens thought experiments to 'models', such as those used in natural science. Yet, this may be too limiting, as models may imply the necessity of expressing causal laws or systemic relationships that predict behaviour as modelled. While this notion might apply to at least most of the thought experiments conducted in the natural sciences, it leaves out a host of thought experiments conducted in philosophy and the humanities; Thomas Nagel's exploration of conscious experience by asking what it is like to be a bat; or John Rawls' exploration of a just society by examining what individuals shrouded by a veil of ignorance could agree on are just two among many influential thought experiments that are not models but scenarios, or narratives of disciplined imagination. This notion of disciplined imagination is central to Weick's (1989) conception of new theory generation as an evolutionary process, where 'thought trials' are conducted to find solutions to core problems ('variation'), the solutions being intersubjectively interrogated ('selection'), with successful ones passing into the body of knowledge ('retention').

In contrast to this evolutionary model, thought experiments have fluid boundaries to

other modes of inquiry. Mach (1897/1976) wrote that the dreamer, the novelist, the poet of technical or social utopias but also the merchant, the researcher and the inventor work with thought experiments to think through the relation between circumstances, actions and possible consequences. In the comprehensive *Routledge Companion to Thought Experiments* (2018) Stuart, Fehige and Brown argue similarly that thought experiments do not play a role only in science but also in art. They posit that for instance Jackson Pollock's paintings or George Orwell's *Animal Farm* are basically thought experiments. Without engaging in a discussion about the merit of such a wide definition, we want to clarify the relation between thought experiments and other modes of inquiry that may be used productively in organization theory.

While models are not a necessary aspect of every thought experiment, *analogies* are core components to any thought experiment (Cooper, 2005). For instance, in examining disruptive strategies for firms, Gary Hamel (1996, p. 71) conducts the following thought experiment:

> Consider the hotel industry's definition of a day, which begins when you check in and ends at noon when you check out. But if you check in at 1 A.M. after a gruelling journey, why should you check out at the same time or pay the same amount as a person who arrived 5 P.M. the previous afternoon? If a rental car company can manage a fleet of cars on a rotating 24-hour basis, why can't a hotel do exactly the same with a fleet of rooms?

With this rather simple thought experiment, Hamel teases out a specific disruptive strategy for the hospitality industry. The thought experiment works with analogical induction, listing connections between two different business models (Ketokivi et al., 2017).

In theorizing, thought experiments tend to be more complex than the simple example from a paragraph of Hamel's paper. A thought experiment explains something abstract and complex by comparing it with something simpler and tractable, and explores what those similarities would entail. Foucault's appropriation of

Bentham's panopticon allows him to discuss a theme as abstract and pervasive as power in a single, relatively simple thought experiment: what if the panopticon was the blueprint for 19th-century society? This is reasoning by analogy, which can take many logical forms: induction, deduction or abduction, or often a mix of several of them (Ketokivi et al., 2017). Such similarities reveal blind spots or problems, or generate new possibilities for thought.

A thought experiment fully explores an analogy by examining all of its perceived main implications. In the language of analogical reasoning, the thought experiment looks at the connectedness between two domains of meaning (Ketokivi et al., 2017). The generativity of analogical reasoning rests not only on the similarity between two domains but also on their dissimilarity; the range of main connections is not infinite. Car rental services and hotels may share the property of offering temporally limited services to their clients, but their similarity is more salient in pricing services by duration rather than, say value-added services. In hotels these involve kitchens and gyms whereas in car rental these involve child seats and insurance. Infinite connections are not necessary for a successful analogy, but a number of them is.

In addition to analogies, thought experiments use devices from literary fiction. While the metaphor (a form of figurative language often found in fiction) and analogies are closely related (Gentner, Holyoak, & Kokinov, 2001), thought experiments often venture beyond just metaphor. Thought experiments are in one sense experiments of 'miniature worldmaking' (Goodman, 1978), where reasoning is based on a detailed sketch of a situation, which is then used as an analogy of a broader theme. In worldmaking, we construct an alternative reality that helps us understand, explain or experience something to which we have previously not had access (Goodman, 1978); in this sense there exists a continuity between the work of scientists with that of artists and writers. Worldmaking organizes entities into relational structures, gives entities asymmetric weights, puts them into temporal order, creates and

deconstructs existing entities and abstracts ('deforms') properties and relationships (Goodman, 1978). All of these devices may be useful for those conducting thought experiments; modellers may rely more on structure and weight, while narrators work more with temporal order. All need an ontology of objects and relations, and ways of abstracting out and focusing in.

Narrative fiction provides a helpful contrast to modelling as a methodology for thought experiments. While a model is a possible world defined by a set of laws or rules, a fictional example is a plausible and coherent story that complies with narrative causality rather than nomological causality (Polkinghorne, 1988). Asking what it is like to be a bat (as Nagel did in his 1974 paper) examines a narrative scenario, inviting the reader to empathize with the condition of a bat, appreciating the diversity of conscious experience, and the limitations of anthropocentric definitions of consciousness. Techniques that fictional authors use to construct characters and situations involve empathy ('what would it feel to be this character') and principled imagination, yet they remain empirical.

In sum, thought experiments open up new space for organizational research. Critically, thought experiments expose flaws in existing theorizations (Ghoshal, 2005) and, simultaneously, they help to go beyond existing approaches of theorizing and disclose new worlds (Goodman, 1978). Thus thought experiments represent a powerful tool to rejuvenate organization theory as 'miniature world-making' through experiments which engage with ideas holistically.

Designing a Thought Experiment

This begs the question: how to design a thought experiment? A thought experiment requires an analogy which facilitates asking several 'what if' questions. The selection of an analogy is guided by the problem-setting. For instance, William Ouchi (1980) explored how

organizations could handle situations where performance measurement is hard, and goal incongruence was necessary. Classical theory of the firm identifies two main forms of organization: markets and hierarchical bureaucracies, which cannot handle high levels of ambiguity in performance measurement. Ouchi selects the analogy of an organization as a *clan*, and explores how clans accomplish high levels of goal congruence between their members. Drawing on sociological knowledge about clans, Ouchi essentially asks several questions in the form of 'what if an organization was like a clan?' As a result, he delivers an account of three main organizational forms, classified by the forms of control that they exert on their members.

The necessary first step in a thought experiment is, then, a problem formulation, such as the one suggested by Ouchi in his clan control paper. In some cases, the thought experiment is conducted in an effort to shed light on phenomena where theory does not yet exist (the creative or generative function of a thought experiment). The critical form of problem formulation is to challenge a deep-rooted theoretical domain or research programme. In both these cases, analogy selection is driven by *relevance to the problem* at hand. Ketokivi and colleagues (2017, p. 645) approach the relevance of an analogy in the following way:

> When we ask, 'Is the analogy relevant?' the aim is specifically to evaluate whether the analogy offers an a priori plausible solution to a theoretical problem (Bartha, 2010). Does the analogy enable inferences that help us make sense of an organizational phenomenon, by offering either an explanation of why it happened or an interpretation of what it could mean?

The type of analogy employed in a thought experiment rests on the function of the thought experiment – whether it is conducted creatively to open new theoretical frontiers, or critically in interrogating existing theory. In the creative function, a heuristic type of analogy would seem appropriate as researchers are examining a new problem. In case of a critical thought

experiment, existing theory-based analogies are put to the test in a thought experiment to investigate their boundaries. It would seem, however, that they too need to be translated into a heuristic form through contrastive reasoning. For instance, organizational identity theory is founded on the constitutive analogy of an organization as a psychological being with a personal history, core beliefs and values (Cornelissen, 2005). Such an analogy is too broad to yield to a specific thought experiment, and will require contrastive reasoning (Cornelissen & Durand, 2014; Tsang & Ellsaesser, 2011) specific to a case. Established research programmes can be expected to store auxiliary analogies that will provide conventional ways for such translation (Lakatos, 1976).

Let us illustrate the use of abductive reasoning in looking for an analogy to act as a basis for a thought experiment. As we write this paper in the spring of 2020, a large proportion of the world's workforce is staying home due to the Covid-19 pandemic. Let us use this untypical circumstance to set up a problem: What happens to work if the home office and distributed organizations become the new normal? While examples of distributed organization go back centuries to volunteer-based social movements (Seidel & Stewart, 2011), and the advent of social media has generated new types of organizations such as online communities (Faraj, Jarvenpaa, & Majchrzak, 2011), the mainstream organization for our field is a physically co-located bureaucracy, heralded by the creation of industrial production and state bureaucracies. As expressed elegantly as 'solid green areas' in Simon's thought experiment, organizations (firms in Simon's case) are envisioned as being 'bounded', in terms of a boundary between an organization and its environment (the market in Simon's case). The question of 'what is organization X' is in many ways captured by 'where do the boundaries of organization X lie?' (Santos & Eisenhardt, 2005). Within such boundaries, organizations have, in Simon's terms, 'interior contours', i.e. structure.

In the current Covid-19 crisis, the 'structured togetherness' is challenged as boundaries are blurred. How can an organization be conceived that does not rely on structured togetherness? How can coordinated action between several people be described in other terms? We are not the first to ask this question, and will certainly not be the last; a thought experiment requires a problem but that problem does not need to be uniquely novel.

Now that a problem, or at least a problem area, has been identified, let us look for a novel analogy. Strong abduction involves the comparison between several options. One option would be to look for a blended analogy (Cornelissen & Werner, 2014) such as a 'virtual choir'. One of the hallmarks of a good analogy is familiarity (Ketokivi et al., 2017), however, and virtual choirs are new experiences and not yet familiar to many. The process of examining these and other musical metaphors also makes us realize that perhaps the problem itself is not as well formulated as we initially thought. This forces the thought experimenter – in this case, us – to focus on work in particular, and look at the phenomenon of the weakening social relationship between manager and subordinate.

The lack of physical proximity and the boundaries of private homes make basic forms of controlling employees' performance and clan control very difficult (Ouchi, 1980). In distributed work settings, managers cannot observe how, when and where subordinates do their work, nor are they able to be as effective to use peer pressure through the cultivation of shared values and norms as electronic media severely limit rituals and ceremonies which are essential for the creation of culture. What remains is the control of work outputs which can be effectively done in distributed settings. A focus on output control in turn incentivizes the development and implementation of performance metrics, where 'numbers don't lie'.

This compels us to sketch the following thought experiment: What if a manager would become a rent collector, taking a new spin on Ouchi's classical problem. Such specification of the problem with the abductive search for an analogy is characteristic of abductive reasoning more broadly (Alvesson & Kärreman,

2007). Our thought experiment focuses on the aspect of control in organizing work in a distributed organization. It focuses on deliverables and a dyadic relationship between a worker and the manager as a representative of the employer. It focuses on the solitary aspect of work, and on outcome control in the absence of managerial performance or clan control. The transactional relationship between labour contract parties is elevated and the social, cultural and political aspects of organization become ornamental at best. Digitally charged Fordist managers that reverse-colonialize the home are rewarded for measuring, incentivizing and extracting outputs from individuals working from home. It is easy, following this line of reasoning, to extrapolate to a panoptic setting where the job of the manager will be handled more 'effectively', and 'impartially' by an AI, perhaps even a digital character such as the agents in the movie *The Matrix*.

The experiment also allows for the development of future scenarios. For instance, in our field of work, what if clever machine learning programmes record and analyse the myriad of online meetings and teaching sessions and learn to conduct them through AI? The machine might have no problem teaching introductory courses based on textbooks that summarize codified (!) knowledge of (say) OB. The machine might also be able to anticipate discussion of cases and Q&As. The interesting question for the thought experimeter would be: where or when would AI stop being able to replace a professor? What are the unique aspects to our roles for which even a 'digital manager' would need to return to us and seek that which has become considered ornamental?

Reflecting upon the design of a thought experiment more generally, the step following the abductive search for an analogy is to examine how generative the chosen analogy actually is by looking at how many structural similarities it shares with the phenomenon at hand: how much can the image of a Fordist manager actually predict when it comes to managing a distributed organization? That is, the thought experimenter will focus on the structural soundness (Ketokivi

et al., 2017) of the analogy by examining structural similarities between the problem domain and the analogy. Analogical reasoning focuses not just on similarity of properties, but also on the similarity of a presupposed causal structure (Gentner & Holyoak, 1997). What this means is that a generative analogy does not predict the discovery of new similar properties in the problem domain, but rather similar ways of functioning. To use a water distribution system as an analogy for an airport, the power of the analogy comes, not from finding that masses of people are like water or the walls of airport corridors are like pipes, but rather from the possibility of predicting that people move in various parts of the airport as if they were water flowing through bottlenecks (see Ketokivi et al., 2017). To use the Fordist digital manager as an analogy highlights the possibility that knowledge workers create value in their private 'lockdown bubbles' and that rather intrusive, holistic (not to say total) forms of power ensure extraction of value.

Thought experiments can be evaluated by the relevance of their core analogy, the generativity of the structural connectedness between the analogy and problem setting, as well as the completeness of the exploration of the scenario (i.e. are the relevant 'what if' questions identified and explored by the experimenter?). Cooper (2005) argues that the difference between thought experiments and daydreams or science fiction is the 'rigour' with which the thought experimenter tries to answer the 'what if' question. She has to consider all consequences of the thought experiment and follow them through – resulting in an internally consistent model (Cooper, 2005) which might be a set of propositions, a graphical representation, a scenario or something similar that captures the 'what if' in a coherent manner. For instance, Simon's thought experiment ends with suggesting another possible description of the world, one that might be conducive to ask new questions. For organization theory this opens up the possibility to be engaged, perhaps even relevant, without being normative.

More mature analogies will also be evaluated based on accumulated knowledge of their factual

validity (Ketokivi et al., 2017), but this requires empirical evidence and thus cannot be done exhaustively from within the thought experiment itself (unless significant secondary data exists for some reason). Indeed, this is where the thought experiment stops – it does not tell us whether the 'what if' is true – it only tells us that it is possible; it generates a question, and reasons to think with, but it does not provide evidence. Here we see the obvious linkage to social sciences and their methods to probe the world further.

A further, crucial step is to narrate the thought experiment. The task of the thought experimenter involves spinning the case into a convincing narrative form. While the connections within an analogical inference can be examined in various different sequences, the sequence of events is absolutely crucial to narrative, as this accomplishes emplotment: the interconnected core sequence of events and their consequences (Polkinghorne, 1988). Also, the description of a thought experiment is 'thick'; it contains contextual detail that readers will need to understand in order to be convinced of the experiment (Folger & Turillo, 1999; Ryle, 1949). While established theories and especially models tend to be 'thin' on contextual detail (Folger & Turillo, 1999), thought experiments tend to require richness and texture: Simon's thought experiment is fleshed out by colourful lines, mythical visitors, telescopes revealing social structures, and other details.

We will illustrate the task of narrating with Simon's Martian example, applied to the context of the sharing economy.

> Imagine a further visit from Simon's Martian. Since his last sojourn in 1991 he knows that we are above anything else an organization society. Now he looks at our planet, and sees the familiar set of red and green colours depicting markets and hierarchies; yet he also sees significant amounts of blue popping up across the globe. Blue shows platforms, peer to peer networks, open source, distributed innovation systems as well as other ecosystems in which users share excess resources with each other. The Martian is puzzled by the fact that since his last visit, the biggest retailer is no longer Walmart but Alibaba (carrying no stock), the biggest accommodation provider is not the Hilton Group but Airbnb

(owning no property), and the biggest mobility provider is not some airline or train company but Uber (owning no cars).[4]

The Martian is astonished by these new organizational designs that operate as platform businesses. They mediate between demand and supply – akin to analogue examples such as shopping centre operators, credit cards or classified ads in newspapers. But the Martian is puzzled by the fact that we describe these ecosystems as 'sharing economy': after all, Uber, Airbnb or Alibaba are market-makers that organize exchange between supply and demand for a fee; they share little, and gift nothing. Yet the Martian also observes other platforms – such as Wikipedia – in which sharing does seem to take place: here knowledge is being shared and this seems to express sharing as in a sharing of values or a sharing of trust. What is shared is in fact not diminished through use but grows through the fact of being shared. A shared language is more valuable than a private language: the more distributed language becomes, the more valuable it is. Paradoxically, here consumption seems to be a subtle form of production. Scarcity is not the main issue, and free-riders turn into welcome disseminators. Crowds, peer networks, open source communities and all sorts of other social movements seem to be at the heart of this economic activity. The Martian wonders how the organization and governance of such genuine sharing ecosystems differs from resource exchange platforms. What does it mean to manage such sharing ecosystems? And how could management itself be shared within these ecosystems?

These and other questions would flow from the concrete emplotment of a thought experiment.

Implications for Organizational Research

Creating thick concepts

In the previous section we argued that thought experiments are a genuine philosophical method. Thought experiments pose 'what-makes-it-possible' questions (Abend, 2019, p. 9) – a keystone in the arch that connects philosophical inquiry

and the social sciences, including organization theory. We argue that the corollary of thought experiments is a specific kind of conceptual work that produces what Ryle (2009) and more recently, Abend (2019) described as 'thick concepts'. Thick concepts are one result of thought experiments, as Simon (1991) suggested with his visitor from Mars: 'organizational economy' might be a more appropriate concept to describe reality; and this conceptual difference matters as the

> name can affect the order in which we describe its institutions, and the order of description can affect the theory. In particular, it may strongly affect our choice of the variables that are important enough to be included in a first-order theory of the phenomena. (to quote Simon again)

Note that thought experiments do not result in abstract theory; nor do they reveal new empirical data: rather, it is the emerging relation between thought and phenomenon which we characterize as 'thick concepts', i.e. theoretically relevant concepts infused with new descriptive and prescriptive insight. Imagining scenarios as the thought experimenter does creates thick concepts that are rich in texture and detail. The puzzled Martian that revisits us in 2020 is a generative figure of inquiry as the unfolding narrative suggest conceptual implications and practical applications that other, perhaps more traditional forms of theorizing or empirical investigation, do not provide.

Building on Ryle's (2009) notion of 'thick descriptions' (later popularized by Geertz), Abend (2019) developed the notion of thick concepts further. He argued that thick concepts are both descriptive *and* evaluative. For instance, good or bad are purely evaluative, not descriptive concepts; cruel or compassionate, however, are both descriptive and evaluative; bad behaviour can consist of a whole array of actions all judged to be bad; cruel behaviour describes a more specific set of behaviours and evaluates them negatively. Thick concepts are important as they

figure in societies' laws and other written and unwritten norms, e.g., the ethics codes of trade associations and companies. They might also figure in societies' practices, ideas, culture, and institutions, e.g., political and public policy projects, advertising campaigns, job descriptions, awards, rankings, categories and classifications, education, movies, and art. (Abend, 2019, p. 7)

'Digital Fordist manager', used above in our example, is a thick concept which specifies certain aspects pertaining to that role, combined with sentiments about the implications of such roles in the post-pandemic work life. It is a dystopian view of the direction that virtual work can take. We also see the importance of thick concepts when we use terms such as 'sharing economy' or 'platform organization', as in the example above: the sharing economy does not only denote a specific resource allocation model, but includes connotations of open, entrepreneurial if not democratic and inclusive (see Gillespie, 2010; Kornberger, Leixnering, Meyer, & Höllerer, 2018). Just think of the discussion on whether Uber is a taxi company exploiting cheap labour or an empowering technology provider (Pujadas & Curto-Millet, 2019); here thick concepts of what makes an organization collide, with significant implications for stakeholders across society. Thus, thick concepts matter because they describe *and* evaluate phenomena: they express facts *and* values. Words do things, Austin (1955/1962) told us; thick concepts do things in specific ways by conjuring up facts and values about the world in which we live.

Thought experiments (which Abend, 2019, mentions explicitly as method) represent a genuine philosophical style of inquiry that aims at creating and critically testing thick concepts: the question is not how concepts are used by individuals (as in psychology) nor how they are deployed in societies (as sociology would do) – but to inquire about the logical conditions of their possibility (Abend, 2019, p. 6). This important work is conducted through thought experiments. Thus we propose that one key
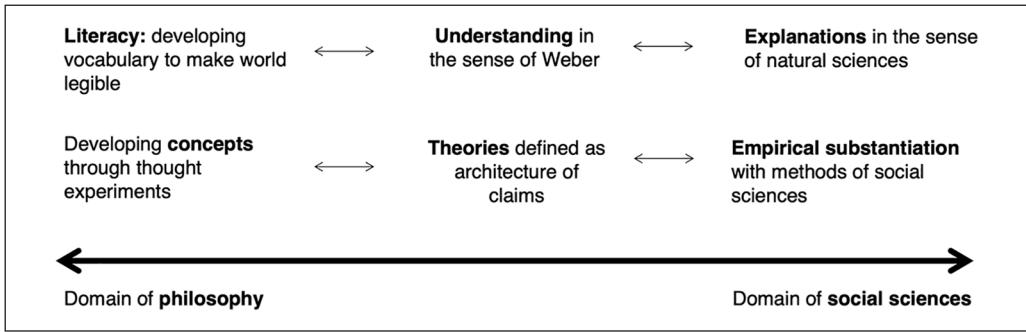
Figure 1. Division of labour between conceptual and empirical work.

deliverable of philosophical work in our field is to develop thick concepts in order to extend our analytical vocabulary with which we grasp new phenomena. To be sure, philosophy has moments in which it is needed more than in others. Especially as we witness the rise of new phenomena (such as radically enforced home-office working, the sharing economy or platform organization) our epistemological maps are challenged and might need readjustment. As a Rylian cartographer, the philosopher concerns herself necessarily with such rugged or shifting landscapes, i.e. with undisciplined, ill-defined and disruptive problems. She addresses problems before they are being disciplined and dealt with in specialized disciplines including psychology, sociology or economics. The philosopher's task is to reduce a puzzle to a problem that then can be researched using a whole spectrum of methods available in specialized fields (Ryle, 2009). Thus, Ryle suggests that philosophy is occupied with the discovery of new problems; it is less well equipped to solve old ones. Once the 'unit of analysis' is defined (Bacharach, 1989), the philosopher's task has come to an end and the social scientist commences. Importantly, this stance implies that philosophy is a moment that is not the sole privilege of the philosopher as Ryle posits: 'A scientist who ceases for a moment to try to solve his questions in order to inquire instead why he poses them or whether they are the right questions to pose ceases for the time to be a scientist and

becomes a philosopher' (Ryle, 2009, p. 204). Philosophy is but a moment in an ongoing thought process, Ryle reminds us, not a fixed state of mind: you do not philosophize from 9 to 5, but in between the cracks that doubt and imagination open between 5 and 9. This implies for better or worse that philosophy can never be a normal science in the sense of Kuhn. There are no results and no findings; only search and discovery. As Ryle put it, the philosopher throws new light but does not give any new information (2009, p. 174). Here we touch again on the thought experiment's specific value: it does not reveal new information, yet it is a critical and creative source of new ideas and knowledge. Figure 1 summarizes our argument and sketches the relation between thick conceptual work and thought experiment vis-a-vis other modes of inquiry.

We depict thought experiments and thick concepts as part of a continuum within organizational research: philosophy is about developing and clarifying thick concepts that provide basic literacy to make sense of hitherto undisciplined, rugged landscapes; over time, these concepts might evolve into theories that are then subject to qualitative inquiry and quantitative testing. As Abend (2019, p. 9) proposes, we may 'start with thick concept and property, and then ask what it's enabled by or dependent on. Or start with a small network of interrelated thick concepts and then ask what it's enabled by or dependent on.' Hence, philosophical work is

not empirical; rather it is concerned with concepts that *organize the empirical*. For Ryle this important organization work happens neither in the library (the mind) nor the laboratory (the world), but only in interaction between them – and this 'coordination is done neither in libraries nor in laboratories but in the philosopher's head' (Ryle, 2009, p. 204). The philosopher's head, we add, is the metaphorical locus of the thought experiment.

The continuum depicted in Figure 1 is committed to a processual view. Indeed, we do not suggest a linear development from thought experimental ideation to theory and empirical substantiation. Thought experiments are forms of meta-theorizing (especially following their critical function); but they are also a means for ongoing reflection and evolution of established theory and method contributing to evolving bodies of knowledge in research programmes within organization theory. In other words, thought experiments generate new concepts and rehydrate or eliminate old ones. They help theory adapt to changing organizational practice, challenging institutional beliefs and acknowledging innovations. The results of generative thought experiments might grow stale with time, and are subjected to more critical thought experiments that provide space for new ideas. By extension, we do not suggest a division of labour between philosophically inclined thought experimenters, theoreticians and empirical fieldworkers. Rather, the value-add of thought experiments is manifest at every stage of organizational research, improving our conceptual repertoire (e.g. what do we mean by sharing?) and our methodological designs (e.g. what variables account for an organizational economy?).

Philosophical reasoning and organizational research

As an empirical discipline, organization theory has excelled at gathering data and data analysis using ever more sophisticated methods. The price organization theory may have paid is to leave engagement with practice to consultants and gurus and be perceived as insignificant and

irrelevant when it comes to real-world problems (let alone so-called 'grand challenges'). In short, the current vocabulary of organization theory is designed for empirical scrutiny rather than practical engagement. Equally, our theorizing tends to be self-referential, often more concerned with gap-spotting than genuine intellectual puzzles. We propose a remedy: the creative and critical functions explain how the thought experiment is a practical mode of 'doing' the sort of thick conceptual work that Ryle suggested. Thought experiments are about 'foreign relations' as they investigate conceptual boundaries and trace possible 'implication threads' in rugged, not yet disciplined landscapes (Ryle, 2009). Such philosophical reasoning plays an important role as we experience quite a few rugged landscapes in our world of organizations. Take once again the notion of the sharing economy as an example. Much has been made of its potential to address grand challenges, reduce overconsumption and reintroduce a sense of community in economic organization. While empirical studies map the sharing economy in quantitative terms (see Wruk, Oberg, Klutt, & Maurer, 2019), a philosophical inquiry would start by mapping its implication threads: what are the differences and similarities between sharing and other forms of exchange, such as organized by Uber or Wikipedia? How do these forms of exchange configure economic organization, individual preferences and collective behaviours? How do novel organizational forms for sharing relate different elements (consumers, producers, tasks, control, governance, decision-making, . . .) with each other? And how do moral implications of sharing interlock with economic aspects of the sharing economy and its political implications? Thought experiments can tease out such conceptual differences and open up, critically and creatively, debates about alternative socio-economic organization. Done well we will be able to develop concepts that expose unique relationships between elements that will in turn allow us to shine the torchlight of empirical inquiry onto them. We will conjure up thick concepts that are descriptive and evaluative. Such inquiry seeks to develop a conceptual apparatus that is not based on archetypes or 'novel new

theory' (as Barley put it); rather it aims to develop thick concepts that are agile, more like speedboats compared to theories akin to aircraft carriers. Concepts are nimble, fast, focused on discovery of new relations on the phenomenon level. They are about literacy: that is, providing the critical vocabulary needed to understand and map rugged landscapes.

In this sense, the proposed thought experimental approach complements other methods such as Weick's (1989) disciplined imagination, Alvesson and Sandberg's (2011) critical problematizations or counterfactual reasoning. Adding to these methodological tools, thought experiments are structured ways to creatively and critically investigate the conceptual infrastructure that informs much of the empirical work in the field. Thought experiments are one way to add methodological rigour to conceptual work through (1) helping to discover and communicate novel concepts and (2) critically evaluate concepts. They are useful as they support fast and agile thinking that often takes a narrative – and hence engaging – form. Organization theory might benefit from such conceptual work; and perhaps it would not lose too much if it left some of the grand theorizing to focused disciplines with deep traditions and policed borders. Indeed, we see the possible value of organization theory in being undisciplined, hosting conversations that bring together specialists (from AI to anthropology, etc.) and seek resonance between these conversations and real-world problems. Thinking conceptually and through thought experiments are tools to advance this endeavour, with rigour and relevance.

A key goal of this essay is to demonstrate that conceptual work is methodologically informed: since legitimacy in science is based to a large degree on transparent methods (Luhmann, 1969), it is important to show that conceptual work is not the antithesis of methodologically driven research. Undisciplined does not mean unguided. Moreover we are *not* suggesting that thought experiments can or should replace empirical inquiry. Indeed, several writers have lamented the monopoly of thought experimentation, particularly in fields such as the philosophy of the mind or ethics, as

empirical knowledge would sometimes be a better alternative to often abstract or simplified imagined scenarios. With this caveat in mind, we claim a place for thought experiments in our field – a place that has been left vacant to date.

Conclusion

In the dedication to his book *Exit, Voice and Loyalty*, the philosopher-economist Hirschman (1970) thanked his friend Eugenio Colorni 'who taught [him] about small ideas and how they may grow'. We claim that it is exactly the ability of thought experiments to seed small ideas (thick concepts) that may – nourished by interaction with other disciplines and empirical investigation – grow big. We suggest that organization theory is a good host for such philosophical reasoning as its main proponents – Follett, Penrose, March, Mintzberg, Weick, to name a few – have been very much at home between the library and the laboratory. As Barley (2016, p. 4) wrote:

> Reportedly, Jim [March] once gave a qualifying exam composed of single question: 'Name one paper that has made a theoretical contribution to organizational theory that also included a regression equation.' The question was brilliant and carries more than a grain of truth. If you look at the most-cited scholars in our field, you will find that their most highly cited papers are almost always primarily theoretical.

Now we may place ourselves in the midst of a thought experiment and sit March's exam. Of course, March was right; the most cited papers in our field are conceptual pieces such as his seminal paper on exploration and exploitation. Note that he did not present a theory but a pair of thick concepts to think with. Rather, when it comes to theory development, organization theory has been a net importer of theories, mainly from sociology (as Barley (2016, p. 7) says *en passant*, 'organizational theory' is equivalent to 'organizational sociology') and psychology. In return, organization theory has not exported much theory to other disciplines; even shifts such as the behavioural turn in economics are fuelled by psychology, not organization theory.

So perhaps March's exam prompts us to find a middle way between grand (social) theory and empiricism, pointing towards work with thick concepts that is genuinely driven from within organization theory – not derivative theorizing that makes organization theory a sub-branch of sociology. This would make organization theory the host of an interdisciplinary dialogue fostered through thought experiments that 'represent a rare four-way intersection of history, philosophy, cognitive science and social science' (Stuart et al., 2018: p. xx). And it would include an impact-driven agenda that does not shy away from Hirschmanian possibilism, for thought experiments are 'attempts to construct models of possible worlds' (Cooper, 2005). Thought experiments tell possible world stories that engage and invite imagination – and this is what some of our field's best work is known for. We firmly believe that there is a need for such work: a whole array of new actors populate organizational landscapes, from algorithms to crowds, from platforms to open source networks, while unprecedented challenges, small and grand, mushroom all around us. Social sciences and organization theory among them embark on surveying these new landscapes; in their efforts organizational researchers may well build on philosophical reasoning, aided by thought experiments, that charts these landscapes first.

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Notes

1. We thank Christopher Kitson for pointing this out.

2. The trolley problem is a thought experiment in ethics: Imagine a runaway trolley is moving down a railway track. On the track, five people are caught and the trolley is heading straight for them, probably killing all of them. Now you can pull a lever an divert the trolley to another track. But on this other track there is one person who will be run over and killed by the train in case you decide to divert it. The question is: is it ethical to do nothing and let me trolley continue on its track to kill five people; or should you intervene, killing the one person on the other track? The thought experiment highlights two different approaches to ethics: a utilitarian view would stipulate that one has the moral obligation to minimize harm and hence one has to divert the train – even if one's actions lead to the death of an innocent person. A deontologist position would argue the opposite: life is incommensurable (five lives are not five times more valuable than one life) and participating in a wrong creates responsibility where there was none before. These questions are highly relevant today (for instance in the design of autonomous vehicles).

3. Wittgenstein's beetle in the box is a thought experiment in which everyone has a box that only they can see into. Each person describes what they see in the box as a 'beetle'. The point is that each box might contain something different (perhaps even something continuously changing) yet nonetheless everyone might call it 'beetle' (Wittgenstein, 1969). The thought experiment highlights that language is not governed by introspection; rather, for it to be meaningful, language needs to shared among a public. Nagel's thought experiment asks what it is like to be a bat; arguing for the subjective character of experience the thought experiment shows that we might be able to imagine eating what a bat eats, hanging upside down from trees, flying, and using sonar (instead of vision) to navigate; but we still would not know a bat's mindset, only its behaviours.

4. This list is in reference to Tom Goodwin who said: 'Uber, the world's largest taxi company, owns no vehicles. Facebook, the world's most popular media owner, creates no content. Alibaba, the most valuable retailer, has no inventory. And Airbnb, the world's largest accommodation provider, owns no real estate. Something interesting is happening.' The statement circulates as a quote on the web but we were not able to identify its origin.

References

Abend, G. (2019). Thick concepts and sociological research. *Sociological Theory*, *37*, 209–233.

Alvesson, M., & Kärreman, D. (2007). Constructing mystery: Empirical matters in theory development. *Academy of Management Review*, *32*, 1265–1281.

Alvesson, M., & Sandberg, J. (2011). Generating research questions through problematization. *Academy of Management Review*, *36*, 247–271.

Amis, J., Mair, J., & Munir, K. (2020). The organizational reproduction of inequality. *Academy of Management Annals*, *14*(1), 1195–1230.

Austin, J. L. (1955/1962). *How to do things with words: The William James lectures delivered at Harvard University*. Oxford: Clarendon Press.

Bacharach, S. B. (1989). Organizational theories: Some criteria for evaluation. *Academy of Management Review*, *14*, 496–515.

Barley, S. (2016). 60th Anniversary Essay: Ruminations on how we became a mystery house and how we might get out. *Administrative Science Quarterly*, *61*, 1–8.

Beninger, J. (1986). *The control revolution: Technological and economic origins of the information society*. Cambridge, MA: Harvard University Press.

Brown, J. R. (2011). *The laboratory of the mind: Thought experiments in the natural sciences*. London: Routledge.

Carter, C., & Spence, C. (2019). The production of managerial knowledge and organizational theory. In T. Zilber, J. Amis, & J. Mair (Eds.), *New approaches to writing, producing and consuming theory. Research in the Sociology of Organizations, Volume 59* (pp. 217–235). Bingley, UK: Emerald Publishing Limited.

Cooper, R. (2005). Thought experiments. *Metaphilosophy*, *36*, 328–347.

Cornelissen, J. P. (2005). Beyond compare: *Metaphor* in organization theory. *Academy of Management Review*, *30*, 751–764.

Cornelissen, J. P., & Durand, R. (2014). Moving forward: Developing theoretical contributions in management studies. *Journal of Management Studies*, *51*, 995–1022.

Cornelissen, J. P., & Werner, M. D. (2014). Putting framing in perspective: A review of framing and frame analysis across the management and organizational literature. *Academy of Management Annals*, *8*, 181–235.

Du Gay, P. (2015). Organization (theory) as a way of life. *Journal of Cultural Economy*, *8*, 399–417.

Eisenhardt, K. M. (1989). Agency theory: An assessment and review. *Academy of Management Review*, *14*, 57–74.

Eisenhardt, K. M., Graebner, M. E., & Sonenshein, S. (2016). Grand challenges and inductive methods: Rigor without rigor mortis. *Academy of Management Journal*, *59*, 1113–1123.

Faraj, S., Jarvenpaa, S. L., & Majchrzak, A. (2011). Knowledge collaboration in online communities. *Organization Science*, *22*, 1224–1239.

Ferraro, F., Etzion, D., & Gehman, J. (2015). Tackling grand challenges pragmatically: Robust action revisited. *Organization Studies*, *36*, 363–390.

Folger, R., & Turillo, C. J. (1999). Theorizing as the thickness of thin abstraction. *Academy of Management Review*, *24*, 742–758.

Gendler, T. S. (1998). Galileo and the indispensability of scientific thought experiment. *British Journal for the Philosophy of Science*, *49*, 397–424.

Gendler, T. S. (2010). *Intuition, imagination, and philosophical methodology*. Oxford: Oxford University Press.

Gentner, D., & Holyoak, K. J. (1997). Reasoning and learning by analogy: Introduction. *American Psychologist*, *52*, 32–34.

Gentner, D., Holyoak, K. J., & Kokinov, B. N. (Eds.) (2001). *The analogical mind: Perspectives from cognitive science*. Cambridge, MA: MIT Press.

George, G., Howard-Grenville, J., Joshi, A., & Tihanyi, L. (2016). Understanding and tackling societal grand challenges through management research. *Academy of Management Journal*, *59*, 1880–1895.

Gillespie, T. L. (2010). The politics of 'platforms'. *New Media & Society*, *12*, 347–364.

Goodman, N. (1978). *Ways of worldmaking*. London: Hackett Publishing.

Ghoshal, S. (2005). Bad management theories are destroying good management practices. *Academy of Management Learning & Education*, *4*(1), 75–91.

Hamel, G. (1996). Strategy as revolution. *Harvard Business Review*, *74*(4), 69–82.

Hirschman, A. O. (1970). *Exit, voice and loyalty. Responses to decline in firms, organizations, and states*. Cambridge MA: Harvard University Press.

Hoffman, A., & Devereaux Jennings, P. (2018). *Re-engaging with sustainability in the Anthropocene era: An institutional approach*. Cambridge: Cambridge University Press.

Horowitz, T., & Massey, G. (Eds.) (1991). *Thought experiments in science and philosophy*. Savage, MD: Rowman & Littlefield.

Ichikawa, J., & Jarvis, B. (*2009*). Thought-experiment intuitions and truth in fiction. *Philosophical Studies*, *142*, 221–246.

Ketokivi, M., Mantere, S., & Cornelissen, J. (2017). Reasoning by analogy and the progress of theory. *Academy of Management Review*, *42*, 637–658.

Kornberger, M., Leixnering, S., Meyer, R. E., & Höllerer, M. A. (2018). Rethinking the sharing economy: The nature and organization of sharing in the 2015 refugee crisis. *Academy of Management Discoveries*, *4*, 314–335.

Kuhn, T. (1964). A function for thought experiments. In *The essential tension: Selected studies in scientific tradition and change* (pp. 240–265). University of Chicago Press: Chicago and London.

Kuhn, T. (1962/2012). *The structure of scientific revolutions*. Chicago and London: University of Chicago Press.

Kühne, U. (2005). *Die Methode des Gedankenexperiments*. Frankfurt: Suhrkamp.

Lakatos, I. (1976). Proofs and refutations. Cambridge: Cambridge University Press.

Lennox, J. G. (1991). Darwinian thought experiments: A function for just-so stories. *Thought Experiments in Science and Philosophy*, 223–245.

Lichtenberg, G. H. (1793/1990). *The waste books*. London: Penguin.

Luhmann, N. (1969). *Legitimation durch Verfahren*. Frankfurt: Suhrkamp.

Mach, E. (1897/1976). On thought experiments. In *Knowledge and Error* (translated by Thomas J. McCormack & Paul Foulkes) (pp. 134–147). Dordrecht, Holland: Reidel.

Mintzberg, H., Etzion, D., & Mantere, S. (2018). Worldly strategy for the global climate. *Stanford Social Innovation Review*, *16*(4), 42–47.

Nagel, T. (1974). What is it like to be a bat? *Philosophical Review*, *83*, 435–450.

Ouchi, W. G. (1980). Markets, bureaucracies, and clans. *Administrative Science Quarterly*, *25*, 129–141.

Polkinghorne, D. E. (1988). *Narrative knowing and the human sciences*. New York: State University of New York Press.

Popper, K. (1959). On the use and misuse of imaginary experiments, especially in quantum theory. In *The logic of scientific discovery*. London: Routledge.

Pujadas, R., & Curto-Millet, D. (2019). From matchmaking to boundary making: Thinking infrastructures and decentring digital platforms in the sharing economy. In M. Kornberger*, et al.* (Eds.) *Thinking infrastructures. Research in the Sociology of Organizations*, *Volume 62* (pp. 273–286). Bingley, UK: Emerald Publishing Limited.

Ryle, G. (1949). *The concept of the mind*. Chicago: Chicago University Press.

Ryle, G. (2009). *Collected essays 1929–1968*. Routledge: London.

Santos, F. M., & Eisenhardt, K. M. (2005). Organizational boundaries and theories of organization. *Organization science*, *16*(5), 491–508.

Seidel, M. D. L., & Stewart, K. J. (2011). An initial description of the C-form. In *Communities and organizations. Research in the Sociology of Organizations* (vol. 33, pp. 37–72). Bingley, UK: Emerald.

Simon, H. A. (1991). Organizations and markets. *Journal of economic perspectives*, *5*(2), 25–44.

Sorensen, R. (1998). *Thought Experiments*. New York: Oxford University Press.

Stuart, M. T., Fehige, Y., & Brown, J. R. (Eds.). (2018). *The Routledge companion to thought experiments*. Routledge: London.

Tetlock, P. E., & Belkin, A. (Eds.). (1996). *Counterfactual thought experiments in world politics: Logical, methodological, and psychological perspectives*. Princeton, NJ: Princeton University Press.

Tirole, J. (2017). *Economics of the common good*. Princeton, NJ: Princeton University Press.

Tsang, E.W.K, & Ellsaesser, F. (2011). How contrastive explanation facilitates theory building. *Academy of Management Review*, *36*, 404–419.

Weick, K. E. (1989). Theory construction as disciplined imagination. *Academy of Management Review*, *14*, 516–531.

Weick, K. E. (1995). *Sensemaking in organizations*. London: SAGE Publications.

Whetten, D. A. (1989). What constitutes a theoretical contribution? *Academy of Management Review*, *14*, 490–495.

Wittgenstein, L. (1969). *On certainty*. Oxford: Basil Blackwell.

Wruk, D., Oberg, A., Klutt, J., & Maurer, I. (2019). The presentation of self as good and right: How value propositions and business model features are linked in the sharing economy. *Journal of Business Ethics*, *159*, 997–1021.

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