Collective Imagining

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1. Collective attitudes, externalization, and internalization

Some action is collective. A selection committee formally decides which candidate will be offered the job. A group of friends informally decides where they will have a meal together. They act on those decisions. No individual member is in a position to make the decision, or to take the action. One person may email the successful candidate, or lead the way to the restaurant, but they are just playing their part in what matters most, the collective action.

Collective action is often taken on the basis of collective knowledge: of the candidates, or the local restaurants, or whatever. Such shared knowledge may be longstanding, or develop through the decision-making process. When things go badly, the action may be taken on the basis of mere collective belief, true or false. Some information is available to the committee or group of friends at a given time, other information is not. The collective can correctly be described as knowing some relevant facts and not knowing others. Such ascriptions of knowledge to a collective subject are arguably irreducible to ascriptions of knowledge to its individual members: to what all or most or some of them know, or to what they have common knowledge of (all know it, all know that all know it, and so on *ad infinitum*), or whatever. How many members are even paying attention, rather than letting

others do the hard work and then acquiescing in the result? Or what if the members of the selection committee all have knowledge, perhaps even common knowledge, of facts about the private life of one candidate of a kind which the committee is forbidden to take into account, so they all conscientiously and tacitly omit those facts from the deliberations, to keep the committee officially unaware of them? One can make better sense of such cases by taking the ascriptions of knowledge or belief to a collective subject at face value, without attempting to reduce them to ascriptions of knowledge or belief to its members in line with some preconceived reductionist theory about the social. For example, Alexander Bird has argued persuasively for such an anti-reductionist account of the social sense of 'scientific knowledge', on which information in publicly available scientific journals may remain scientific knowledge even when no individual scientist still knows it (Bird 2010). In writing *Knowledge and its Limits* (Williamson 2000), I deliberately formulated key claims in ways which left room for collective knowers.

When the selection committee decides which candidate to offer the job to, it forms the collective intention to offer the job to that candidate. When the group of friends decides which restaurant to eat at, it forms the collective intention to eat at that restaurant. Normally, such intentions are acted on; the collective agent does what it intended to do. But not always. Before the committee offers the job to the selected candidate, funding may be withdrawn, so the offer is never made. When the friends arrive at the restaurant, they may find it closed. Like individual intentions, collective intentions may be either fulfilled or unfulfilled.

Just as for knowledge and belief, ascriptions of intentional action or intention to a collective subject are arguably irreducible to ascriptions of intentional action or intention to its members. When the selection committee intends to offer the job to a given candidate, nothing much follows about the intentions of its members, who may negligently fail to form any appropriate intentions, or treacherously form intentions to subvert the committee's

decision. Margaret Gilbert has developed one seminal anti-reductionist account of the collective intentional actions and collective intentions of plural subjects (Gilbert 1989, 2000). More recently, Christian List and Philip Pettit, amongst others, have developed a rigorous and systematic approach to corporate agency (List and Pettit 2011).

Imagination often plays a significant role in individual decision-making. One imagines different courses of action. In deciding between them, one works out the likely consequences of each option, by imagining what it would be like in practice if one took that course of action. Such uses of the imagination are *reality-oriented*; they are informed by one's background knowledge or belief, and one's dispositions to project forwards into the future from a given scenario. In *online* projection, one forms expectations about how a scenario given as actual in perception, memory, or testimony will or will not develop. In *offline* projection, one forms expectations about how a scenario given as possible in imagination *would* or *would not* develop. Of course, online and offline processes interact in complex ways (compare Munro 2021). Such reality-oriented uses may well be what the faculty of imagination is *for*, in an evolutionary sense (Williamson 2016).

Collective decision-making has the same need as individual decision-making for the imagination: to imagine different ways of getting what is wanted, and what it would be like in practice *if* a given course of action were taken. What potential candidates might be invited to apply? How would a given candidate do in the job? Where could we eat together round here? What would the food and atmosphere be like there? On general grounds, we can therefore predict a collective imagination to provide collective knowledge on which to base collective action. We can also predict that ascriptions of acts of imagination to a collective subject will be irreducible to ascriptions of acts of imagination to its members.

Yet imagination may seem a peculiarly unpromising mental capacity to have a collective form. For imagining can be a deeply private activity, quite detached from one's

surroundings, quite opaque to those around one, and untraceable in overt behaviour. Although many people could in principle have such imaginative episodes of exactly the same type at exactly the same time from exactly the same cause, that would not justify postulating a collective subject to whom the sum of those episodes could be attributed. If inner fantasizing is treated as the model of all imagining, collective imagining may well sound like an obscure or even obscurantist proposal.

On the other hand, the prototypical product of the imagination is *fiction*, and the prototype of fictional activity is *story-telling*, which implies an audience to whom the story is told. Although one can tell a story to oneself, it feels like pretending to tell it to someone else. The prototype of story-telling is telling a story to others. That is already a collective event.

If one envisages a story in the form of a novel, one will probably think of it as written by a single author. But there are also plays, movies, and drama series, which often have multiple scriptwriters, and a director, and set and costume designers, and so on, and not least all the actors themselves; the final product is created through the interactions of dozens, perhaps hundreds, of individual imaginations, though it is not reducible to them, since it consists in the publicly visible and audible artwork. Audiences too may contribute to this creative process, most obviously in events with overt audience participation, but perhaps also through their reception of the spectacle, how they understand the story and fill in what is not made explicit. In some sense, many fictions are products of a collective imagination.

For more traditional forms of story-telling, authorship is even harder to pin down. We are familiar with such products of collective imagination as myths, folk tales, and fairy stories. Those narratives are continually retold in different versions, evolving over time and varying from place to place.

For example, the story of Cinderella—more or less—has been told under various names for at least two thousand years, in thousands of variants, across the world. Any

candidate for the first telling of that story was almost certainly either a retelling of some earlier story, or quite different from any recent telling, or both. Indeed, for all we know, Cinderella-like stories developed independently of each other in several different cultures, and current versions descend from a confluence of those stories. The current Cinderella story is clearly a work of human imagination; equally clearly, it is not the work of any one human's imagination. Why not just call it the work of many humans' separate imaginations? After all, without such imaginations, it would not have survived. But treating it in those individualistic terms does not do justice to how tellings of the story are *re*tellings of it. Normally, they make no pretence to full autonomy. Rather, they acknowledge that the story was already there before them, perhaps even as a standard to which their authenticity requires some degree of faithfulness. Even when two people imagine the story of Cinderella in incompatible ways, the ways are *incompatible*—instead of merely different or incommensurable—because they are both meant as imaginings of the same culturally present and available story. That story is a cultural artefact, a work of collective imagination, albeit of a looser collective with less agency than the selection committee and the group of friends described above. The Cinderella story is not reducible to the individual imaginings of the story, because they themselves must be understood as imaginings *of* that already available artwork, as their reliance on the fictional name 'Cinderella' indicates. In such respects, the Cinderella story is not at all special. Works of collective imagination include most fairy stories, folk tales, myths, and legends, including urban myths and legends. *A fortiori*, we may suspect, a more tightly-knit and agential collective will be all the more capable of collective imagination.

As such examples indicate, talk of 'collective imagination' can be irreducible to talk of individual imaginations without requiring a postulated collective mind or consciousness in any mysterious or mystical sense. Of course, to get precise about the nature and individuation of works of collective imagination would be an exceedingly tricky task, but the same applies

in general to cultural artefacts and other social entities, including customs, laws, fashions, genres, conventions, languages, cultures, nations, cities, organizations, institutions, clubs, and so on. Our words for discussing social phenomena are typically quite vague, like most of our other words, but not to rely on such words would make us social, cultural, and political idiots. Words for discussing phenomena of collective imagination are no exceptions. For instance, one cannot properly understand various nationalist, racist, religious, and other ideologies without some awareness of the associated myths and legends.

Collective imagining can also occur much more locally, as when several children or adults play an improvised game of pretence together. What happens in—that is, according to—the game depends on what the players imagine collectively, not individually, for the former is what determines what players can presuppose in the game going forward. Often, some players keep up a running commentary on what is happening in the game to ensure that they are all co-ordinated. The players may also co-ordinate with each other by using external props such as a hollow tree stump, which they collectively imagine to be a house (compare Walton 1993).

In social and political theory, terms such as ‘social imaginaries’ and ‘imagined communities’ are in widespread use, under the influence of authors such as Cornelius Castoriadis (1975), Benedict Anderson (1983), and Charles Taylor (2003). Those terms tend to be applied quite broadly and loosely to a society’s ways of understanding and thereby constituting itself, and to cultural meanings even more generally. In a recent collection of ethnographic essays on imagination (Harris and Rapport 2016), several contributors find it necessary to insist that imagination can be an individual as well as a social phenomenon (for approaches to social imagination from phenomenology and psychopathology see Summa, Fuchs, and Vanzago 2017). This chapter does not attempt to engage with those traditions in social and political theory, whatever their value. Instead, it uses the words ‘imagine’ and

'imagination' in senses closer to their ordinary ones, and focuses on more specific issues about applying them to collective subjects.

One issue is this. When one approaches collective imagining from a psychological starting-point, one naturally tends to assume that it is to be understood by *externalization*, as an outer analogue of an inner process of individual imagining. But there are indications that, pre-theoretically, we do things the other way round: at least in some respects, we understand individual imagining by *internalization*, as the inner analogue of an outer process of collective imagining. Such an order of understanding is far from unprecedented in philosophy. For example, in the *Theaetetus* and the *Sophist*, Plato proposes to understand thinking as the internal dialogue of the soul (or mind) with itself; he models the inner process of thinking on the outer process of two or more people conversing. Similarly, judging that P is sometimes understood as 'saying in one's heart' that P (see Geach 1957: 75-87). The internal deliberation that leads to a individual decision may itself be understood as an internalization of the group deliberation in speech or writing that leads to a group decision. Of course, the order of understanding need not follow the order of development: even if we model an inner process on an outer one, it does not follow that the outer is more ancient than the inner, or that the inner could not occur without the outer. Still, we should beware of circular explanations, where we explain the outer in terms of the inner, while pre-reflectively understanding the inner in terms of the outer (as in positing an internal homunculus with all the cognitive faculties to be explained). The next two sections concern two ways in which our standard descriptions of inner imagining model it on outer imagining.

Another issue is intertwined with the first. Our faculty of imagination consumes scarce cognitive resources of attention and computation. As already indicated, it is unlikely to have evolved just to enable us to enjoy fiction. More probably, it is adaptive because it serves more general cognitive purposes. It alerts us to potential dangers and opportunities. It enables

us to rank alternative courses of possible action without going through a process of trial and error, which might be prohibitively costly. If collective imagination could not play these cognitive roles, it would not be adaptive in the ways individual imagination is; that would weaken the case for treating it as a fully-fledged form of imagination. But if collective imagination *can* play these cognitive roles, it is adaptive in the ways individual imagination is; that would strengthen the case for so treating it. In the two cognitive respects to be explored in the following two sections respectively, collective imagination turns out often to be even *more* cognitively effective than individual imagination.

2. Collective imagining and the suppositional procedure

Reality-oriented imagination plays a key role in our assessment of many conditionals. For example, in deciding what to do, you ask yourself questions of the form 'If I do X, what will happen?'; to answer them, you have to assess conditionals of the form 'If I do X, Y will happen'. The primary way to do that is by *supposing* the antecedent, 'I do X', and assessing the consequent, 'Y will happen', on that supposition. Whatever assessment you make of the consequent on the antecedent, you then make of the whole conditional, discharging the supposition. If you accept 'Y will happen' on the supposition 'I do X', you unconditionally accept 'If I do X, Y will happen'. If you reject 'Y will happen' on the supposition 'I do X', you unconditionally reject 'If I do X, Y will happen'. If you are agnostic about 'Y will happen' on the supposition 'I do X', you are unconditionally agnostic about 'If I do X, Y will happen'. A typical informal assessment of the consequent on the antecedent uses the imagination. You imagine doing X, and imaginatively develop that supposition in ways constrained by your background knowledge, belief, and dispositions to form expectations on receipt of new information, to test whether the development includes Y happening, or Y not

happening, or neither. The imagining could take the form of an abstract calculation, when you work out the financial consequences of withdrawing a given sum of money from your bank account; the imagining could also take a rich sensory form, when you imagine what it would be like spending the money on a holiday in the tropics. Elsewhere, I have argued in detail that this suppositional procedure is our primary heuristic for assessing conditionals (Williamson 2020).

The suppositional procedure can be regarded as a kind of *offline updating*, along the lines originally suggested by Frank Ramsey, and now known as the 'Ramsey test' (Ramsey 1929: 143). In online updating, you learn 'A', adding it to your stock of information, and may thereby come to expect 'C'. In offline updating, you merely suppose 'A', adding it hypothetically, in imagination, to your stock of information, and may thereby come to expect 'C' on that supposition, in which case you just add the conditional 'If A, C' non-hypothetically to your stock of information. The underlying dispositions to form expectations are the same across the two cases. Unsurprisingly, such imaginative exercises are reality-oriented.

One benefit of the suppositional procedure is that it transforms information implicit in our cognitive dispositions into information explicit in a sentence. The most direct advantage of so doing is that the conditional sentence can then be used in verbal reasoning. But one can also store it in memory, ready to be applied whenever relevant, with no need to repeat the work of developing the antecedent in imagination—work which may be computationally taxing, and may depend on fleeting perceptual access to relevant facts, as in judging from a good viewpoint where one would get *if* one followed that stream down the mountain. One can also use the conditional sentence to communicate the information to others, who may be less well-placed to apply the suppositional procedure themselves.

A pre-linguistic creature might achieve some of the same effects in reasoning and memory with no sentence to express the information, by somehow preserving the results of offline processing in a pattern of neural connections. But that would not enable the creature to communicate the information to others. It cannot simply communicate the pattern of neural connections to them. Others might eventually acquire the pattern from it by imitating its behaviour, but that would presumably be a time-consuming process, and would depend on the occurrence of suitable conditions for exhibiting the relevant behaviour. At any rate, conditional sentences provide an extremely efficient means of communicating information extracted from offline processing. Obviously, language in general vastly enhances our capacity for communication, and any sentence can in principle illustrate that point. Just in that respect, conditional sentences are not special. But the imaginative exercises typically involved in the suppositional procedure go beyond that basic point, because their function is so closely linked to extracting easy-to-communicate verbalized content from hard-to-communicate cognitive dispositions. For that reason, some major benefits of imagination depend on the availability of a public language in which to communicate its products. By contrast, skills like hand-eye co-ordination seem much less closely linked to verbalization.

Linguistically, suppositions, working assumptions, imaginings, and the like are often introduced in imperative form, in English by sentences beginning ‘suppose’, ‘assume’, ‘let’, or ‘imagine’, followed by a specification of what is to be supposed, assumed, or imagined: ‘Suppose it rains’, ‘Assume the accused is innocent until proven guilty’, ‘Let *p* be a prime number greater than 2’, ‘Imagine that Napoleon never left Elba’. In thought, one *can* internalize the imperative, addressing it to oneself, although usually there is no need to do so. In self-directed thought, the imperative form still derives from the speech of one party to another, the former with authority over the latter—for instance, the authority of a teacher with respect to a pupil. In writing, the author tells the reader what to suppose, assume, or imagine.

In mathematical proofs, the imperative mood remains the grammatical default for making an assumption, even in thought. Such forms of speech warn us not to treat supposing, assuming, and imagining as just parts of a purely private activity. Supposing can be a *speech act*: when participants in a conversation jointly suppose that P, they temporarily treat the proposition that P like part of the common ground. Together, they may develop its consequences, jointly imagining that P.

Imagine a team of detectives talking about their case. They call the unidentified murderer 'M'. One of them might say 'Suppose that M acted alone'. After some discussion, they might reach the judgment 'M is exceptionally strong' on the supposition 'M acted alone'. From there the team would naturally conclude 'If M acted alone, M is exceptionally strong' unconditionally, by a collective application of the suppositional procedure. The team collectively imagined that M acted alone. They did so primarily in their shared speech, for example when concluding 'M must be exceptionally strong', not in their private thoughts, which may have been quite different ('No way did M act alone').

When group dynamics are toxic, social pressure may suppress individual doubts (compare Munro 202X on conspiracy theories as symptoms of pathologies of collective imagination). With better dynamics, the group may perform far better than any one member of it could have done. Members complement each other in their diverse experience and expertise. They consider more possibilities, and have more information with which to rule most of them out. Whatever is said is subject to more critical scrutiny. In applying the suppositional procedure, they jointly develop the supposition that M acted alone more skilfully and more reliably than any one of them would have done alone (on the social function of reasoning see Sperber and Mercier 2017). In short, they are better collectively than individually at conducting an imaginative exercise of just the kind for which we need imagination.

Presumably, if each member were totally unimaginative, the whole team would not be much good at collective imagining. The idea is not that collective imagination can work in the total absence of individual imagination, any more than a hospital can function without doctors or nurses, or can function well with only unskilled doctors and unskilled nurses. Still, a hospital provides healthcare in just as literal and central a sense as that in which individual health-workers do, and provides distinctive kinds of healthcare that individual health-workers cannot, thanks to its organization and equipment. Similarly, when a team carries out an imaginative task, the whole may be greater than the sum of the parts.

For example, in cases of potential or actual military or diplomatic conflict, sometimes one side's strategists engage in group 'wargaming' to simulate how a hypothetical scenario might develop. Each participant is assigned a specific role, representing one actor in the conflict. Such exercises may extend over several days. The setup counteracts tendencies to wishful thinking on behalf of 'our' side and to underestimating the other side's options, ingenuity, and resilience, since the participants who represent the other side are motivated competitively to do their best on its behalf. The setup also reproduces in real time each actor's uncertainties as to what other actors will do next. Such an exercise in collective imagination may provide an important 'reality check' on the biases of individual imaginations.

If imagination is understood functionally, in terms of its cognitive role, collective imagination does not look like a secondary or marginal phenomenon, qualifying only as a pale reflection of individual imagination. Instead, collective imagination looks like a primary and central case of imagination in its own right, with its distinctive strengths—and weaknesses. Moreover, many of what are often regarded as the cognitive benefits of individual imagination turn out to depend on the medium of language, and so to have an implicitly collective aspect.

To understand imagination functionally, in terms of its cognitive role, is not to deny that it can be exercised for no immediate cognitive purpose, for instance in idle fantasizing. Imagination is a *capacity*, which can serve all sorts of purposes, or none. Exercising the capacity to imagine is sometimes voluntary, sometimes involuntary, just like exercising the capacity to blink. Approaching a cave, one may involuntarily or voluntarily imagine a bear asleep inside, alerting one to the danger or heightening one's awareness of it. Imagining is sometimes an intentional action, sometimes not, sometimes skilled, sometimes unskilled (Hopkins 2022, Kind 2022).

Although a capacity can serve many disparate needs or purposes, we can often understand it better by recognizing how it could have evolved to serve a subset of those needs or purposes. Our capacity to move our fingers did not evolve to enable us to play the piano, but it still *does* enable some people to play the piano. Similarly, our capacity to imagine did not evolve to enable us to compose fictional narratives, but it still *does* enable some people to compose fictional narratives.

Indeed, specific features of the suppositional procedure explain how a capacity which evolved to serve mundane practical purposes also enables fictional narratives to be composed. To work out how to solve a tricky practical problem, we sometimes have to imagine various candidate strategies for solving it, and test them by critically imagining what would happen *if* we tried to implement them (when testing by trial-and-error is too risky). For that, we need the capacity in imagination both to generate scenarios spontaneously (to think up 'A') and to follow through their consequences in reality-constrained ways (to assess 'If A, then C'). Given an end, one can set one's imagination to generate diverse means of reaching that end, though never in a way perfectly unconstrained by reality. Those spontaneous and reality-constrained aspects interact, sometimes in complicated sequences. That is not so different from how novelists sometimes describe the process of writing a novel.

Once we consider imagination as a response to such cognitive challenges, individual and collective imagination look like variations on the same theme. To treat the sense of 'imagination' in 'collective imagination' as metaphorical, stretched, or derivative looks *ad hoc* and arbitrary. Instead, we should include collective cases amongst our *paradigms* of the imagination.

3. Images and mental images

A long tradition, going back at least to Aristotle in *De Anima*, connects imagination to mental images, just as the words suggest. Asked to imagine an elephant, you might well form a mental image of an elephant—what else were you supposed to do? Indeed, it is sometimes suggested that imagining essentially involves forming mental images (Kind 2001 defends such a view). Since a mental image seems private to the individual who forms it, such an account seems to make collective imagination a non-starter.

From a cognitive-functional perspective, the connection to mental images looks inessential to many uses of imagination. If you ask me whether so-and-so would accept if invited to the conference, I may answer 'Yes' or 'No', depending on how I imagine (and perhaps know) so-and-so would respond in the hypothetical scenario, without forming a mental image of so-and-so accepting, rejecting, or ignoring the invitation. I *could* form such a mental image, but there is no need to do so—that is not how mindreading has to work. Again, when a psychologist issues an open-ended challenge such as 'List as many uses for a brick as you can think of', some people come up with long lists of what would naturally be described as highly imaginative uses. If some of those people tell us, as they might, that they formed no mental images in connection with the listed items, to conclude that in that case they did not use their imagination would be silly (on imagery loss see Zeman *et al.* 2010, Blomkvist

2022). Even if every mental image requires an exercise of the imagination, not every exercise of the imagination requires a mental image.

The phrase ‘mental image’ is itself a clue to a less individualistic understanding of imagination. The qualifier ‘mental’ is needed because images are not in general mental—just as we sometimes speak of ‘mental pictures’, though pictures are not in general mental. The word ‘image’ is etymologically related to ‘imitate’ and semantically related to ‘likeness’. The King James translation of the Bible (1611) uses it in that sense, for instance in the second of the Ten Commandments: ‘Thou shalt not make unto thee any graven image, or any likeness of any thing that is in heaven above, or that is in the earth beneath, or that is in the water under the earth’ (a ‘graven’ image is a carved image). With modern technology, we now have ‘computer-generated imagery’. Thus, the phrase ‘mental image’ gets its meaning by internalization from the meaning of the word ‘image’, just as the phrase ‘mental map’ gets its meaning by internalization from the ordinary meaning of the word ‘map’; ‘image’ does not get its meaning by externalization from the meaning of ‘mental image’, just as ‘map’ does not get its meaning by externalization from the meaning of ‘mental map’. In the visual case, roughly, having a mental image of an X is a bit like seeing an image of an X, but is not really seeing (one’s eyes are not used). To approach mental imaging that way is not to deny that it is a genuine and widespread psychological phenomenon, for which there is ample evidence, both introspective and experimental (for example, Shepard and Metzler 1971); the point is just that our ordinary conception of the phenomenon derives from our conception of interpersonally visible images.

Of course, psychologists are entitled to define ‘mental imagery’ as a technical term in whatever way they find most theoretically fruitful, independently of any ordinary understanding of the term. In particular, they commonly use it to mean something like *offline perceptual representations,* that is, perceptual representations not directly triggered by

sensory input. On this reading, mental imagery is not restricted to specifically *visual* imagery; it can be in any sense modality, and may even include affect (see Nanay 2021 for further general discussion). It might then be proposed that the word 'imagination' picks out a psychological kind of phenomenon essentially involving mental imagery, or that it should be so used. Indeed, the suppositional procedure was described in section 2 as a kind of offline updating, in contrast to online updating, which is paradigmatically mediated by sense perception. If online updating involves online perceptual representations, shouldn't offline updating involve offline perceptual representations? But not all online updating does involve online perceptual updating. For instance, I may wake up with a start, knowing that I left my keys in the front door last night—updating on that information was what woke me. Consequently, the analogy between online and offline updating does not require all offline updating to involve offline *perceptual* updating. From a cognitive-functional perspective, the restriction to updating on perceptual representations looks ill-motivated.

Even if one did require 'imagination' to be essentially connected to perceptual representations, that would not automatically rule out collective imagination. For there are various collective analogues of perceptual representations, such as the shared experience of a cinema audience watching a movie together. Unless one has already taken a methodological decision to exclude collective cognition from the outset, one has to take such candidates for collective perceptual representations seriously. A psychologist may legitimately decide to focus on distinctive features of individual perception and imagination, but it is also legitimate to adopt a more general cognitive-functional perspective, which takes in collective as well as individual perception and imagination. That wider perspective may even have the advantage of counter-balancing peculiarities of the individual human case. At any rate, it is the perspective taken here.

Often, an individual imaginative process with internal images looks like a pale reflection of the collective imaginative process with external images, not the other way round. An anthropological study of a team of architects has documented in detail how they use architectural plans of a projected building to co-ordinate and guide their decision-making, for example when they jointly imagine how the loading-bay in the building would typically be used, to determine whether another door will be needed at a given place (Murphy 2004). They envisage how the building will typically be used *if* it is built to a given plan. As a lone architect, one might try to do it all in one's head, without the aid of other people or plans on paper. Both processes are genuinely imaginative; the most salient difference between them is in their likely accuracy.

Likewise, the team of detectives may plaster their headquarters with maps, plans, diagrams, photographs of the crime scene and of victims, suspects, and witnesses, and other images. All these images may be integrated into their discussions, aiding communication by providing a common focus for attention, clarifying spatial relations, and so on. As a lone detective, one might try to do it all in one's head, with mental images, but the whole process will be more prone to error. Photographs are typically clearer and more accurate than mental images, and the prospects for noticing new details in a photograph are brighter than those for noticing new details in a mental image.

Similar issues arise over the role of diagrams in mathematical proof (see de Toffoli 2022 for a recent discussion of mathematical diagrams). Mathematicians have always loved diagrams: 'a picture is worth a thousand words'. In contemporary journals of mathematics, one sees many diagrams. Their role is not merely pedagogical; a proof may rely on them. But how is such reliance consistent with mathematical rigour? On the face of it, when a proof contains a diagram, understanding it depends on literal perceptual engagement with it, in ways which involve applying one's spatial reasoning skills. If one misperceives the diagram,

one misunderstands the proof. All that seems hard to reconcile with the supposedly *a priori* status of mathematical proof.

One response is that in principle the proof could be fully formalized, making the diagrams logically redundant. However, most proofs in mathematics have never in fact been fully formalized; typically, mathematicians' warranted confidence that a semi-formal proof *could* be fully formalized depends on their warranted confidence that the semi-formal proof is correct, not the other way round. Moreover, human checking even of a fully formal proof arguably involves spatial pattern recognition, for example in identifying instances of basic inference rules, such as *modus ponens* (Williamson 2023).

Another common response is that seeing the written proof on paper, board, or screen plays a merely *enabling* role: the proof's outer form enables one to grasp its inner content, the *real* proof, whose soundness one can grasp *a priori*. Such a distinction between the form and content of a proof is deeply problematic. After all, the point of *formal* proof is to achieve rigour by allowing proofs to be mechanically checked. Even for an ordinary semi-formal proof, stripping it of its form risks eliminating the very features on which its power to provide mathematical knowledge depends. In particular, although one *may* be able to replace a publicly visible diagram by a mental image, if the latter is also deemed extraneous to the proof, the proof-in-itself becomes quite mysterious, and its claim to rigour empty. Yet mentally manipulating the mental diagram in the ways required to grasp the proof involves offline applications of the same cognitive spatial skills one applies to the publicly visible diagram.

Once the comparison is between a publicly visible diagram and a private mental diagram, the former has the epistemic advantage. Mathematics is a collective enterprise. Proofs need to be publicly checked, paradigmatically by the referees for a recognized

mathematical journal. Even for a lone mathematician, a written diagram is typically clearer and stabler than its mental counterpart.

Someone might concede the advantages of publicly visible diagrams, but ask what they have to do specifically with *imagination*.

In mathematics, part of the answer is *generality*. One key difference between imagining and perceiving is that if you perceive an X, it follows that there is an X which you perceive, whereas if you imagine an X, it does *not* follow that there is an X which you imagine. For example, you (literally) see a dagger only if there is a particular dagger which you see, whereas you may (literally) visually imagine a dagger even though there is no particular dagger which you visually imagine. In that respect, diagrammatic representation is like imagination, not perception. Although you can literally see a diagram of a mathematical structure of some kind, usually there is no specific structure of that kind of which it is a diagram. Famously, what one draws is never a triangle in the strict geometrical sense (the lines have width, and so on), but even if it were, it would typically not be a diagram *of* a triangle with those specific angles, but simply a diagram of a triangle 'in general'. In most branches of mathematics, there is even less temptation to confuse a diagram with what it is a diagram of. For example, a diagram may consist of labelled points and arrows, where an arrow from one point to another represents a mapping of the algebraic system represented by the first point to the algebraic system represented by the second point. Although it is a diagram of mappings between algebraic systems of some kind, there are usually no specific mappings between algebraic systems of that kind of which it is a diagram in particular.

In mathematical cases where no generality is needed, and every part of the diagram represents something perfectly specific, the proof can often be done by exhaustive case-by-case calculation, and so is comparatively uninteresting.

Irrespective of generality, mathematical diagrams can be used in proving conditionals. Typically, they are in effect proved by the suppositional procedure: one supposes ‘A’ and illustrates it with a diagram which one then uses in proving ‘C’ on that supposition; finally, one concludes ‘If A, C’ unconditionally by the rule of conditional proof. Although such deductive applications of the suppositional procedure may seem quite different from paradigms of imagination, the underlying structure of the thinking is the same: from a cognitive-functional perspective they should be classified together.

Admittedly, a confusing feature of mental diagrams and other mental images is that entertaining them may involve a second layer of imagination, absent from publicly visible images, including diagrams. For example, when one entertains a mental diagram, one may *imagine* oneself seeing a diagram on paper. Similarly, when one entertains a mental image of an elephant, one may imagine oneself seeing a picture of an elephant, as opposed to imagining oneself seeing an elephant. But that complication is secondary, and inessential. Entertaining a mental image of an elephant is meant to be a way of imagining an elephant, not just a way of imagining a picture of an elephant; analogously, entertaining a mental diagram of a mathematical structure should be a way of imagining a mathematical structure, not just a way of imagining a diagram on paper of a mathematical structure. In the most important respect, a diagram on paper serves just as well as, indeed better than, a mental diagram as a vehicle of imagination.

The role of mental imagery is probably the best case for an exclusively individualistic understanding of imagination—by contrast with knowledge, action, intention, and other attitudes. But when the role of mental imagery is examined more carefully, it undermines the exclusively individualistic approach, and instead strengthens the case for an understanding which allows for collective as well as individual imagination. The case against collective imagining has failed to withstand examination.

4. Collective imagination and collective experience

The present volume addresses interactions between imagination and experience (see also Paul 2014). Such issues arise naturally at the collective level too, about interactions between collective imagination and collective experience.

For example, when historians seek to explain the widespread willingness in Europe to go to war in 1914, they often point out how difficult it was to imagine what modern warfare would be like, because experience of modern warfare was lacking. Similarly, when historians seek to explain the popularity in Britain and France of the policy of appeasing Nazi Germany in the 1930s, they often point out how much easier it was to imagine, at least in part, how terrible another major war would be, after the experience of the First World War. These were not simply matters of individual psychology. Young people in the 1930s, born after 1918, had not experienced the First World War, but still had some conception of what it was like, from their parents' generation, representations in popular culture, and so on. Even of those who lived through 1914-18, many never went to war or heard a shot fired in anger, but still experienced the war through others. Similarly, someone can be a member of an oppressed group without ever experiencing oppression 'at first hand'; they may still experience it 'at second hand' through the testimony of other members of the group. Intricate networks of such links help constitute the collective experience of a generation or other group. Although there would be no collective experience without individual experience, the category of collective experience has distinctive value in enabling us to recognize broader patterns in history and society, to escape not seeing the wood for the trees. In 1914, there was a *collective* inability to imagine what modern warfare would be like, arising from a *collective* lack of experience of modern warfare. In 1938, there was a *collective* ability to imagine

(partially) what another major war would be like, arising from a *collective* experience of modern warfare.

From a cognitive-functional perspective, the connection between imagination and experience is unsurprising, at both individual and collective levels. The connection between individual experience and individual imagination is mediated by individual memory (Blomkvist 2022); likewise, the connection between collective experience and collective imagination is mediated by collective memory. In experiencing something, you (singular or plural) interact with it and so learn about it, thereby becoming more accurate in imagining it in reality-constrained ways, like those involved in assessing conditionals by the suppositional procedure.

Although such connections are common, they are not inevitable. Both individually and collectively, we can misinterpret our experience. If each of two individuals or groups takes for granted that their ways of doing things are best, experience of the different other may draw each into an increasingly negative stereotype of the other, and so into imagining the other in ways increasingly detached from reality. The more they experience each other, the worse it gets, like a toxic marriage. Conversely, an individual or group with a good general theory may be very accurate in how they imagine something, despite never having experienced it: for example, the inside of a black hole.

All this talk of collective experience will strike some philosophers as at best metaphorical, at worst as missing the point. They conceive experience as something like a stream of qualia or subjective appearances, and experiences (in the plural) as short stretches of such a stream. Call that the *phenomenal conception of experience*. On the phenomenal conception, if collective experience is literally *experience*, and literally collective, it is something like a collective stream of qualia, but surely there is no such thing. Even if there are many streams of qualia, those streams do not jointly form a river of qualia, and so do not

literally constitute the experience of a single (collective) subject (see List 2018 for more discussion).

In the ordinary sense of the word ‘experience’, the phenomenal conception of experience is obviously false. Experience has no special connection with qualia. For example, since I have never been Prime Minister, I have never had the experience of being Prime Minister, no matter what stretches of qualia I have enjoyed. The phrase ‘the experience of being Prime Minister’ does not refer to qualia of some type. Of course, if there are qualia, there is also the experience of enjoying qualia of such-and-such a type, and one cannot have *that* experience without enjoying qualia of that type, but there the connection between experience and qualia is merely stipulated in specifying which experience one is talking about, and so is no evidence of a general connection between experience and qualia. In one way or another, we are all experiencing global warming, individually and collectively, whether we know it or not, irrespective of any qualia. We may call that the *inclusive* conception of experience, since it includes so much.

Advocates of the more exclusive ‘phenomenal conception of experience’ are more charitably interpreted as using the word ‘experience’ in a special technical sense. In attempting to explain what that sense is, they often repeat the mantra ‘what it is like’. But in the ordinary sense of that phrase, it has no special connection to qualia (see Snowdon 2010). Someone who asks ‘What is it like to be Prime Minister?’ is not asking what qualia a Prime Minister enjoys. Nor does the phrase ‘what it is like’ exclude collective readings: one can ask ‘What is it like for a team during half time?’ or ‘What is it like for a country to lose its empire?’ (two real-life examples). The ordinary sense of ‘what it is like’ is inclusive too.

The phrase ‘imagine what it is like’ can also take collective as well as individual readings, with respect to both who imagines the experience and whose experience is imagined. A team of detectives can imagine together what it is like for a lone criminal to be

on the run. A lone detective can imagine what it is like for a gang of criminals to be on the run together. The team of detectives can imagine together what it is like for the gang of criminals to be on the run together. As expected, none of these imaginings need have much to do with qualia.

Although there is obviously far more to say about the phenomenal conception of experience, this is not the place to say it. In this chapter, I use the word 'experience' in its usual minimalist sense, which permits collective readings. One benefit of attending to collective imagination is arguably that it encourages us to move on from the dead-end of the phenomenal to more fruitful questions about the epistemology of imagination and experience.

5. Conclusion

Collective subjects are just as capable as individual subjects of imagining, and are often better at it. They are also just as capable of experience. By thinking more about collective imagination, we can correct preconceptions which arise from an introspective focus on the individual case, and distort our picture even of it. Imagining is not an essentially private, internal process. Attending to collective imagination makes readily available a wider range of evidence, which can highlight limitations in our understanding of individual as well as collective imagination. More positively, it can enrich our understanding of the cognitive function of imagination.

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