Accounting for groups: the dynamics of intragroup deliberation

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Abstract

In a highly influential work, List and Pettit (Group Agency: The Possibility, Design, and Status of Corporate Agents, Oxford University Press, 2011) draw upon the theory of judgement aggregation to offer an argument for the existence of nonreductive group agents; they also suggest that nonreductive group agency is a widespread phenomenon. In this paper, we argue for the following two claims. First, that the axioms they consider cannot naturally be interpreted as either descriptive characterisations or normative constraints upon group judgements, in general. This makes it unclear how the List and Pettit argument is to apply to real world group behaviour. Second, by examining empirical data about how group judgements are made by a powerful international regulatory board, we show how each of the List and Pettit axioms can be violated in ways which are straightforwardly explicable at the level of the individual. This suggests that group agency may best be understood as a pluralistic phenomenon, where close inspection of the dynamics of intragroup deliberation can reveal that what *prima facie* appears to be a nonreductive group agent is, in fact, reducible.

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1 Introduction

What is the relationship between the agency of a group and the agency of the individuals which comprise the group? One classical view holds that group agency derives from the agency of individuals who constitute the group, and thus group agency can be explained at the level of the individual. Although more needs to be said about the specific form such an explanation would take, this general idea has a long history in philosophy of social science. It can be found, for example, in the methodological individualism of John Stuart Mill, Karl Popper, and many others. Call this view *reductionism* about group agency.

A second, opposing, view, call it *nonreductionism* about group agency, holds that, at least in some cases, the agency of the group cannot be derived from the agency of individuals and cannot be explained at the level of the individual. This idea also has a long history in philosophy of the social sciences; elements of it can be found in the writings of the nineteenth-century German historian Otto von Gierke and the sociologist Emile Durkheim. A particularly bold statement appears in the translator's introduction to von Gierke's 1934 work *Natural Law and the Theory of Society*: "Associations, it may be said, are something more than a liberty of individuals to associate: they are entities in themselves […] To explain their freedom by the freedom of individuals to associate with one another is to leave them without either body or animating soul."

Elements of this second view can also be found in the seminal work on group agents by List and Pettit (2011). Their nonreductionism regarding group agency is evident in quotations such as the following, where they state (italics ours, for emphasis):

> The agency of the group relates in such a complex way to the agency of individuals that *we have little chance of tracking the dispositions of the group agent, and of interacting with it as an agent to contest or interrogate, persuade or coerce, if we conceptualize its doing at the individual level*. […] In view of these considerations, we must think of group agents as relatively autonomous entities—agents in their own right, as it is often said, groups with minds of their own.
> (List and Pettit 2011, pp. 76–77)

Close inspection of this quotation reveals two points of interest. First, although the quotation does not include explicit quantifiers, the natural interpretation involves reading it with implicit universal quantifiers: that 'we must think of [all] group agents as relatively autonomous entities'. Second, the implicit universal quantifier means that the claim that the dispositions of group agents cannot be tracked or interacted with, if we conceive of the group at the individual level, is a claim about *all* group agents, which would have important consequences when we think about its practical implications. If we cannot pick apart groups to understand how they work, at the level of the individual, how can we hope to understand how to design groups which work more effectively to achieve the ends for which they were originally formed?

It is a fair question whether the claim that 'we have little chance of tracking the dispositions' of the group agent is meant to be read as a claim about *epistemic* possibility or something stronger. It is clear that it is not intended to be a strong metaphysical claim, since List and Pettit, as methodological individualists, accept that groups supervene on individuals. However, there are at least two ways that the claim of 'having

little chance' can be understood. The first is that it is impractical, given temporal constraints and our investigative abilities, to be able to know enough to track the dispositions at the individual level. This thin interpretation, although consistent with the quoted text, is a relatively uninteresting one; furthermore, it is unclear that group agents, so constituted, warrant being labelled 'irreducible'. It is uninteresting because it is little more than a recognition of the ineliminable practical limits on our ability to know. And it is unclear whether agents, so constituted, warrant being labelled 'irreducible' because such an interpretation would allow that, given sufficient time and resources, group agents could be explained at the level of the individual. However the term 'irreducible' is understood, historically it has not just meant something very hard to do. The second, more conceptually interesting interpretation, would be that the connection between the group agent and the individuals comprising it is sufficiently complex that it is not possible, given our linguistic capacities—the representational or descriptive capacities of the predicates in our language—to express the relation in individualistic terms, even in principle. This second reading is suggested given the nature of the impossibility result on which List and Pettit base their view: there is no function which can map descriptions of the state of individuals to a description of the group state, satisfying certain constraints. Of course—and this lies at the heart of the argument developed over the rest of the paper—this reading depends on a particular conception of what attributes are admissible for inclusion in the description of individuals, and how we understand the state of an individual. We return to this point in Sect. 4.

Here, then, are two fundamental questions we explore in this paper: First, what reasons exist for thinking that groups are generally such that their decisions or behaviours typically cannot be explained at the level of the individual? Second, what evidence can one point to in order to establish that, in any particular setting, nonreductionism about the action or behaviour of a group is the correct explanatory stance? The answers which we will argue for are as follows. Regarding the first question: although there are *prima facie* reasons for thinking that (some) groups cannot have their decisions or behaviours explained at the level of the individual, these reasons do not stand up under scrutiny. In particular, careful analysis of the dynamics of intragroup deliberation will show that groups may behave in surprising ways, indeed that they may even *appear* to have 'minds of their own,' yet their actions are still explicable at the level of the individual. Regarding the second question: although we accept that it remains a conceptual possibility that irreducible group agents may exist, actual evidence that any groups are so constituted appears limited. Given that, we suggest the burden of proof now falls upon those who advocate a robust theory of group agents to show that any actual, real-world groups are, in fact, so constituted. Thus the claim of List and Pettit (2011, p. 1) that, "Our answers to [how we should understand group agents] will determine how we think social and economic science should proceed in explaining the behaviour of firms, states, and churches," appears premature.

The structure of the rest of the paper is as follows: Sect. 2 provides a reconstruction of the core argument of List and Pettit regarding the irreducibility of group decisions. Section 3 then systematically considers both conceptual and empirical arguments challenging the applicability and plausibility of each of the four axioms upon which the List and Pettit argument relies. Section 4 then considers how one might begin to reconceive

the relationship between the agency of the group and the agency of individuals, noting how complicated interactions between the attributes of group members may yield groups which appear to have 'minds of their own' while at the same time ultimately remaining explicable at the level of the individual.

2 Group agents

List and Pettit's core argument for the possibility of irreducible group agents is as follows. Suppose that a group needs to develop a collective view on a set of propositions, moving from the set of individual attitudes to collective attitudes.[1] (Call this the *aggregation function*.) List and Pettit (2011, p. 49) propose, for consideration,[2] the following requirements on the aggregation function which takes, as arguments, the profile of beliefs of each individual in the group and returns, as output, the group belief profile:

Universal domain (U). The aggregation function admits as inputs any possible profile of individual attitudes towards the propositions on the agenda, assuming that individual attitudes are consistent and complete.

Collective rationality (C). The aggregation function produces as output consistent and complete group attitudes towards the propositions on the agenda.

Anonymity (A). All individuals' attitudes are given equal weight in determining the group attitudes. Formally, the aggregation function is invariant under permutations of any given profile of individual attitudes.

Systematicity (S). The group attitude on each proposition depends only on the individuals' attitudes towards it, not on their attitudes towards other propositions, and the pattern of dependence between individual and collective attitudes is the same for all propositions.

From this, one can prove the following: no aggregation function exists which meets all four axioms for any nontrivial group.

How do List and Pettit get from this impossibility result to the claim that irreducible group agents possibly exist? A first attempt to reconstruct the argument, inspired by Smith (2012), would go as follows:[3] any group whose decision-making procedure (the 'aggregation function') satisfies (U), (C), and (A) cannot therefore satisfy (S). If

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[1] This problem was first discussed in the political science literature under the name of the 'doctrinal paradox' (see Kornhauser and Sager 1986). A generalised form of the problem referred to as the 'discursive dilemma' appeared in Pettit and Rabinowicz (2001). Yet the real explosion of interest in the contemporary literature occurred due to the impossibility results proved by List and Pettit (2002, 2004).

[2] It should be noted that the judgement aggregation literature itself considers a vast array of weaker and stronger variants of these axioms. We believe our arguments can be naturally extended and modified to apply to other axioms, so we focus on these particular ones without loss of generality.

[3] We would like to thank two anonymous referees whose helpful comments led us to greatly improve and clarify this discussion.

satisfying (S) is a necessary condition for the *reducibility* of groups, then any group for which (U), (C), and (A) hold is therefore irreducible. This would then establish the logical possibility of irreducible group agents. If, in addition, one also holds that (U), (C), and (A) are *in fact* satisfied by some groups, then we not only have the logical possibility of irreducible group agents, but we have the further conclusion that some irreducible group agents actually exist.

While this first attempt has the virtue of logical perspicuity, and certainly shows how irreducible group agents could *possibly* exist, there is one reason for thinking it isn't an entirely accurate version of what List and Pettit intended. Under the above reading, List and Pettit would only succeed in establishing the existence of actual irreducible group agents for those groups which satisfy (U), (C), and (A). Yet given that List and Pettit say, as previously noted, that their analysis "will determine how we think social and economic science should proceed in explaining the behaviour of firms, states, and churches", and clearly not all firms, states, and churches can plausibly be said to satisfy (A), a more nuanced interpretation needs to be developed. In what follows, we show how List and Pettit's discussion of whether certain axioms may be relaxed leads to a different interpretation of the structure of their argument.

In their discussion concerning the possibility of relaxing (U), List and Pettit note that, if the distribution of individual members' attitudes is restricted in some fashion, then aggregation is possible. In particular, they note that groups with the property of unidimensional alignment[4] admits aggregation. Unidimensional alignment is not the only way in which the distribution of attitudes over individuals may be restricted (see Dietrich and List 2010, for a discussion of other patterns which suffice) but it shows that relaxing universal domain can accommodate collective group judgements. But it is significant to note that List and Pettit end their discussion of whether to relax (U) with the following remarks (italics ours, for emphasis):

> Nonetheless, this solution cannot be expected to work in general […] Even in an idealized expert panel making judgements on factual matters without any conflicts of interest, disagreement may still be pervasive, and there is no guarantee that the intentional attitudes of several individuals, each with his or her own exposure to the world, will neatly fall into a pattern like unidimensional alignment. *The empirical fact of pluralism must be expected to hold not only in the world at large but also among the members of a group agent.*
> (List and Pettit 2011, p. 52)

This suggests that List and Pettit expect (U) to hold for many, perhaps most, group agents.

Turning now to their discussion concerning the possibility of relaxing (C), List and Pettit note that there are two ways this could be done: allowing the possibility of inconsistent group attitudes, or allowing incomplete group attitudes. Regarding the first option, they note:

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[4] A group satisfies unidimensional alignment when one can find a dimension along which persons can be positioned so that all individuals with a positive belief on a proposition lie to the left (or right) of those individuals with a negative belief. Unidimensional alignment, for attitudes, thus plays role similar to that of 'single peakedness', for preferences, in social choice theory.

> Allowing inconsistent group attitudes seems unattractive, especially if the group seeks to achieve agency […] Outside the context of agency, liberals sometimes argue that inconsistency of a democratic decision body need not be a bad thing (Brennan, 2003), but we remain unconvinced.
> (List and Pettit 2011, p. 52)

This indicates their unwillingness to relax the consistency requirement. Regarding the second option, relaxing completeness, they note that although some organisations (like the UN Security Council) often avoid forming a judgement, it is still the case that 'if a group is to perform robustly as an agent, it must generally avoid attitudinal incompleteness; it must be able to make up its mind on the main issues it confronts' (List and Pettit 2011, p. 53). Given this, we think it is reasonable to interpret List and Pettit as expecting (C) to hold for most, if not all, group agents.

Turning now to consider the remaining two axioms (A) and (S), more possibilities arise because of potential interactions between them. As List and Pettit observe, the plausibility of relaxing (A) depends on the group in question. For democratically constituted groups, relaxing (A) is implausible, but for dictatorships, relaxing (A) is appropriate. In addition,

> [T]here are also some more benign ways [than dictatorship] of relaxing anonymity, specifically in the context of relaxing systematicity. It turns out that there exist some plausible non-anonymous and non-systematic aggregation functions that capture a division of labor in the group's attitude formation.
> (List and Pettit 2011, pp. 54–55)

The approach of *jointly* relaxing (A) and (S) has two consequences. First, relaxing (A) makes the List and Pettit analysis potentially apply to a larger class of groups.[5] Second, relaxing (S), as we will now show, is what List and Pettit think makes group agents possible.

The axiom of Systematicity has two parts, which List and Pettit term 'independence' and 'neutrality', respectively.[6] What really matters is that, after considering a number of options, List and Pettit conclude (italics ours, for emphasis):

> To find a compelling escape route from the impossibility theorem, *we must therefore drop systematicity altogether*, that is, give up both its neutrality part and its independence part.
> (List and Pettit 2011, p. 55)

What happens when (S) is dropped entirely? List and Pettit clearly state that *this* is the key move which enables group agency: "taking a radical line on systematicity, we can begin to see how individuals can routinely incorporate as group agents" (List and Pettit 2011, p. 55)

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[5] This addresses the problem noted in the first interpretation offered above, which observed that, for any group, if (U), (C), and (A) hold, then (S) must fail.

[6] Independence states that the group attitude on each proposition depends only on the individuals' attitudes towards it (and not on their attitudes towards other propositions). Neutrality states that the pattern of dependence between individual and collective attitudes is the same for all propositions.

Given these considerations, it seems that a more nuanced and accurate reconstruction of the List and Pettit argument for irreducible group agents is as follows:

(1) According to the impossibility theorem, no group can satisfy (U),(C), (A) and (S).
(2) (U) and (C) hold for most groups.
(3) Given (1) and (2), it follows that $\neg(A) \vee \neg(S)$ holds for most groups.
(4) (S) is a necessary condition for the reducibility of group agents.
(5) Any group for which $\neg(S)$ is true is irreducible, which, given (3), could be most groups. (It all depends on how the disjunction is resolved for each individual group.)

This interpretation, albeit more complex than the first interpretation of the List and Pettit argument, has the virtue of having greater scope of application. Since $\neg(A) \vee \neg(S)$ holds for most groups, it could be the case that for some groups—the dictatorial groups—only (A) fails. For other groups—the pure democratic groups—only (S) fails. And yet for many other groups, the "firms, states and churches" List and Pettit speak of, both (A) *and* (S) fail, yielding widespread irreducible group agents.

That said, most of the work in getting to irreducible group agents is done by step 4: (S) is a necessary condition for the reducibility of group agents. List and Pettit appear to accord special status to (S) when they write that by 'taking a radical line on systematicity, we can begin to see how individuals can routinely incorporate as group agents' (List and Pettit 2011, p. 55). That suggests that in the *absence* of 'taking a radical line on systematicity', individuals *cannot* routinely incorporate as group agents, at least in any strong sense worthy of the name. Why might one think that (S) is a necessary condition for the reducibility of group agents? For ease of reference, call this claim NC.

If one thinks of the concept of reduction as an explanatory concept, then NC might initially seem *prima facie* plausible. Having the group decision on each proposition depend only on the group members' attitude toward that proposition would certainly make explaining why the group decided what it did straightforward. And the examples typically used to illustrate the discursive dilemma encourage this line of thought: the group decision on each proposition is typically obtained by looking at the outcome of a majority vote on each proposition. But if the group decision on each proposition cannot be determined by *any* aggregation function which takes, as inputs, the individual attitude towards that proposition, then the group decision must be determined by something further. This may be why List and Pettit think that the failure of (S) is why we cannot explain the group decision at the level of the individual. There is some reason to think that reduction *qua* explanation is what List and Pettit may have in mind. When they write: 'we have little chance of tracking the dispositions of the group agent, and of interacting with it as an agent to contest or interrogate, persuade or coerce, if we conceptualize its doing at the individual level,' (List and Pettit 2011, p. 76) they suggest our inability to make sense of group agents when described at the level of the individual. And they stress that '[t]he autonomy we ascribe to group agents under our approach is epistemological rather than ontological in character' (List and Pettit 2011, p. 76). Epistemological concerns resulting from conceptualising groups at the individual level suggest reduction *qua* explanation.

Yet even if NC is *prima facie* plausible, further reflection shows that although explanations at the level of the individual may be *easier* to provide if (S) were to hold, it is by no means a *necessary condition*. As noted earlier, group irreducibility does not just mean something epistemically challenging: it most plausibly means something epistemically *inaccessible*. Yet it is possible to provide numerous examples of how (S) may fail to hold for group decisions and behaviours even though the group outcome is evidently explicable at the level of the individual (see Sect. 3.4, in particular). This is one of the key claims of this paper.

What if the concept of reduction is thought of as *analytic* reduction rather than *explanatory* reduction? In this case, might NC be more plausible? Perhaps, but even here we think caution advises against accepting NC. Recall that (S) has two parts: *independence*, which says that the group attitude on each proposition depends only on the individuals' attitudes towards that proposition, and *neutrality*, which says that the pattern of dependence between individual and collective attitudes is the same for all propositions. For simplicity, let's focus on the specific case where the group attitude is *belief*. As Quine argued, beliefs are formed and tested against the backdrop of our full web of belief, where holistic notions of coherence and parsimony, among others, are invoked. For simplicity, consider just the case of *full* belief. If each individual determines whether to believe (or reject) that p by considering how p fits into their web of belief, is it necessarily the case that these holistic considerations will be suitably reflected at the group level by simply taking into account each individuals' belief that p? It is not obvious that would be the case. It seems unmotivated to impose a more restrictive requirement on the formation of group beliefs than on the formation of individual beliefs.[7] Regarding neutrality, then, one could ask why it should be taken as self-evident that the pattern of dependence between the individual and collective attitude should be *the same* for all propositions. Neutrality would exclude the possibility of allowing holistic considerations such as coherence and parsimony from being applied at the group level. It seems that both parts of (S), independence and neutrality, are in need of further defence as a point regarding the analytic reduction of group attitudes to individual attitudes.

The crucial underlying methodological issue is the following: List and Pettit rely on an impossibility theorem from the theory of judgement aggregation to make a claim about how group agents might exist in the actual world. But then we need to ask how we can use impossibility theorems to draw conclusions about the actual world. Consider two instances of impossibility results with powerful intellectual legacies: Gödel's incompleteness theorems and Arrow's impossibility theorem. Gödel's incompleteness theorems are credited for the demise of Hilbert's programme in the foundations of mathematics. Why? Because Gödel showed that any formal system capable of a certain amount of elementary arithmetic would have true but unprovable statements. What is important, here, is that Gödel's impossibility theorems employed an idealized formal model that was recognised by mathematicians as, in principle, a *descriptively accurate*

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[7] Smith (2012, p. 506) makes a similar point in writing: "Nor is it clear […] why of all the conceivable defeaters of the defeasible case for realism about group agency, it is this impossibility alone [that is, the impossibility of non-holistic attitude dependence] that deserves such extensive and technical treatment."

characterisation of the social practice of mathematical proof.[8] Hence Gödel's result said something about the fundamental limitations in the actual practice of mathematical proof. In contrast, Arrow's impossibility theorem showed that it was impossible to have a social welfare function that satisfied certain intuitive fairness criteria. What is important, here, is that Arrow's impossibility result showed that some *normatively desireable* criteria for a social welfare function were not simultaneously satisfiable. Hence, Arrow's result said something about the fundamental limitations faced by people engaging with questions of social policy.

Which, if either, of these two senses are we supposed to adopt when interpreting the List and Pettit argument for the existence of nonreductive group agency? Are their four axioms intended to be interpreted as descriptive characterisations of group deliberation, *à la* Gödel? Or, alternatively, are those requirements to be interpreted as stating normatively desireable requirements for group deliberation, *à la* Arrow? In the next section, we argue that there are good reasons, both empirically and conceptually, for disputing *either* interpretation, in most cases. (The one exception is the normative interpretation of (C), which we agree is plausible.) However, if the List and Pettit axioms are generally such that they cannot be understood as descriptive or normative, what relationship exists between the model yielding a formal impossibility result and its target, the actual practice of group deliberation? With no obvious candidate relationship existing between the two, the link between the formal model and its target is severed, inhibiting our ability to draw meaningful conclusions about the practice of real-world group deliberation from the formal model and its impossibility result.

In the next section, we show how it is possible for all four axioms to fail in straightforward ways that are capable of being explained purely at the level of the individual. Essentially, our argument defending reducible group agency is as follows. First, there is good reason for believing that some combination of (U), (C), or (A) do not hold for most groups. Thus, *even if* one thinks that NC is true, (S) could still be satisfied in those cases. Second, in Sect. 3.4, we argue that NC is false by giving a number of examples of how (S) fails to hold while the group decision is still capable of being explained at the level of the individual. Thus even in those cases where there is no clear systematic relation between the group attitude and the individual attitude, explanation at the level of the individual is possible.

3 The dynamics of intragroup deliberation

We now present a combination of empirical and conceptual arguments to challenge both possible interpretations of the impossibility result in the context of collective decisions. We draw on interviews offering insights into the process of group decision-making at an international regulatory organisation. The interviews, in essence, allow us to open up the 'black box' of the collective decision-making process, revealing some of the sociological and psychological processes of collective decision making.

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[8] With few exceptions, no mathematicians write proofs conforming to the strict syntactic constraints assumed by Gödel's theorem. However, mathematicians believe that it is always possible to translate their quasi-natural language proofs into that rigid syntactic structure, and hence the formal model is, in principle, descriptively accurate.

Each of the subsections below evaluates one of the List and Pettit axioms in light of this information.

The organisation examined is the International Accounting Standards Board (IASB), which was responsible for developing and promulgating accounting standards adopted in over one hundred countries. Compliance with IASB standards was mandatory for all publicly listed EU companies from 2005. These accounting standards determined how companies were permitted to represent their performance and financial position in their financial statements. The interviews discussed here were conducted with 21 individuals between December 2009 and September 2016.[9] The list of interviewees, along with their positions and the date of each interview is shown in Appendix A. Of the interviewees, fourteen worked for the IASB or its predecessor organisation, the International Accounting Standards Committee (IASC) and three had experience as technical staff at the US standard setter, the Financial Accounting Standards Board (FASB).[10] The remaining interviewees included staff at the UK Accounting Standards Board (a constituent of the IASB) and senior representatives of professional groups which were actively involved in the feedback process of the IASB's standards development projects.

3.1 Shared interests reduce diversity of opinion (Universal Domain)

The way in which the IASB formed provides a challenge to the descriptive relevance of (U). And this observation generalises because, quite frequently, the process of group composition often features selection bias, choosing people whose views reflect a certain ideology, thereby reducing diversity of opinion. In cases where admission to the group depends on certain educational achievements or experience, those requirements serve to reduce diversity by implicitly filtering out people who are too far removed from the expected baseline. In addition, the education and experience of persons may produce a polarisation of views, with the concomitant restrictions on diversity of opinions in the group. Finally, quite often groups are required either by law or by regulation to have certain compositions which either skew the distribution of beliefs and preference profiles represented, or else preclude certain profiles from appearing at all.[11] In these instances, (U) is at odds with the facts.

In the case of the IASB, the *entire first group* of IASB board members—fourteen people—was hand-picked by two individuals: Kenneth Spencer and David Tweedie

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[9] The interviewees were selected using respondent-driven sampling: the first interviewees were selected because of their experience at a standard setting organisation, and these interviewees then recommended other potential interviewees involved in the development of standards (see Coleman 1958; Biernacki and Waldorf 1981; Gile and Handcock 2010). Obtaining access to these individuals was not straightforward and so the interviews took place over a number of years.

[10] Interviewee-10 had experience both with FASB and with the IASB.

[11] For example, the UK Corporate Governance Code states that the board of a company must establish an audit committee composed of independent non-executive directors, of which at least one member should have recent and relevant financial experience. That rules out the possibility that *no* such expertise is reflected on the board. In addition, the Code states that the committee as a whole should have industry-specific competence, which restricts the set of potential views further (because a number of profiles treated as admissible by Universal Domain would not reflect such competence.) This single piece of regulation therefore indicates that Universal Domain is inapplicable to the board of directors of the companies to which it applies.

(who was also on the board). Reflecting on the choice of board members, former board member Warren McGregor wrote (italics ours):

> They [Spencer and Tweedie] appointed a group of people they believed *could work well together*, had already demonstrated strong belief in the Board's mission, were *by and large of like mind* and were intent on reforming financial reporting. (McGregor 2012)

Many of the members of the initial board had worked together in the past, developing *common preferences* about approaches to financial reporting (Zeff 2012). A group of people who 'could work well together' and was 'of like mind', sharing common preferences, is a group of individuals who will have closely aligned attitudes towards the matters for decision. In this case, the preferences of the initial board members were deliberately skewed towards a particular set of technical approaches known as *fair value accounting*.[12] In short, pre-selection of like-minded individuals reduced the diversity of possible belief profiles that would be reflected in group deliberation, showing the failure of (U).

It is also important to appreciate how the social dynamics of intragroup deliberation can reduce the diversity of expressed views, challenging (U) from a different direction. According to social identity theory (see Tajfel et al. 1971; Tajfel 1972; Billig and Tajfel 1973; Tajfel 1982), ingroup identification can cause people to consolidate around a perceived 'group perspective' when they are competing with an outgroup. Such consolidation will tend to place constraints on views expressed. Indeed, polarization was found to occur during board level deliberations at the IASB. Group effects among the board members resulted in a polarization of views during the first ten years, despite the efforts of Spencer and Tweedie to select a group who could get along together. The division occurred between those who strongly advocated fair value accounting (who were described as 'space cadets' by those who disagreed) and those who subscribed to other approaches (referred to as 'dinosaurs' by the space cadets). (For details, see Whittington 2008 and Morley 2016.) This polarisation manifested itself in expressions of exasperation by the members of the fair value accounting group at negative responses to their proposals and the rejection of their approach. These social psychological effects on the board restricted the ranges of possible attitudes individuals may have adopted by hollowing out the middle ground between the two approaches.

Furthermore, these social psychological effects matter because they generalise beyond this example: first, individuals who join a group are often 'pre-selected' in ways which reduce the diversity of viewpoints, as was the case at the IASB but has also been described in other settings such as the United Nations. Secondly, internal group dynamics can create divisions amongst members, leading to the formation of voting blocs. The conclusion, then, is this: (U), interpreted as a descriptive characterisation of group deliberation, does not apply in general. Most importantly: all of the sources of failure, noted above, are explicable at the level of the individual.[13]

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[12] Broadly speaking, the fair value approach reflected a focus on the assets and liabilities of an entity (rather than on its income statement) and required the measurement of these items at current market value, or a proxy for this where market values were not available.

[13] One might object: does not social identity theory require reference to *the group to which a person belongs*? If so, how can this be explained via conceptualisation at the level of the individual? We take

What these particular examples show nicely parallels some of the critiques of Universal Domain found within the extensive social choice literature. Essentially, there are two main lines of critique: restrict the *domain* of possible views or preferences, thereby excluding some possibilities altogether, or restrict the *distributions* of possible views or preferences over the group, without necessarily reducing the size of the domain.[14] As we have noted above, both the law and regulation often impose requirements on the composition of groups which can be seen as implicitly restricting the domain, since certain possibilities are precluded from occurring.[15] The fact that groups are sometimes formed by a common selection process (as discussed above) can be interpreted as conforming to the second approach, restricting the *distribution* of views or preferences across a group. Recent work in behavioural social choice (see, for example, Regenwetter et al. 2006, particularly chapters 1 and 3) suggests that the latter is an especially effective way of avoiding paradoxes or impossibility results. For example, on the question of how likely it is that a majority cycle will occur in a population, Regenwetter et al. (2006) show that 'under most reasonable circumstances, there is no paradox.'

Might List and Pettit respond by saying that they intended (U) to be understood as a normative requirement upon how group agents take decisions? One could then ask why this sort of robustness is a reasonable thing to require of groups. Why must a collective decision procedure always deliver a verdict no matter the group composition? We suggest that the overly robust requirement of (U) is often inconsistent with the purpose for which decision-making groups are constructed. To see this, consider a hypothetical case of board deliberations at a regulator tasked with revising aspects of international regulation. Suppose that board members are selected in order to ensure appropriate diversity regarding geographical representation, areas of expertise, and past experience. We might also suppose further that such diversity is required by the board's constitution. (U) states that the aggregation function must allow *any combination of logically possible belief profiles*, so long as they are consistent. But given the purpose and remit of the board, this seems an unnecessarily robust requirement. Since, in this thought experiment, the board is tasked with the narrow remit of *revising* aspects of international accounting regulation, we need to keep in mind the plausible causal histories which would lead someone to become a board member in the first place. Those causal histories, typically subject to structural constraints, restrict the kinds of beliefs board members could plausibly hold; for example, it is highly implausible that a board member would suggest eliminating financial reporting, even though this is a logically consistent belief profile over the agenda and one which falls within the literal remit of the board. Given the diversity requirements of geographical

Footnote 13 continued

'conceptualisation at the level of the individual' to mean just that the conceptualisation refers to the beliefs and desires of individuals. A dynamic nominalist can treat one's self-identification with a group as nothing more than treating the name of the group as a label which applies to oneself (see Hacking 1999, 1996).

[14] Shortly after Arrow's seminal result, Black (1958) and Sen (1966) put forward various proposals on natural ways of restricting the domain ('single peakedness' and 'value restriction', respectively) which would avoid the impossibility result.

[15] In particular, in the UK the Companies Act 2006 prohibits the following individuals from being directors of a company: children under the age of 16 and individuals who—as a result of prior sanctions—are legally disqualified from serving as company directors.

representation, expertise and experience, it's highly unlikely that all other logically possible combinations of belief profiles could arise.

One might object: yes, it is *unlikely* but not *impossible* that such a collection of belief profiles would be presented. Our reply to this objection is that not all logically possible profiles are compatible with the identity conditions which make the board, or the group, *the kind of group that it is*. Suppose, for example, that the Supreme Court of the United States was populated by nine judges who, only after being nominated to the bench, revealed themselves to be extreme judicial activists who showed incredible creativity and originality in legal interpretation. These belief profiles, although logically consistent and thus logically permissible, would likely run afoul of the objection that such judges were engaged in an abuse of their authority and in violation of their role, threatening to usurp the power of the legislative and executive branch and thus no longer legitimate. In this scenario, one could argue that not all logically permissible profiles are compatible with the constitutive conditions of the group. If so, the normative interpretation still does not succeed in establishing that (U) should apply, in general.

3.2 Groups can act irrationally despite their best efforts to avoid doing so (Collective Rationality)

From a descriptive point of view, it may appear unobjectionable to hope that the resulting group attitude will be consistent and complete. There is no doubt some groups go to great lengths striving for consistency. In the case of the IASB, consistency between different regulatory standards is aided by the 'conceptual framework'. This conceptual framework specifies definitions of concepts with which the IASB board is required to comply, and the IASB describes it as a 'practical tool that assists the Board to develop IFRS [International Financial Reporting Standards] that are based on consistent concepts'.[16]

Yet instances exist where the IASB violated (C). In one case, the conceptual framework failed to ensure the use of consistently defined concepts in published IASB standards—a failure which still exists to this day. A project to revise an existing standard on non-financial liabilities, IAS 37, was criticised because the definition of a 'liability' included in a proposed new version was inconsistent with the definition provided by the conceptual framework. When this was noted, the proposed revision was withdrawn.[17] However, at the *very same time* it was withdrawn, another published IASB standard on financial instruments, IAS 39, employed a definition of a liability that was not only *inconsistent* with the conceptual framework, but was in fact a definition very similar to that used in the withdrawn revision of IAS 37. Other standards, in contrast, drew on the definition of 'liability' appearing in the conceptual framework and hence *were* consistent with it. Thus the IASB, even with the aide of the concep-

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[16] http://www.ifrs.org/Current-Projects/IASB-Projects/Conceptual-Framework/Pages/Conceptual-Framework-Summary.aspx.

[17] A paper for consultation prepared by the project team summarises the feedback received from constituents in respect of the second exposure draft published in 2010. One important criticism raised was that the project risked 'undermining the authority of the framework' because it proposed an existence criterion for a liability that was at odds with that set out in the conceptual framework (see IASB Project Team 2010).

tual framework, failed to achieve consistency of the concepts used in the regulation they designed. This shows that the group decisions arrived at by IASB occasionally violated (C) despite considerable efforts to comply.

In summary, the existence of inconsistent definitions in IASB standards shows that, despite (C) having *prima facie* intuitive appeal, the requirement clearly cannot be interpreted as a general descriptive characterisation of the outcomes of group deliberation. And, as with (U) discussed earlier, these violations of (C) are explicable when conceptualised at the level of the individual. The inability of decision-makers such as the IASB board members to think through the implications of many pages of regulation, with inconsistencies resulting, is an unsurprising observation about human psychology and cognitive capacities. The existence of such inconsistencies produced by group decisions is a well-known phenomenon, widely recognised by the legal community as a frequently exploited aspect of regulatory regimes (Cauble 2017).

Could one argue that (C) ought to be understood just as a *normative* requirement upon group agents? In general, we agree that there are powerful reasons for why (C) is a reasonable requirement to impose upon group decisions, especially regarding consistency. As such, (C) is the only one of the four axioms advanced by List and Pettit which we do not believe is problematic, under a normative interpretation.

That said, we would like to make two observations which suggest potential ways in which (C) could be refined. First, we wonder why List and Pettit claim that, 'if a group is to perform robustly as an agent, it must generally avoid attitudinal incompleteness.' It may in fact be normatively prudent—or even normatively required—to allow the outcome of a group deliberation to be incomplete in some cases. A group may, for example, determine that the best response to a difficult decision is to delay reaching a decision in the hope that exogenous factors will either force a decision, thereby allowing the group to abrogate responsibility, or that the item will cease to require action and thus drop off the agenda. Anyone who has experienced a departmental meeting will be well aware of both phenomena. Both routes are important tools for navigating delicate political issues, and it would be sub-optimal to deny groups access to such procedures.[18] In cases where the group deliberation involves moral problems, perhaps none of the options available are morally permissible. In such an instance, it may be normatively appropriate for the group to refuse to take a decision.[19]

Second, although consistency may be a reasonable requirement when we consider the aggregation of *beliefs*, it is less clear that mere consistency is the right requirement when we consider the aggregation of pro-attitudes such as *desires*. Whereas a set of beliefs is consistent if there is a possible world in which they are all *true*, a set of

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[18] One might object that this could be easily accommodated in the judgement aggregation framework by allowing "no decision" as an admissible outcome of the aggregation function. While that certainly is formally possible, it essentially admits the validity of our criticism.

[19] The Scottish legal system offers an interesting illustration of how such an option can be institutionalised. Under Scottish law, a criminal trial may arrive at one of three verdicts: guilty, not proven, and not guilty. Although the latter two verdicts are both acquittals, there are important differences in their connotations. Bray (2005) argues that it would be useful to expand the set of possible verdicts in American criminal law by introducing a 'not proven' option. The 'not proven' option allows a jury to determine insufficient evidence of both guilt and innocence has been produced, without needing to declare a mistrial with its inevitable connotation of procedural errors. This is an example of a formal satisfaction of completeness while not really taking a decision, as in footnote 18.

desires is consistent if there is a possible world in which they are all *satisfiable*. This satisfiability requirement checks whether the desires are compossible, yet compossibility, on its own, is insufficient to ensure that a set of desires is *rational*. Some have argued that rational desires requires specific reference to one's plans, so that one is not at any point taking action which serves to thwart one's overarching goals (Bratman 1987). Rationality of desires thus requires a higher evaluative standard than merely compossibility: it should identify a set of desires which are mutually supportive, such that trying to satisfy one desire does not thwart one's ability to satisfy others.

3.3 Some group members are more equal than others (Anonymity)

Empirical evidence indicates that some groups behave in ways which descriptively violate (A). In the case of the IASB, interviews demonstrated (A) was frequently violated in two ways. First, a sub-group of the board came to dominate discussions and ultimately wielded a decisive influence on the board decisions (Morley 2016). Second, and a point relevant for the general theory of judgement aggregation, some board members also influenced the technical content on which the board ultimately voted by *shaping the agenda* on which the group had to form a collective attitude. Group agendas, in the repeated context, are not simply given.

Regarding the first point, it is important to appreciate that, as would be expected in most groups having to make a decision, competing views existed at the IASB. This subgroup was nevertheless able to counter the fragmented set of those opposing the use of fair value (Lennard 2002). How? Interviews reveal that basic social psychological factors were at work: members of the fair value group were described by staff members as having particularly forceful personalities, which enabled them to influence the outcome of board discussions.[20] The members of the fair value group, in particular, tended to sway opinion on the board. What is important to note is that this is not simply an instance of a handful of people being more influential because they were *experts*, and this is also not an illustration of how individual influence derives from a person's ability to reveal evidence or suggest previously unconsidered arguments to fellow board members. Instead, in this case the influence of the subgroup derived primarily from its members' ability to brute force the outcomes of discussions using psychological tactics and social dominance.

Let us now turn to the second point, about how some board members played a critical role in shaping the agenda. IASB procedures require technical staff—that is, people *separate* from the board members—to draft the proposed standards on which board members deliberate and vote. This is supposed to introduce a layer of separation between agenda-setting and the adoption of a standard by the board. In contravention of the procedures, there were three ways in which some board members

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[20] Their influence resulted from a number of unique characteristics of the individual group members, such as having significant experience in standard setting and even the fact that they were native English speakers when many of the non-fair value group board members were not. In a socially and politically divisive group setting, the fact that a person has less than native fluency often put that person at a distinct disadvantage: their inability to communicate as confidently, forcefully and articulately meant that their points were overlooked or paid less attention. This is an example of how, in the context of intragroup dynamics, sometimes what is *said* is less important than *how* it is said.

determined elements of the content of the proposed regulation on which the board voted. First, some board members met with the technical staff to discuss proposals outside the official channels. These indirect conversations meant that those board members influenced the way in which the technical staff would think about the issues under consideration and draft proposals for inclusion in a standard. Second, in some cases board members actually *wrote* the content for the technical staff—giving them explicit text to insert verbatim into the standard. Finally, some board members were involved in the recruiting and hiring of technical staff, thereby ensuring that the new members brought in had views which conformed to that of the board member. In all three instances, (A) fails because those few board members were more influential than the others.

From a normative point of view, (A) seems eminently defensible as a principle governing group deliberation *in certain instances* where democratic legitimacy matters, such as decisions made by juries, or other groups constituted with similar ends in mind. However, it is important not to be led astray by these examples, for clearly not all groups are of that kind. Many groups are constituted for a particular purpose to which all other group activities are subordinate. The UK Companies Act 2006 (¶172) requires a director of a company to 'promote the success of the company for the benefit of its members as a whole.' A tension exists between the requirement to benefit the company and the requirement of (A), due to the fact that differential expertise of individuals on the board is necessary for optimal decision-making. The functional titles of board members reflect the institutionalisation of individual expertise: human resources director, finance director, chief risk officer, marketing director, and so on. Given that talents and skills are distributed unequally across persons, anonymity may conflict with the need to defer to experts in the group. Why should the views of each member on the board of directors be given equal weight when determining the collective decision given that doing so would undermine the ability of the board to make good decisions by drawing on the individual technical expertise of board members?

Here we have argued that (A) is descriptively inaccurate, in many contexts, as many decision-making groups actively seek out individual experts who contribute differentially to various issues. Furthermore, as the case study demonstrates, (A) can fail in practice for a number of different reasons, such as facts of individual personality and psychology. We then argued that (A) is normatively implausible as a general principle: individual decisions may be subsumed within larger decision-making 'packages' where the views of individual experts may be disproportionately weighted. Indeed, this may be essential for the group to achieve its overall goals.

Recall that the reconstruction of the List and Pettit argument provided in Sect. 2 concluded that they take $\neg(A) \vee \neg(S)$ to hold for most groups. The arguments of this section raise the question why (A) was given such prominence in the first place.

3.4 Politics, horse-trading, and what really matters (Systematicity)

For deliberations where there is an objective fact of the matter regarding the truth of each proposition and independent evidence can be collected in support of accepting (or rejecting) each proposition, (S) has some *prima facie* plausibility. Yet the moment we

consider deliberation about cases where there may not be an objective fact of the matter, or where independent evidence is not available, or where theoretical interdependencies become complex, (S) seems implausible. This is because it is in precisely such cases that we are interested in the interconnections *across* propositions, where one of the factors of merit is the overall theoretical coherence of the view reached. A focus on coherence considerations is denied by (S).

Furthermore, in cases where the group decision concerns future-directed issues, such as formulating goals, strategies, and plans, (S) excludes, as a matter of principle, the ability to compromise or negotiate. This matters because compromise is crucial for the smooth running of committees and groups, for which the relative strength of people's preferences is invoked to enable trade-offs necessary in the context of the overall effectiveness of the group, rather than the effectiveness at producing a decision. In the case of the IASB, group members often found themselves compromising on the *content* of particular standards (that is, what they actually believed would be the best possible outcome) in order to get the standard published (which required getting approval of the relevant external stakeholders). The IASB occasionally made explicit political decisions to refrain from publishing one standard in order to have a better chance of success with another, even though there was little conceptual connection between the two. This kind of horse-trading frequently occurs in game theoretic contexts; it is important to recognise that, when we look at the fine-grain details of intragroup deliberation, group decisions are often shot through with such game theoretic considerations.

In 1995 the IASC (the predecessor to the IASB) faced an existential threat. In order to retain its authority as an international accounting standard setter, it had to comply with a requirement by the international regulator of stock exchanges (IOSCO) to produce a set of core standards in three years, including a standard on financial instruments. If the IASC failed in this, it would not gain IOSCO endorsement for any of its standards, and consequently the standards would not later have been applied to EU listed companies. This pressure from IOSCO led to an outright violation of (S). The IASC chose not to deliberate on the technical content of a core standard on financial instruments because concerns over the potential existential threat posed by a failure to publish overrode concerns about the particular content of the standard. Rather than producing a new standard from scratch, the board decided to save time by copying much of a core standard on financial instruments produced by its US counterpart, the Financial Accounting Standards Board (FASB). According to a former IASC board member, the board spent very little time deliberating on the detailed technical content and voted through a standard, that was copied almost verbatim from the US (McGregor 1999).

Essentially, this standard was approved by the IASC for reasons other than their attitudes on the individual parts of the proposal. This exhibits an interesting way in which (S) may fail: deriving not from an interaction between the beliefs of individuals concerning other propositions *on the agenda*—what we might call an *internal* failure of (S)—but rather from an interaction between the individual group members' beliefs about non-agenda concerns (e.g., the IASC needs to remain relevant) and their beliefs concerning a number of *external* factors in the world (e.g., 'IOSCO would approve of this regulation'). Note that the fact individual decision makers chose to act in this way

does not mean that they did not have beliefs—potentially very strong beliefs—about what content the standard under deliberation *should* have featured, if such external pressures did not exist. It is just that, in a non-ideal world, such beliefs can take a back seat to other considerations.

The important point to note is that some failures of (S) can occur in ways which are entirely explicable and understandable at the level of the individual. Such failures typically involve individual beliefs about political or game-theoretic considerations existing in the wider background context in which group deliberation takes place. Horse-trading often results in compromises, where a person agrees to give up one thing they believe in order to get something else they care about more.

Although we have so far confined ourselves to examining these factors from the point of view of whether (S) can be interpreted as providing a descriptive characterisation of group deliberation, it is also easy to see that arguments can be made challenging (S) as a normative principle covering all forms of group deliberation. For example, not all information relevant for a decision will necessarily be reflected or contained within the agenda. Given this, it may be rationally prudent to allow the group decision to depend on other information on a proposition-by-proposition basis, which may yield failures of (S) in the aggregate. As noted earlier, holistic considerations typically play a role in the formation of *individual* beliefs, as Quine's famous metaphor of the 'web of belief' makes salient; it would thus appear natural to allow holistic considerations to occur at the level of group beliefs. But, then, whether or not holistic considerations matter for the formation of group belief is independent from whether or not it can be understood or explained at the level of the individual.

4 Of collectives and individuals

Although there are a number of implications of our argument, we would like to call attention to two, in particular. The first is that while we grant that List and Pettit may have, in some sense, shown the *possibility* of irreducible group agents, the burden of proof regarding whether irreducible group agents actually exist—and, hence, that we need to radically rethink how "social and economic science should proceed in explaining the behaviour of firms, states, and churches" (List and Pettit 2011, p. 1)— has shifted. The reason for this is that there is nothing about the core argument given by List and Pettit which forces one to think that irreducible group agents are a widespread phenomenon, even in cases where (S) fails to hold. (S) may fail in ways that are compatible with irreducible group agents, and it may fail in ways that are compatible with reducible group agents. The failure of (S), on its own, is entirely indeterminate as to whether a group agent is irreducible or reducible.

The second, and we believe more important implication, is that we have shown the taxonomy of group agents to be richer than previously appreciated. *Even if* one continues to accept the core of the List and Pettit argument and that *some* group agents are inexplicable at the level of the individual, we have argued there also exist some group agents (equally deserving of the name) which *are* explicable at the level of the individual. What serves to create the unique *group* aspect of the group agent, in these latter cases, is how individual attributes combine and interact through the

dynamics of intragroup deliberation. In both cases—the reducible and irreducible cases—the actions and choices made by the group agent are not obtained by mere additive combination of the beliefs and desires of the individuals who constitute the group.

The connection between a group's collective output and the individual inputs can indeed appear very mysterious. But the point to appreciate is the following: whether it is possible to '[track] the dispositions of the group agent, and [interact] with it as an agent to contest or interrogate, persuade or coerce, if we conceptualize its doing at the individual level' (List and Pettit 2011, pp. 76–77) largely depends on what one takes the class of *admissible attributes* at the individual level to be. A restricted set of attributes, consisting of only some of all the possible individual attributes, may very well not be able to be related in any comprehensible way to the set of collective behaviours generated by all possible individual attributes.

It is sometimes the case that whether something is possible depends on the expressive capabilities of the language used. Consider the following example: the Picard-Lindelöf theorem states conditions under which solutions to a system of first-order differential equations with given initial conditions exist. But since not all solutions can be described using elementary functions, if one restricts the language used to express solutions to only elementary functions, then it is no longer the case that a solution always exists, even if the conditions of the theorem are met. Sometimes an impossibility result (such as, here, whether it is possible to solve the system of differential equations) reflects assumptions made about the expressive capabilities of the underlying language.

We suggest that by expanding the set of individual attributes that one takes to be relevant—expanding the expressive capabilities of the language—in a way informed by psychology, political science, sociology and other social sciences, remarkably complex and surprising group behaviour can exist alongside the ability to explain that group behaviour at the level of the individual, when one looks close enough. Using an expanded set of individual attributes may allow us to develop a more nuanced and subtle theory of group agency.

In the remainder of this section, we argue that the concept of group agency, and how it relates to individual human attributes, needs to be understood in the light of three complementary factors. First, that individual human psychological states are much more complex than the simple belief-desire model assumed by much of traditional decision theory and judgement aggregation (although, of course, some exceptions do exist). Second, that human decision processes are causally complex and are a superset of logical or probabilistic reasoning. Third, that human psychology, rightly or wrongly, is influenced by a number of biases, both individual and social. Taken together, these factors point to a relationship between group agency and the attributes of individuals which may be very complex yet, at the same time, admitting explanation at the level of the individual.

First, as noted, much of the philosophical literature on collective decision making assumes the standard folk psychological account of human cognition. Individuals have well-defined and precisely individuated doxastic and conative states. The doxastic states can either be categorical (all-or-nothing), typically called *beliefs*, or occur in gradations, typically called *credences*. The relations between beliefs can be stated

using the standard logical connectives, and individuals are assumed to have consistent mental states.

Yet we know that this model, despite its wide use within economics, decision theory, and formal epistemology, does not do justice to the complexities of human cognition. One does not need to go as far as the eliminative materialists (Churchland 1981, 1986, 1988) to question how well folk-psychology maps on to the structure of human thought. Pettigrew (2015) has argued that, when it comes to categorical doxastic states, that there are a *plurality* of categorical doxastic states. When there is more than one kind of doxastic state, each of which is 'governed by a different set of norms' (Pettigrew 2015, p. 202), the question of how these various categorical doxastic states interact looms large. And the problem ramifies further, for even though Pettigrew assumes that only one kind of credence exists, this, too, can be questioned. Although Keynes' theory of probability (Keynes 1921) which allowed people to have both qualitative and quantitative probabilities—that is, more than one type of credence—some of which were non-comparable, has fallen out of favour, some have attempted to rehabilitate it (see Runde 1994). This rehabilitation is no idle exercise: as anyone who has sat on a board charged with developing a risk register can attest, people often have to make judgements about risk when well-defined credences are either not available or simply do not exist. These qualitative risk judgements, of whether something is 'likely' or 'probable', sit alongside other risk judgements, such as knowing that a certain quantifiable percentage of products will have manufacturing defects. People have to make decisions taking into account both types of risk. So there are reasons to think that human cognition is actually fragmented into a multiplicity of quantitative and qualitative doxastic states.

Second, that complexity in the structure of human cognition is mirrored in the complexity of the types of inference we find in human thought. Gigerenzer (2008) argues, for example, that much decision-making by individuals is not consciously deliberative nor propositional in nature. Similarly, the extensive dual-systems literature in psychology (for an initial sampling, see Chaiken and Trope 1999; Jones and Jacoby 2001; Evans 2003; Sun et al. 2005; Evans 2008; Greene 2009; Vaisey 2009) suggests that individual decision-making can either be based on non-conscious, non-propositional means (System 1) or explicit, conscious, propositional reasoning (System 2). What is relevant, for our purpose, is that whether System 1 or System 2 operates, in a particular instance, is not something under our conscious control. Taking dual-systems approaches to human cognition seriously, any attempt to understand group decision making will thereby be descriptively inadequate if the relationship between individual inputs and the group output is modelled purely in terms of individual System 2 processes.[21]

Third, additional complicating psychological factors exist. Individual human decisions are often influenced by one or more of the following factors: path dependencies, cognitive biases, the occurrence of various kinds of error, context dependencies, future-directed concerns (e.g., direct and indirect reciprocity), conditional preferences based

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[21] And, even if one wants to take a purely normative approach, it would still require an argument to say why System 1 processes are normatively irrelevant. After all, System 1 processes feature, in part, subconscious drivers such as emotive responses, and one might well think that emotions and other aspects of moral psychology—which are ostensibly System 1—are normatively relevant.

on social norms, and social identities (recall the 'space cadets' and 'dinosaurs' from before). We may well consider these factors to not be *rational* influences on human decisions, but it is a simple fact that they *do* influence, for better or worse, human decisions.

When we take all of these factors into consideration, we are led to the following conclusion: a group may behave in remarkably novel ways, given its membership, but this can derive from the sheer number of ways individual traits and dispositions may be contextually triggered by the presence of others. A group may decide or act in a way that we would not have predicted, given the attributes of the individual members in isolation, but that is just because not all individual attributes are displayed or realised in the absence of other people. But this is simply a point about the difficulty of *ex ante* prediction of group behaviour, given information about individual members. The difficulty of *ex ante* prediction can coexist with the possibility of *ex post* explanation, at the level of the individual, of why the group did what it did.[22]

5 Conclusion

What are the lessons to draw from this analysis and case study? The first is that we have given a number of reasons challenging the claim that groups are, in general, such that their decisions or behaviours are incapable of being explained at the level of the individual. While groups may behave in surprising ways, given the nature of the individuals who constitute them, and may even appear to have 'minds of their own,' it will often still be the case that groups can be explained at the level of the individual. This is, in part, because individual attributes are often more complex and context-dependent than modelled. When we take into account the multiple ways those individual attributes can interact via the dynamics of intragroup deliberation, many surprising outcomes may result, admitting *ex post* explanation, even if not *ex ante* prediction.

The second is that, although the existence of irreducible group agents remains a conceptual possibility, it seems actual evidence that *any*, much less *most* or *all*, groups are so constituted is limited. While the idea of irreducible group agents for which 'we have little chance of tracking the dispositions of the group agent, and of interacting with it as an agent to contest or interrogate, persuade or coerce, if we conceptualize its doing at the individual level' retains its heady appeal, more work needs to be done to provide real reasons for thinking such groups exist. An irreducible group agent is not one for which it is merely hard to explain at the level of the individual, but one for which such explanation cannot be given. As we have shown, in some cases it is certainly possible to explain why a group does what it does, even when the group behaviour

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[22] Perhaps the following illustration, taken from the theory of computation, will help clarify: it is impossible to have a computable function which says whether a given configuration will occur in Conway's 'Game of Life', given a set of initial conditions. To do so would be tantamount to being able to solve the halting problem, since the Game of Life is Turing complete (Rendell 2016). Yet we can give a complete, computable explanation for how any shape which *does* come about, *did* come about, from the initial conditions: all we need to run is run the Game of Life forward, step-by-step, until the shape appears. This is one difference between the difficulty of *ex ante* prediction and *ex post* explanation.

appears radically decoupled from what one would expect, given the individuals who constitute it.

Appendix A. List of interviewees

In-text reference	Role	Date interviewed
Interviewee-1	Former IASC technical staff	December 2009
Interviewee-2	FASB technical staff	January 2010
Interviewee-3	Former ASB technical staff and IASC technical staff	January 2010
Interviewee-4	Former IASB and ASB board member	February 2010
Interviewee-5	Former ASB technical staff	February 2010
Interviewee-6	Former IASB board member	March & May 2010
Interviewee-7	Financial Reporting Committee (ASB) and audit firm partner	August 2010
Interviewee-8	Chartered Financial Analyst association staff	August 2010
Interviewee-9	ICAEW technical staff	August 2010
Interviewee-10	Former FASB technical staff and IASB board member	November 2010
Interviewee-11	FASB technical staff	November 2010
Interviewee-12	Financial analyst	November 2010
Interviewee-13	Former ASB and IASB board Member	January 2011
Interviewee-14	Former IASC and ASC board member	May 2011
Interviewee-15	Technical staff IASB	August 2011
Interviewee-16	Technical staff IASB	June 2013
Interviewee-17	Technical staff IASB	April 2014
Interviewee-18	Technical staff IASB	November 2014
Interviewee-19	Former IASB board member	February 2015
Interviewee-20	Technical staff IASB	August 2016
Interviewee-21	Technical staff IASB	September 2016

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